A Handbook on
Licensing and Environment Assessment Process for Hydropower Development in Nepal

Government of Nepal
Ministry of Environment, Science and Technology
With the assistance of
Royal Norwegian Government
and technical assistance of
Norwegian Directorate for Nature Management
Kathmandu, Nepal
September 2006

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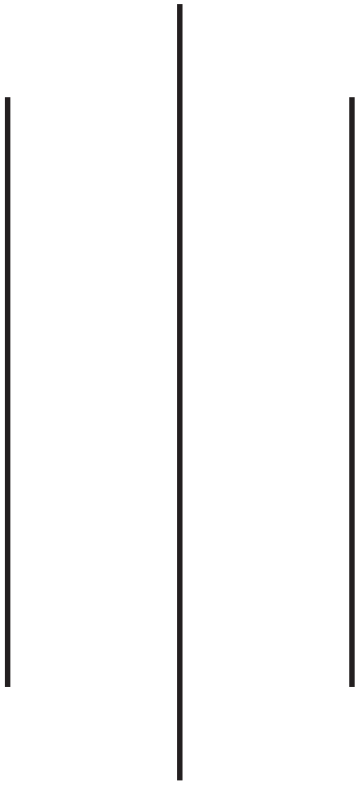

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Preface

Availability of perennial sources of water and geo-physical conditions provide ample opportunities for hydropower development, one of the prime movers of socio-economic development in Nepal. Despite the abundant potential of hydropower generation, water resources have not been harnessed to the desired extent. Realizing it, the Government of Nepal (GON) has given priority for the development of hydropower sector with private sector participation. In order to ensure environmentally sound and sustainable development of this sector, the Government has implemented policies and enforced laws to promote the integration of environmental aspects into development planning and administration. With a view to attain this broad objective, this handbook is prepared to encourage the project developers and investors to make their investments environment-friendly and sustainable. This handbook provides information on licensing procedures and environmental assessments process. It also contains elaborated information on policies, laws and national and international commitments on the hydropower sector and the environment and ways to comply with them. I hope that this handbook will be useful to hydropower developers, academia, and environmental assessment practitioners and professionals.

The handbook has been prepared under the project *'Regulating and Monitoring Capacity Building for Environmental Impact Assessment (EIA) of Hydropower Projects in Nepal'* implemented by the Government of Nepal with the financial assistance of the Royal Norwegian Government, and technical assistance of the Norwegian Directorate for Nature Management (DN).

I would like to appreciate the contribution of the Royal Norwegian Government for the assistance to implement this project. The participants of the two days workshop on *'Handbook on Hydropower Development Licensing and EIA*, held on 9 and 10 September 2004, are thankful for providing their comments and suggestions to improve it. The Ministry also appreciates the contribution of Messrs. Stephen Gorzula, Reider Hindrum, Manohar Khanal, Prabhin R. Aryal, Sudesh K. Malla, Bhai R. Manandhar, Sherjang Karki, Dilip K. Sadaula, Guru P. Neupane, Aangira Acharya, and Gopal K. Pandey, Mrs. Neera Pradahan and Mrs. Meera Joshi. I would also like to thank Mr. Kuber Mani Nepal of Arun Valley Hydropower Company for incorporating the comments of the reviewers and workshop participants.

I would also like to thank Mr. Batu Krishna Uprety, Environment Officer and Chief of Environment Assessment Section of this Ministry in bringing the guideline in the present form.

(Bal Krishna Prasai)
Secretary

September 2006

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Annexes

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Acronyms

AEPC	Alternative Energy Promotion Centre
B.S.	Bikram Sambat (Nepali Calendar)
BOD	Biological Oxygen Demand
CBO	Community-Based Organization
CBS	Central Bureau of Statistics
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CO	Carbon Monoxide
CO2	Carbon Dioxide
COD	Chemical Oxygen Demand
DDC	District Development Committee
DHM	Department of Hydrology and Meteorology
DNPWC	Department of National Parks and Wildlife Conservation
DO	Dissolved Oxygen
DOED	Department of Electricity Development
DOF	Department of Forest
DOI	Department of Industry
DRMN	Development Resources Mobilization Network
DWIDP	Department of Water Induced Disaster Prevention
EA	Environmental Assessment
ECG	Environmental Core Group
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environment Protection Act
EPR	Environment Protection Rules
ESSD	Environmental and Social Studies Department
ETFC	Electricity Tariff Fixation Commission
FDF	Power Development Fund
GW	Gegawatt
ha	Hectare
HMG/N	His Majesty's Government of Nepal (then)
ICIMOD	International Centre for Integrated Mountain Development
IEE	Initial Environmental Examination
IEM	Institute of Environmental Management
IIDS	Institute of Integrated Development Studies
IOF	Institute of Forestry
IRG	International Resource Group Ltd.
IUCN	The World Conservation Union
KMTNC	King Mahendra Trust for Nature Conservation
KU	Kathmandu University
kW	Kilowatt
LRWL	Lowest Regulated Water Level
MFSC	Ministry of Forests and Soil Conservation
MOPE	Ministry of Population and Environment (then)
MOWR	Ministry of Water Resources
MW	Megawatt
NEA	Nepal Electricity Authority
NPCS	National Planning Commission Secretariat
NO2	Nitrogen Dioxide
PAF	Project Affected Family
PbO2	Lead Dioxide
pH	Chemical unit of measure for acidity and alkalinity
PIC	Project Information Centre
PRA	Participatory Rapid Appraisal
RRA	Rapid Rural Appraisal
SchEMS	School of Environmental Management and Sustainable Development
SPAF	Seriously Project Affected Family
SO2	Sulphur Dioxide
TOR	Terms of Reference
TSS	Total Suspended Solid
TU	Tribhuvan University
VDC	Village Development Committee
WECS	Water and Energy Commission Secretariat

Policy, Legislation and Convention

The then His Majesty's Government of Nepal (HMG/N) emphasized the implementation of environmentally sound economic development programmes and the growth of private sector through economic liberalization process. The Tenth Plan (2002-2007) has stressed on implementation of small, medium and large hydropower projects with the objective of utilizing water resources in the national interest along with the protection of the environment.

The review of existing policy, legislation and international convention is important prior to undertake the development works. Hence, this review is made with special focus on hydropower development, in particular licensing procedure and environmental assessment.

1.1 Hydropower Development Policy

Based on experiences gained in the course of implementing the principles followed by the Hydropower Development Policy of 1992, emerging new concepts in the international market and their impacts, technological development, possibility of exporting electricity, and foreign investment and commitment on the environmental protection, the Hydropower Development Policy, 2001 (B.S. 2058) was introduced with a view to make clear, transparent and investment-friendly hydropower development in Nepal. The important working policies as mentioned in this policy are as follows:

- Rural electrification shall be encouraged in rural areas affected directly from the electricity generation project. Royalty on electric energy consumed in such an area shall be exempted. Such exemption shall be given till the first 15 years of the commencement of commercial generation;
- Rural electrification fund shall be established for the development of micro-hydropower and rural electrification by pooling a certain percentage of the amount received as royalty;
- Provisions will be made for providing grant through Alternative Energy Promotion Center (AEPC) to domestic private sector to generate and distribute electricity by building hydropower project of up to 100 KW at the rural level;
- Provisions shall be made such that the local people can also be directly benefited from the operation of the hydropower generation project. Such provisions shall be included in the agreement to be made with the licensee;
- Implementation of Environmental Impact Assessment (EIA) recommendations shall be emphasized;
- Downstream release shall be maintained, either 10% of minimum mean monthly discharge or the quantum identified in the EIA study whichever is higher;
- Private sector shall be encouraged to acquire the houses or land on its own;
- Rehabilitation and resettlement shall be made for displaced families as specified by the government; and
- Royalty shall be shared as prescribed with the District Development Committee (DDCs) and will be spent in development and construction works.

1.2 Legislation

Nepal's laws have emphasised on the protection of the environment, forests and wildlife. A number of water resources project might affect the environment and natural resources. The relevant legislation on hydropower and environment conservation including major provisions is as follows:

- Water Resources Act, 1992 (2049 B.S.)
- Electricity Act, 1992 (2049 B.S.)

- Environment Protection Act, 1996 (2053 B.S.)
- Forest Act, 1993 (2049 B.S.)
- National Parks and Wildlife Conservation Act, 1973 (2029 B.S.)
- Foreign Investment and Technology Transfer Act, 1992 (2049 B.S.)
- Local Self-Governance Act, 1999 (2055 B.S.)
- Industrial Enterprises Act, 1992 (2049 B.S.)
- Land Acquisition Act, 1977 (2034 B.S.)

1.2.1 Water Resources Act, 1992

The Water Resource Act, 1992 is a comprehensive legislation on water resources. It deals with the development, utilization and conservation of the water resources in the country. The Act states that the State is the owner of water resources of the country. This Act grants right to use water by individuals, organisations and private sector. No person shall be entitled to utilize the water resources without obtaining a license under this Act. The licensee has to pay prescribed charge or annual fee for utilizing the water resources. Prior approval is required to transfer the license in any manner. The service may be stopped or the license can be cancelled as prescribed. License is not required for the usage of water resources in the following situation:

- For one's own drinking and other domestic use on an individual or collective basis;
- For the irrigation of one's own land on an individual or collective basis;
- For the purpose of running water-mill or water-grinder as cottage industry; and
- For the use of boat on personal basis for local transportation;

Section 16 of the Act deals with utilization and acquisition of land and house. This Section allows the licensee to submit an application to the Government of Nepal if someone's land or house needs to be acquired. The Section further states that the Government may make available such land and house in the same way as it makes available to any corporate body under the prevailing laws. Sections 18, 19 and 20 of the Act deal with water quality standards, water pollution and adverse effect on the environment. Sections 18 and 19 allow the Government to prescribe pollution tolerance limits and water quality standards for various uses. Sub-section 2 of Section 19 prohibits anyone from polluting water resources to the effect at the prescribed tolerance limits are exceeded. Section 20 of the Act states that "while utilizing water resources, it shall be done in such a way that no significant adverse effect be made on the environment by the way of soil erosion, flood, landslide, or similar other cause". The Act provides the following priority orders to be followed while utilizing the water resources:

1. Drinking and domestic use
2. Irrigation
3. Agricultural uses such as animal husbandry and fisheries
4. Hydro-electricity
5. Cottage industry, industrial enterprises and mining use
6. Navigation
7. Recreational uses, and
8. Other uses

Sub-section 1 of Section 9 of the Act states that "notwithstanding anything written in Section 8, the license relating to the survey of water resources and its utilization for the generation of hydroelectricity shall be governed by the prevailing laws". Regarding the study and development of hydropower project, the *Electricity Act, 1992* shall prevail the *Water Resources Act, 1992*.

1.2.2 Electricity Act, 1992

The *Electricity Act, 1992* emphasised on the management and development of electricity sector related to survey, generation, transmission and distribution of electricity and to standardize and safeguard

electricity services. The Act states that no person or corporate body shall be entitled to conduct survey, generation, transmission or distribution of electricity without obtaining license. However, no license is required for project having installed capacity of 100kW to 1000kW but shall have to give information to the Department of Electricity Development (DOED) as prescribed.

Sub-section 1 of Section 4 of the Act states that "any person or corporate body willing to conduct generation, transmission or distribution of electricity shall be required to submit an application to the prescribed officer along with the economic, technical and environmental study report and with other prescribed particulars on the relevant subject. Such study report shall not be required to be included while applying for the license to conduct the survey for generation, transmission and/or distribution".

Sub-section 7 of Section 12 of the Act states that "custom duties and sales tax shall be levied for the import of construction equipment, machines, tools and equipment required for repair and maintenance as well as the spare parts thereof for hydropower generation, transmission and distribution which are produced and sold by local industries. Only 1 percent customs duties shall be levied for the import of materials, which are not produced in Nepal and no charge for import license and sales tax shall be levied for such imports."

Section 24 of the Act states that, "while carrying out electricity generation, transmission or distribution, it shall be carried out in such a way that no significant adverse effect be made on the environment due to soil erosion, flood, landslide, air pollution etc."

Utilization and acquisition of land and houses are dealt in Section 33 of the Act. This Section allows the licensee to submit an application to the Government of Nepal if other land or house needs to be acquired. It further states that the Government may make available such land and house in the same manner as it makes available to any corporate body under the prevailing laws. Other sections of the Act primarily deal with details regarding license, tariffs, taxes and penalties.

1.2.3 Environment Protection Act, 1996

The *Environment Protection Act, 1996* is the principal legal framework for environment protection and pollution control. The Act states that proponent shall have to carry out Initial Environmental Examination (IEE) and/or Environmental Impact Assessment (EIA) of the prescribed proposal. The Act provides that no one shall implement or cause to be implemented a proposal without getting it approved from the concerned agency or the Ministry (Ministry of Environment, Science and Technology, MoEST). Section 5 of the Act requires submitting the proposal with IEE or EIA report for approval before the implementation of the prescribed proposal while Section 6 provides approval procedure of such a proposal. Section 18 states that any person carrying out any act without getting a proposal approved under Section 6 or any act contrary to the approved proposal may be punished with a fine up to one hundred thousand rupees or the prescribed authority may close down such act immediately. The Act also empowers the Government to frame Rules including on IEE or EIA and environmental standards.

1.2.4 Forest Act, 1993

The Forest Act, 1993 has provisioned for the development, conservation, management and sustainable use of forest resources to meet the basic needs of forest products of the people, socio-economic development, and environmental promotion. The provisions relating to protected forests, community forests and leasehold forests will have longterm impact on the conservation and sustainable use of biological resources. Section 23 empowers the Government to delineate any part of a national forest that has a special environmental, scientific or cultural importance as a protected forest. It is necessary to prepare and implement operational plan for any protected forest. The government is empowered to grant any part of a national forest to the community users, and as leasehold forests for the purpose of meeting the raw materials required by industries, planting and increasing the production of forest products for sale or use, and promoting eco-tourism or agro-forestry in a manner conducive to the conservation and development of forests.

The Forest Act, 1993 has divided national forest into five categories:

1. **Government-managed Forests**: National forests managed by the Government;
2. **Community Forests**: National forests handed over to user groups for development, conservation and utilisation for the collective benefit of the community;
3. **Leasehold Forests**: National forests leased to any institution established under existing law, industry or individual, for the production of forest products, agro-forestry, tourism or farming of insects and wildlife;
4. **Religious Forests**: National forests handed over to any religious group or community for development, conservation, and utilization; and
5. **Protected Forests**: National forests declared by the Government of Nepal as protected forests in consideration of their special environmental, scientific or cultural significance..

Section 68 of the Act states that "in case there is no alternative except to use the forest area for the implementation of the plan having national priority and if there shall be no significant adverse effect on the environment while implementing such plan, the Government of Nepal may give assent to use any part of the government managed forest, community forest, leasehold forest or religious forest for the implementation of such plan." The government has the ownership of any categories of forests.

1.2.5 National Parks and Wildlife Conservation Act, 1973

The *National Parks and Wildlife Conservation Act, 1973* is the key legal instrument in protecting biodiversity within the protected areas. Section 5 of the Act prohibits, *inter alia*, hunting of animal or bird, building any house, hut or other structure, clearing or cultivating any part of the land, harvesting, cutting, burning or damaging any tree, bush or other forest products, mining within National Parks and/or Wildlife Reserves. Section 5 (J) of the Act also prohibits blocking, diverting any river or stream flowing through National Park or Reserve, or any other source of water, or using any harmful or explosive materials therein. Section 10 of the Act provides protection status to 27 species of mammals, 9 species of birds and 3 species of reptiles.

The Act recognizes six categories of protected areas, namely National Park, Conservation Area, Wildlife Reserve, Hunting Reserve, Strict Nature Reserve and Buffer Zones. Out of 16 protected areas, 14 are directly managed by the Department of National Park and Wildlife Conservation (DNPWC). The Annapurna Conservation Area and Manaslu Conservation Area are managed by a national NGO, the King Mahendra Trust for Nature Conservation (KMTNC).

1.2.6 Industrial Enterprises Act, 1992

The *Industrial Enterprises Act, 1992* promotes for industrial development. The Government is creating an investment-friendly environment to attract investors. The Act states that "no industry shall be nationalized", and that 100% foreign investment, on a selective basis, will be permitted in large and medium scale industries. The Act simplifies the process for import of machinery and raw materials, and repatriation of profits and dividend. Provisions related to hydropower projects include:

- Income tax shall not exceed 20% for any industry (except those producing tobacco or alcohol).
- Industries using 80% or more of Nepali raw materials and Nepali manpower are granted a rebate of income tax at the rate of 10%.
- If an industry diversifies itself through reinvestment in another industry or expands its installed capacity by 25% or more, and modernizes its technology or develops ancillary industries, it is entitled for a deduction of 40% from its taxable income on the amount spent for acquiring new additional fixed assets.
- If an industry installs technology that controls pollution and minimizes the environmental effects it is granted a rebate of 50% of its investment from taxable income.
- The pre-operation cost of an industry for skill development training can be capitalized.

- Income Tax is exempted on dividends received from investment in the industries.
- A foreign investor is levied income tax at the rate of 15% on the income received from technical as well as management service fees and royalty.
- No income tax will be imposed to a foreign investor on the interest income earned from a foreign loan.
- Industries providing year-round employment to six hundred or more Nepali citizens get additional facilities of income tax rebate at the rate of 10% of their tax for that year.

No royalty shall be imposed if an industry generates electricity for its own use (captive power generation).

1.2.7 Foreign Investment and Technology Transfer Act, 1992

The *Foreign Investment and Technology Transfer Act, 1992* governs foreign investment and it has following provisions:

- Foreigners having 100 percent equity participation will be allowed in large and medium scale enterprises, except the negative list industries.
- Firms established with foreign participation will be treated equally with 100 percent Nepali-owned firms.
- Interest paid on foreign loans will be tax-free.
- Foreign investors will be levied 15 percent income tax on income from royalty and technical services.
- Residential and business visas will be provided for foreign investors and their dependents.
- A guarantee of non-nationalization of industry will be ensured.
- Settlements of disputes will be according to the agreement between the contracting parties.
- Repatriation of profit and principal will be allowed.
- Expatriate employees in firms with foreign equity will be allowed to repatriate up to 75 percent of their salary.

1.2.8 Land Acquisition Act, 1977

The *Land Acquisition Act, 1977* empowers the Government to acquire land for development purposes, by paying compensation for the landowner. The Land Acquisition Guidelines, 1993 have been issued to facilitate the acquisition process under the Act.

The Act clearly empowers the Government to acquire necessary land and fixed property of any owner for development use and welfare, diplomatic mission, international organizations after issuing public notice and completing required procedures. Under this Act, the Government can also acquire land for public and private corporations, organizations, private firms for public use and welfare. However, the Government shall not acquire land for corporations, organizations and private firms for agriculture purpose except for research purpose under this Act. The Government shall provide compensation to the concerned person and organization as decided by the Compensation Fixation Committee. The compensation rate to be determined may differ for person whose land was wholly acquired or for those whose land was partially acquired. There are different provisions regarding the compensation rate:

- Compensation rate to landowner whose land has been acquired for government-owned institutions, organizations and local bodies;
- Compensation rate to landowner whose land has been acquired for other institutions and organizations; and
- Compensation rate to land owner whose land exceeds land ceiling according to Land *Reform Act, 1964* (2021 B.S.) acquired for government-owned institutions, organizations and local bodies.

Land acquisition through negotiation is an important aspect included in Section 27 of this Act which has a provision that the Government can acquire land through direct negotiation with the owner. This will minimize dissatisfaction of landowners regarding compensation and loss.

Section 34 of the Act has a provision to return acquired land to the owner if it is not required. Similarly, the Government may also cancel its decision regarding land acquisition.

1.2.9 Local Self-Governance Act, 1999

The *Local Self-Governance Act, 1999* provides provisions on benefit sharing of revenue generated from hydropower projects. The Act empowers VDCs, Municipalities and DDCs to conserve, manage and use their natural resources and collect tax and revenue from the sale and use of such resources and use it for local development.

The special feature under this Act is that VDCs and Municipalities are authorized to generate and distribute electricity (Part 2, Chapter 4, Section 28 clause (E, 3) for VDC and Part 3, Chapter 4, Section 96 clause (C, 8) for municipality).

Similarly, DDCs are authorized for identification, planning, implementation, operation, distribution and maintenance of small rural hydroelectric projects as well as other energy related projects (Part 4, Section 189 clause C). Further they should select the development projects in a manner that such projects should contribute to conserve environment.

Section 220 of the Act provides provision for revenue sharing with DDC, also of water resources and natural resource. Rule 211 of *Local Self-Governance Rules, 1999* reiterates it. As per Schedule 26 of the Rules, 50 percent of the income obtained from the sale of hydroelectricity shall be sent back to the DDC from 2004 onwards. Of this, DDC having powerhouse will obtain 12 percent and 38 percent will be obtained by all DDCs of the development region where the electricity is generated.

1.3 International Conventions

1.3.1 The World Heritage Convention

The 1972 *Convention for the Protection of the World's Cultural and Natural Heritage* has recognised that the physical deterioration or disappearance of any cultural or natural heritage site constitutes a harmful impoverishment to the heritage of all nations, and that therefore cultural and natural heritages need to be preserved as parts of world heritage. As a Party to this Convention, Nepal has designated the Royal Chitwan National Parks and Sagarmatha National Parks as the natural heritage. Eight cultural heritage sites are listed, out of which seven sites (Pashupati Nath, Swayambhu Nath, Boudha Nath, Changu Narayan, Hanumandhoka Durbar, Patan Durbar, Bhaktapur Durbar) are in Kathmandu Valley and one (Lumbini area) is outside Kathmandu Valley.

Nepal has other areas of unique cultural and natural characteristics that might be listed as World Cultural and Natural Heritages. The National Conservation Strategy, 1988 recognised the need to reverse damage and destruction of cultural heritage, as well as encroachment on heritage sites, religious forests and sacred grounds. The Convention urges the Party to protect and conserve such heritages.

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

Nepal became party to *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES) in 1975. CITES has facilitated international co-operation to regulate international trade in endangered wild flora and fauna with the aim of reducing or eliminating trade in species whose numbers or conditions suggest that further removal from their natural habitat would lead to their extinction. The *National Parks and Wildlife Conservation (NPWC) Act, 1973* regulates the trade of species

listed in CITES appendices. The Government has designated the Natural History Museum (Tribhuvan University) and the Department of Plant Resources as the scientific authorities for wild fauna and wild flora respectively. Similarly, the Government has designated the Department of National Parks and Wildlife Conservation and the Department of Forest as the management authorities for wild fauna and flora respectively. The Convention urges Parties not to allow trade in specimens of species included in the CITES Appendices I, II and III except in accordance with the provisions of the Convention.

Pursuant to Section 10 of the NPWC Act, the hunting of animal protected under Schedule 1 is prohibited throughout Nepal. Most of these species are also listed in CITES appendices. Under the NPWC Act, it is illegal to collect, obtain or keep any part of a dead animal protected under Schedule 1 without a certificate, and such goods are prohibited from sale, purchase or disposal. Pursuant to Section 26, any person illegally killing, wounding, purchasing, selling or transferring a protected animal, or keeping as a trophy, selling or purchasing any part thereof, will incur a fine or imprisonment or both.

1.3.3 Ramsar Convention

The *Convention on Wetlands of International Importance especially as Waterfowl Habitat*, known as the Ramsar Convention, has entered into force in 1975. It aims to protect the wetland ecosystems from further destruction. It urges the Parties to conserve wetlands, promote their sustainable utilization, and set aside special areas as wildlife reserve. Every country is required to designate at least one wetland for inclusion on the list of wetlands.

The Government of Nepal accessed the Ramsar Convention in 1987, and designated Koshi Tappu Wildlife Reserve (KTWR) for inclusion in the Ramsar list. KTWR is an important habitat for Nepal's last surviving population of wild water buffalo (*Bubalus bubalis arnee*). Similarly Beesh Hazar Lake (3200 ha.) in Chitwan, Jagadishpur Reservoir (225 ha.) in Kapilvastu, and Ghodaghodi Lake (2500 ha) in Kailali have also been listed as Ramsar sites.

The Strategic Plan of the Ramsar Convention has emphasised on the conservation of the wetlands and urges Parties to conduct EIA of the development proposals that are likely to have significant impacts on the wetlands.

1.3.4 Biodiversity Convention

The *Convention on Biological Diversity, 1992* was opened for signature during the UN Conference on Environment and Development in Rio de Janeiro, Brazil. Nepal signed this Convention during the Rio Summit. The Convention was ratified by the Parliament in 1993 to become its Party. The Convention has entered into force in Nepal on 21 February 1994.

Article 14 of the Convention urges Parties to introduce appropriate procedures requiring EIA of the proposed project that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimising such effects and, where appropriate, allow for public participation in such procedures. The Convention also focuses on reducing transboundary impacts on biodiversity.

There are other international non-legally binding and legally binding instruments that focus on the conservation and protection of the environment and natural resources. The EIA could contribute to address the Convention matters and comply with the international obligations while meeting its national development needs.

Institutional Roles and Responsibilities

Roles and responsibilities of the regulatory organisations are clearly spelt out in the *Business Allocation Rules* of the Government. Major roles and responsibilities of the organisations involved in license processing and environmental assessment are briefly described in this chapter. Also relevant government bodies, academic institutions, and organizations are also listed.

The Ministry of Water Resources (MOWR) provides license for hydropower projects in Nepal. The Department of Electricity Development (DOED) is responsible for processing the applications.

The Ministry of Environment, Science and Technology (MoEST), MOWR and the Ministry of Forests and Soil Conservation (MFSC) and their departments are involved in processing and approval of environmental assessment reports. In cases where a license or certain action is required under the following Acts, the concerned ministries are:

- Ministry of Industry, Commerce and Supplies for *Industrial Enterprises Act, 1992*;
- Ministry of Local Development for *Local Self-Governance Act, 1999*;
- Ministry of Industry, Commerce and Supplies for *Foreign Investment and Technology Transfer Act, 1992*;
- MOWR for *Water Resources Act, 1992*; and *Electricity Act, 1992*; and
- Ministry of Forests and Soil Conservation for *Forest Act, 1993*; *National Parks and Wildlife Conservation Act, 1973*; and *Soil and Water Conservation Act, 1982*.

The following sub-sections highlight major roles and responsibilities of the government institutions and related other organisations.

2.1 Commissions

2.1.1 National Planning Commission

The National Planning Commission (NPC) is the advisory body responsible for the formulation of national development policies, plans and programmes under the directives of the National Development Council. It explores and allocates resources for economic development plans, and programmes. Besides, it facilitates the implementation of development policies, plans and programmes.

The Secretariat consists of functional divisions and sections and Central Bureau of Statistics. The functional divisions are Macro-Economics, Central Monitoring and Evaluation, Plan and Policy Coordination, Poverty Alleviation and Employment, Agriculture and Land Reforms, Water Resources, Electricity and Physical Planning, Human Resources Development, Local Development, Transport and Environment and Administration, Account, Law and Library. The NPC Secretariat emphasises on integrating environmental aspects into the development planning process.

2.1.2 Water and Energy Commission

The Water and Energy Commission was established as an advisory body of the government for the formulation of policies, plans and programmes in the water resources and energy sector. The Commission has its full-fledge, well-structured, well-staffed and equipped secretariat, the Water and Energy Commission Secretariat (WECS). Its functions are to:

a) Formulate and assist in developing policies and strategies in the water resources and energy sector;

b) Provide suggestions, recommendations and guidelines in developing irrigation, hydropower (mega and medium size), and drinking water projects. Besides, WECS is also mandated to formulate and develop policies and plans related to industrial use of water, flood management and in-land navigation along with the protection of the environment relating to the above sector.

c) Provide assistance to the concerned ministries in formulating policies for perspective and/or periodic plans in water resources and energy sector; and

d) Render opinion, advice and recommendations on bilateral and multilateral issues relating to water resources and energy sector.

2.1.3 Electricity Tariff Fixation Commission

The Electricity Tariff Fixation Commission (ETFC) is an independent body responsible for tariff fixation in the country. It studies, evaluates and decides electricity tariff. It is a seven-member body headed by the chairman. The Member Secretary is the Director General of DOED and other five members represent from MOWR, NEA, FNCCI, independent economist, and consumer society.

2.2 Ministries

2.2.1 Ministry of Environment, Science and Technology

The then Ministry of Population and Environment (MOPE) was established in September 1995. It was dissolved in March 2005 and its Environment Division was merged in the Ministry of Science and Technology by renaming it as the Ministry of Environment, Science and Technology (MoEST). Based on the Business Allocation Rules, the roles and responsibilities of the Ministry in the domain of the environment are on:

- Formulation and implementation of policies, plans and programmes;
- Conduction of study, research, and training;
- Liaison and coordination with national and international organisations;
- Pollution control, environmental conservation and balance;
- Publication and dissemination;
- Regular and periodic evaluation and review of environmental programmes implemented by governmental and non-governmental organisations; and
- Development of human resources.

The Ministry has three divisions: (i) Environment Division; (ii) Science and Information Technology Promotion Division; and (iii) Planning, Evaluation and Administration Division. The Environment Division has three sections: (i) Environment Assessment Section; (ii) Environment Standard and Monitoring Section; and (iii) Environment Promotion and Publicity Section. The Environment Assessment Section is responsible for processing all EIA and its associated reports for necessary decision.

2.2.2 Ministry of Water Resources

MOWR is primarily responsible for the development, conservation and utilisation of hydropower, irrigation and water induced disaster prevention. It has three divisions namely Planning and Policy, Programme and Evaluation, and Administration. These divisions have different sections. All the procedures concerning licensing and environmental assessment are undertaken by Planning and Policy Division. The Ministry has three departments. They are:

a) Department of Electricity Development (DOED);

b) Department of Irrigation (DOI); and
c) Department of Water Induced Disaster Prevention (DWIDP).

2.2.3 Ministry of Forests and Soil Conservation

MFSC is responsible for scientific conservation, promotion and sustainable utilization of forest and forest resources for the welfare of Nepalese people. It has five departments.

a) Department of Forest;
b) Department of Soil Conservation and Watershed Management;
c) Department of National Parks and Wildlife Conservation;
d) Department of Plant Resources; and
e) Department of Forest Research and Survey.

2.3 Departments

2.3.1 Department of Electricity Development

The Department of Electricity Development (DOED) is one of the principal departments under MOWR to process for licensing and environmental assessment of the hydropower projects. It has three divisions – Project Study, Privatization, and Inspection. The main functions of the DOED are to:

- Promote and develop hydropower projects;
- Facilitate the power producers in developing generation, transmission and distribution projects;
- Process the license applications for survey and development submitted by the proponent;
- Oversee the conditions of the licenses;
- Conduct feasibility studies of hydropower projects; and
- Study and coordinate multipurpose projects

DOED examines and reviews license applications, IEE/EIA and its associated reports, and sends to MOWR with its comments and suggestions. Besides, DOED also acts as a secretariat of the the Electricity Tariff Fixation Commission (ETFC). At present, the Director General (DG) of DOED serves as its member secretary. Also, the DG of DOED is the Chairman of Power Development Fund (PDF).

2.3.2 Department of National Parks and Wildlife Conservation

The Department of National Parks and Wildlife Conservation (DNPWC) was established in 1980 within MFSC. The Department is responsible to conserve major representative ecosystems, unique natural and cultural heritage, and give protection to the endangered wildlife species. It conducts and encourages for scientific research for the preservation of wildlife and its habitats within the protected areas. The Department administers the National Parks and Wildlife Conservation Act, 1973 and its Rules within the protected areas system. This department is empowered to issue hunting license, determine hunting quotas, impose penalty for poaching, illegal harvesting of forest products and grazing livestock in the protected areas.

2.3.3 Department of Forests

The Department has country-wide network of institutions and is responsible for the conservation, development and management of all categories of forests, except of the protected areas system. The Department is involved in reviewing EIA reports and it implements field level natural resource management programmes. MFSC has delegated necessary power for the approval of IEE reports related to the Department of Forests.

2.4 Alternative Energy Promotion Centre

The Alternative Energy Promotion Centre (AEPC) is devoted to the development and promotion of renewal and alternative energy and its technologies in Nepal. The Centre was established in 1996 as per the provisions of the Development Board Act. The Centre has an autonomous status and is with MoEST. AEPC Board comprises of 9 members representing government and private sectors.

The objective of the Centre is to popularize and promote the use of renewable energy technology to raise living standards of the rural people, protect the environment and develop commercially viable alternative energy industries in the country.

2.5 Local Bodies

The District Development Committee (DDC), Village Development Committee (VDC), Municipality are the local bodies ('governments'). The role of local bodies is very important for hydropower project development. The *Local Self-Government Act, 1999* has a provision for revenue sharing and empowers for the implementation of development activities to help function as self-governing institutions. The Act empowers the local bodies to conserve, manage and use natural resources and collect tax and revenue from the sale/use of such resources and use it for local development.

The local bodies in particular the VDCs are involved in EA process. In accordance with the provisions of EPR, 1997 the proponent must submit the recommendation letter(s) of the concerned VDC(s) during the submission of IEE and EIA reports for approval. After the preparation of the draft IEE report, the proponent should affixed a notice in the concerned VDC, health post, schools, and office of DDC to let the people know about the IEE report and seek public opinions and concerns. Similar notice should also be published in a national daily newspaper. In case of EIA, the proponent shall organise a public hearing programme in the project site. Furthermore, local bodies are involved in providing necessary data for environmental assessment. In general practice, representatives of the local bodies are also invited in informal meeting and public hearing programmes.

2.6 Nepal Electricity Authority

The Nepal Electricity Authority (NEA) is a government-undertaking organisation that manages the generation, transmission and distribution of electricity in the country. The Authority, which came into effect after the enactment of NEA Act, 1982 (2041 B.S.) has the following functions:

- Recommend the Government on short-term and long-term policy regarding demand and supply of electricity;
- Formulate and implement plans for the generation, transmission and distribution of electricity and promote facilities;
- Arrange for generation, transmission and distribution of electricity of appropriate standard; and
- Conduct research and provide technical advice relating to generation, transmission and distribution of electricity.

NEA has Environmental and Social Studies Department (ESSD) within the Engineering Directorate. The Department is responsible for conducting IEE and EIA including environmental monitoring of NEA projects.

2.7 Academic Institutions

The Central Department of Environmental Science of the Tribhuvan University, Schools of Environment and Humanities of Kathmandu University, and Nepal Engineering College, College of Information Technology offer master's degree on environmental science and natural resources management. The School of Environmental Management and Sustainable Development, affiliated with Pokhara University, offers Master's Degree on Environmental Management. These institutions have included EIA in the curriculum.

The Tribhuvan University, Institute of Forestry (IOF) provides academic degree on forestry and natural resource management. IOF offers, *inter alia*, courses on social forestry and forest management, environmental science, and forest biology. The Institute has two campuses, one in Pokhara and other in Hetauda. IOF functions as a network secretariat for Noragric[1].

[1] *Noragric is the Agricultural University of Norway's (NLH) Centre for International Environment and Development Studies. It brings together research, education and development-related assignments with a focus on developing countries and countries with economies in transition.*

The Institute of Environmental Management (IEM) and Nepal Administrative Staff College (NASC) are offering training packages on environmental management and EIA.

2.8 Non-Government Organizations

Several non-governmental organizations (NGOs), both international and national, could be involved in the review of EIA reports or public consultation. Some potential NGOs which might continue to show interests on EA matters and hydropower promotion are:

INGOs

- IUCN, Nepal Programme
- WWF Nepal Programme
- Care Nepal
- Winrock International, Nepal

NGOs

- King Mahendra Trust for Nature Conservation (KMTNC)
- Nepal Forum of Environmental Journalists (NEFEJ)
- Forum for Protection of Public Interest (Pro-Public)
- Development Resources Mobilization Network (DRMN)
- Institute for Social and Gender Equality (SAMANTA)
- Institute of Integrated Development Studies (IIDS)
- National Concerns Society (formerly Arun Concerned Group), etc.

The Small Hydropower Promotion Project might contribute in making hydropower project environment-friendly.

2.9 Community Based Organisations

A number of community groups might provide inputs during project development, EIA report preparation and implementation. Some of them are:

- Community Forest Users Group
- Community Development Groups
- Water Users Association and its group
- Electricity Co-operatives
- Local groups and NGOs
- AAMA SAMUHA[2]

[2] *AAMA SAMUHA is an organized women group working for social awareness and income generating activities.*

Licensing Procedures

The *Water Resources Act, 1992* and the *Electricity Act, 1992* are meant for the conservation and utilization of water resources in the country. The *Water Resources Act* facilitates the rational utilization, conservation, management, and development of water resources with mandatory provision to get a license before any person or corporate body desires to conduct survey or to utilize water resources. This Act has also dealt with the water quality standards, water pollution and adverse effect on the environment by stating that the Government might prescribe the pollution tolerance limit for water resources.

The *Electricity Act, 1992* facilitates the development of electric power (from water, mineral oil, coal, gas, solar energy, wind energy, atomic energy, or from any other means) by regulating the survey, generation, transmission and distribution of electricity and to standardize and safeguard the electricity services.

3.1 Provision for License and its Types

The *Electricity Act, 1992* states that no person shall be entitled to conduct survey, generation, transmission or distribution of electricity without obtaining license. The Act further states that no license shall be required to obtain by an individual or corporate body for the generation, transmission or distribution of electricity up to 1000KW and for conducting necessary survey thereof. However, information shall be given to the prescribed officer as per Schedule 1 of *Electricity Regulations, 1993* for this capacity (Annex 1.1).

For the generation of electricity greater than 1000KW, a person or a corporate body who desires to conduct survey, generation, transmission or distribution of electricity, shall be required to submit an application to the prescribed officer along with economic, technical and environmental study report and with other prescribed particulars on the relevant subject. The application format and required particulars for the survey and generation license is stated in *Electricity Rules, 1993*.

The *Electricity Rules, 1993* has identified two types of licenses to be issued for projects with capacity greater than 1000kW, namely:

- Survey license, and
- Development license.

Survey license is further categorized into:

- License for survey for electricity generation;
- License for survey for electricity transmission; and
- License for survey for electricity distribution.

The term "survey" means the acts of survey relating to the generation, transmission or distribution of electricity and shall also denote the acts relating to feasibility study, detailed engineering design and the works of investigation regarding thereto.

Development license is further categoried into:

- License for generation of electricity;
- License for transmission of electricity; and
- License for distribution of electricity.

"Generation, transmission and distribution of electricity" means the construction, operation and maintenance of structures relating to the generation, transmission and distribution of electricity".

3.2 Application for Survey License

3.2.1 Electricity Generation Survey

Any person or corporate body who desires to conduct a survey of generation of electricity shall have to submit an application in triplicate to the Secretary, MOWR through DOED in the format (Annex 1.2) as prescribed in Schedule 2 of the *Electricity Rules, 1993* together with application fee as per Rule 24 of *Electricity Rules, 1993*. The following particulars should be submitted along with an application:

a) Topographic map of the project-site (with preliminary sketch of the proposed powerhouse, dam, reservoir, canal, tunnel, sub-station, transmission line, village, town, historical places etc. inside the project site should be clearly shown);
b) Area of water-resources to be surveyed and quantity of water to be utilized;
c) Estimated cost and time for the completion of project (both for survey and construction) work;
d) Installed capacity of the project and estimate of annual generation;
e) In case the electricity generation from means other than water resources, type of fuel and method of acquiring should be mentioned; and
f) Other necessary matters.

3.2.2 Transmission Line Survey

Any person or a corporate body desiring to conduct a survey of transmission of electricity shall have to submit an application in triplicate to the Secretary, MOWR through DOED in the format (see Annex 1.3) as prescribed in Schedule 3 together with application fee as per Rule 24 of the *Electricity Rules, 1993*. The following particulars should be submitted along with the application:

a) Preliminary route-map of electricity transmission line (proposed main transmission line and alternative line should also be shown);
b) Necessity, purpose and total length of the transmission line;
c) Standard voltage level and capacity to be used for transmission line;
d) Maximum load and types of consumers, if transmission line is for bulk power supply;
e) Estimated amount of cost and time for the completion of transmission line (both the survey and construction); and
f) Other necessary matters.

3.2.3 Electricity Distribution Survey

Any person or corporate body, who desires to conduct a survey for electricity distribution, shall have to submit an application in triplicate to the Secretary, MOWR through DOED in the format as prescribed (Annex 1.4) in Schedule 4 together with application fee as per Rule 24 of the *Electricity Rules, 1993*. The following matters should be submitted along with the application:

a) Map of the distribution area (showing geographical description of the said area, present distribution system and preliminary sketch of proposed distribution system);
b) Necessity and purpose of the distribution system;
c) Estimated number and types of consumers to be benefited from the distribution system;
d) Location of electricity is to be evacuated or acquired and other particulars relating to sale and distribution;
e) Estimated amount of cost and time for the completion of construction of distribution line (both the survey and construction); and
f) Other necessary matters.

3.2.4 Survey for Generation, Transmission and Distribution of a Single Project

Any person or corporate body desiring to conduct a survey of generation, transmission and distribution of electricity relating to a single project may submit applications for survey license at the same time stating all the particulars mentioned above.

Applications for the Survey of Generation, Transmission and Distribution of Electricity

In current practice, any person or corporate body who desires to obtain survey license for the generation, transmission or distribution of electricity has to submit the above-mentioned documents and following additional documents in triplicate along with the application:

Copy of Article of Association and Memorandum of Association (for corporate body)

- Copy of Company Register Certificate (for corporate body)
- Copy of VAT or PAN Certificate (for corporate body)
- Evidence of finance to conduct survey work
- Contact telephone number and contact person
- Scope of work and time bound action plan (desk study report)

3.3 Application for Development License

3.3.1 Electricity Generation

Any person or corporate body who desires to generate electricity shall have to submit an application in triplicate to the Secretary, MOWR through DOED in the format as prescribed (Annex 1.5) in Schedule 6 together with application fee as per Rule 24 of the *Electricity Rules, 1993*. The following particulars relating to the proposed electricity generation should be submitted along with the application:

a) Detail description of the project (including a map of the project-site, source of water for electricity generation, estimated cost and time to complete the project, name of the partners and types of their association, full name and address of the person or corporate body and its directors with whom the ownership of the project shall be vested should be clearly mentioned);
b) If case of using mineral fuel to produce the electricity, kinds of fuel, method of its supply and its storage system should be shown and agreement or letter of intention, if any and relating documents should be submitted;
c) Analysis of feasibility (technical description together with the detail map of project and economic analysis, description of clients and consumers, estimated quantity of electricity to be sold, if any, transmission and distribution system belonging to other person or corporate body, supplying the electricity, description of the same);
d) Mode of finance (estimated cost of the project, economic condition of the investors, commitment of the financial institutions to be involved directly in the project, and percentage of liability, share capital and debt of the investors);
e) Acquisition or utilization of house and land (landowner's description and total area of public and private land to be required for the project or to be required for the project, and temporary or permanent acquisition);
f) Analysis of environmental effect (measures to be taken to minimize the adverse effect due to project on the said area, utilization of local labour, source and materials, benefits for local people after the completion of the project, training to be provided for local people in relation to construction, maintenance and operation, facilities to be required for construction site, safety arrangements and effect on landowners due to operation of the project, details of people to be relocated and necessary plan for their rehabilitation should also be clearly shown);
g) Description regarding sale and purchase of electric power of the project (agreement or letter of intention if any and related documents thereto should also be enclosed);
h) Description relating to produced electricity transmission line of the project;
i) Description relating to supply, transportation and storage of the fuel (agreement or letter of intention, if any and other documents relating to the same, the copy should be enclosed); and
j) Other necessary matters.

3.3.2 Electricity Transmission

Any person or corporate body who desires to obtain the license for the transmission of electricity shall have to submit an application in triplicate to the Secretary, MOWR through DOED in the format as prescribed (Annex 1.6) in Schedule 7 together with application fee as per Rule 24 of the *Electricity Rules, 1993*. The following particulars should be submitted along with the application:

a) Detail description of the project (source of electricity to be transmitted, estimated cost and time to complete the project, name of partners and type of corporate body and its directors with whom the ownership of the project shall be vested at last should be clearly shown);
b) Route-map of the transmission line and sub-stations to be required for transmission, right-of-way to be required and single line diagram;
c) Standard of transmission voltage, transmission capacity, standard of construction, size of wire and its distance to each other, kinds of poles and insulation and detailed map relating to the construction;
d) Analysis of feasibility (technical description and economic analysis of the project, if the electricity is to be supplied at once description of clients and consumers, estimated quantity of electricity to be sold, and transmission or distribution system belonging to other person or corporate body to be involved in supplying the electricity, description of the same);
e) Mode of finance (estimated cost of the project, economic condition of the investors of the project, commitment of the financial institutions to be involved directly in the project, and percentage of liability, share-capital and debt of the investors);
f) Acquisition or utilization of house and land (landowners' description and total area of public or private land to be required for project for utilization or acquisition temporarily or permanently);
g) Analysis of environmental effect (measures to be taken to minimize the adverse effect due to project on the environment, social and economic effect of project on the said area, utilization of local labour, source and materials, benefits for local people after the completion of the project, training to be provided for local people in relation to construction, maintenance and operation, facilities to be required for construction site, safety arrangements and effect on landowners due to operation of the project, details of people to be relocated and necessary plan for their rehabilitation should also be clearly shown);
h) Description regarding sale and purchase of electric power of the project (if there is any agreement or letter of intention and related any other documents relating to the same, copy should be enclosed);
i) Map showing other structures relating to electricity within the periphery of one and half km of the transmission line; and
j) Other necessary matters.

3.3.3 Electricity Distribution

Any person or corporate body, who desires to distribute the electricity, shall have to submit an application in triplicate to the Secretary, MOWR through DOED in the format as prescribed (Annex 1.7) in Schedule 8 together with application fee as per Rule 24 of the *Electricity Rules, 1993*. The following particulars relating to the proposed electricity distribution project should be submitted along with the application:

a) Detail description of the project (source of electricity to be distributed, estimated cost and time to complete the project, name of project partners and types of their association, full name and address of the person or corporate body and its directors with whom the ownership of the project shall be vested at last should be clearly shown);
b) Analysis of feasibility (technical description and economic analysis of the project, estimated quantity of electricity to be sold, and if any transmission or distribution system belonging to other person or corporate body supplying electricity, description of the same);

c) Mode of finance (estimated cost of the project, economic condition of the investors of the project, commitment of the financial institutions to be involved directly in the project, and percentage of liability, share capital and debt of investors);
d) Map of the distribution area (geographical description, present distribution system and distribution system to newly constructed area);
e) Standard of the distributing voltage and standard of construction;
f) Number and types of consumers to be benefited from the service;
g) Description regarding sale and purchase of electricity (if there is any agreement or letter of intention and related any other documents relating to the sale and purchase of electricity to be distributed, copy should be enclosed); and
h) Other necessary matters.

3.3.4 Development License for Generation, Transmission and Distribution of Electricity of a Single Project

Any person or corporate body desiring to obtain development licenses for generation, transmission and distribution of electricity relating to a single project may submit application at the same time stating all the particulars mentioned above.

3.4 Examination of Application

3.4.1 Examination of Survey License

MOWR and DOED shall examine the application to see whether or not the applicant has submitted the necessary documents, particulars or report to be submitted as per the provisions of the *Electricity Act* and its *Rules*.

Applications for Development License on Generation, Transmission and Distribution of Electricity

In current practice, any person or corporate body who desires to obtain *development license* for the generation, transmission or distribution of electricity has to submit the documents as mentioned above and following additional documents in triplicate along with the application:

- Copy of Article of Association and Memorandum of Association (for corporate body)
- Copy of Company Register Certificate (for corporate body)
- Copy of VAT or PAN Certificate (for corporate body)
- Approval letter of environmental study from the Concerned Body, MOWR (in case of IEE) or MoEST (in case of EIA)
- Contact telephone number and contact person
- Power Purchase Agreement (PPA)

If any applicant has not submitted necessary documents, particulars or reports which ought to be submitted, a notice shall be given to the applicant within 15 days from the date of submission of the application specifying a reasonable time limit to submit such documents, particulars or reports. In case, DOED gives notice specifying the time limit to submit some documents, particulars or reports, the date, when such matter is received, it shall be deemed as the date of submission of application for the purpose of Sub-section (2) of Section 4 of *Electricity Act, 1992*.

3.4.2 Examination of Development License

MOWR and DOED shall examine the application to see whether or not the applicant has submitted the necessary documents, particulars or report to be submitted under the *Electricity Act* and its *Rules*.

If any applicant has not submitted any documents, particulars or reports which ought to be submitted, a notice shall be given to the applicant within 45 days from the date of submission of the application specifying a reasonable time limit to submit such documents, particulars or reports. In case, DOED gives notice specifying the time limit to submit some documents, particulars of reports, the date, when such matter is received, it shall be deemed as the date of submission of application for the purpose of Sub-section 2 of Section 4 of *Electricity Act, 1992*.

3.5 Publication of Public Notice

Upon receipt of the application seeking to obtain development license for generation, transmission or distribution of electricity, DOED shall, after making necessary examination of application, publish a public notice (Annex 1.8) stating the necessary particulars for the information of general public.

Any person may furnish his reaction stating reasons thereto to DOED within 35 days from the date of publication of such notice, if the construction and operation of the proposed project is likely to cause significant adverse effect.

If any reaction is received by DOED from the public, upon considering such reactions, the conditions which should be followed by the applicants shall be mentioned in the license.

3.6 Issuance of License

3.6.1 Issuance of Survey License

The Secretary of MOWR, after making necessary examination on the application received pursuant to Rules 4, 5, & 6 of the *Electricity Rules, 1993* shall issue the license within 30 days upon receipt to the applicant in accordance with the demand of applicant or with amendment if deemed necessary, in the format as prescribed in Schedules 5(A), 5(B) or 5(C) of the *Electricity Rules, 1993* respectively for the survey of generation, transmission or distribution of electricity (Annex 1.8, 1.9 and 1.10).

3.6.2 Issuance of Development License

The Secretary of MOWR, after necessary examination on the applications submitted for generation, transmission or distribution of electricity pursuant to Rules 12, 13 or 14 of the *Electricity Rules, 1993* shall issue the license within 120 days of receipt to the applicant in accordance with the demand of applicant or with amendment if deemed necessary in the format as prescribed in Schedules 9(A), 9(B) or 9(C) respectively for generation, transmission or distribution of electricity (Annex 1.11, 1.12 and 1.13).

3.6.3 Issuance of Development License for Generation, Transmission and Distribution of a Single Project

If any person or corporate body has applied to obtain Development License for generation, transmission and distribution of electricity at the same time relating to a single project following the *Electricity Rules, 1993* the Secretary of MOWR may issue such Development Licenses at the same time to such applicant

3.7 Terms of License

Rule 5 of the *Electricity Rules, 1993* provides the term of license to be issued for the survey of electricity for 5 years in maximum. Similarly, the terms of license to be issued for generation, transmission and distribution of electricity shall be of 50 years in maximum. However, the Hydropower Development Policy, 2001 has recommended the terms of development license to be for 35 years only. In case a license is issued for a term less than prescribed period, it shall be required to be renewed before one year of its expiry as stipulated in the license. If the license is not renewed, the license shall be void.

3.8 Submission of Survey Report

Rule 10 of the *Electricity Rules, 1993* states that the person or corporate body who obtains a survey license shall have to submit the report of survey in triplicate to DOED within 30 days from the date of completion of work.

3.9 Restriction

Section 6 of the *Electricity Act, 1992* has made a provision that if a license has been issued to any person or corporate body for the distribution of electricity in any area, no other license shall be issued to any other person or corporate body for the distribution of electricity in the same area. In case, if the licensee is deemed unable to supply the electricity as per demand of that area, another license may be issued to any other person or corporate body for distribution of electricity in such area.

3.10 Cancellation of License

In case a licensee performs any act contrary to the *Electricity Act, 1992* and *Electricity Rules, 1993* the prescribed officer may issue order to the concerned licensee by prescribing necessary improvements to be made on such activity within the specified time. If the licensee makes no improvement within the prescribed period, the prescribed officer may cancel the license. Prior to the cancellation, the licensee shall be given reasonable time for explanation and clarification.

3.11 License Renewal

The license issued in accordance with the *Electricity Act, 1992* and its Rules shall have to be renewed one year before the expiry of its period as mentioned in the license. For such renewal, appropriate amount shall be charged to the applicant.

3.12 Right on Water Resources

As per Rule 20 of the *Electricity Rules, 1993* the licensee, who has obtained license for the generation of electricity, shall have the right on water resources at the place and for the works as mentioned in the license and will have right to utilize the quantity of water as specified in the license.

3.13 Time Limit to Start the Work

Rule 21 of the *Electricity Rules, 1993* states that the licensee who has obtained license under this Rule shall have to start the physical works within three months in case of survey and one year in case of generation, transmission or distribution from the date of obtaining the license and shall have to inform DOED about the same. Provided that if the licensee gives application stating the reasons of being unable to start the works within the time limit, the time limit may be extended if such reasons are deemed appropriate and sufficient.

Once the work begins, the progress report of the work shall have to be furnished to DOED in every six months till the completion of the work. The summary of licensing procedure is given below:

Summary of Licensing Procedure

(Pursuant of Electricity Rules, 1993)

Project Between 100kW to 1000KW	No License is required but information obligation (Rule 3)	Information as per Schedule 1

Project Greater than 1000kW	License required	

Survey License		
Electricity Generation	Information required (Rule 4)	Application as per Schedule 2

Electricity Transmission	Information required (Rule 5)	Application as per Schedule 3

Electricity Distribution	Information required (Rule 6)	Application as per Schedule 4

Development License		
Electricity Generation	Information required (Rule 12)	Application as per Schedule 6

Electricity Transmission	Information required (Rule 13)	Application as per Schedule 7

Electricity Distribution	Information required (Rule 14)	Application as per Schedule 8

ENVIRONMENTAL ASSESSMENT
Legal Requirements and Environmental Screening

Nepal is relatively new to the concept of Environmental Assessment (EA)[1]. During 1980's, EAs were conducted for development proposals with the initiatives of bilateral and multilateral donors. The Sixth Plan (1980-1985) and the Seventh Plan (1985-1990) introduced policies to conduct EIA of major development projects. The National Conservation Strategy (NCS), 1988 reiterated the need for conducting EIA of development projects, and a national system on EIA was established during the implementation of the NCS Implementation Project. The Eighth Plan (1992-1997) also emphasized on the need for such a system. EIA guidelines were developed through a participatory approach along with the participation of an inter-sectoral Environmental Core Group (ECG). The Government endorsed the National EIA Guidelines in 1993. Likewise, and separate EIA guidelines for Industry and Forestry Sectors were approved in 1995.

The *Water Resource Act* (WRA), *1992*, *Electricity Act, 1992* and Hydropower Development Policy, 2001 require to conducting environmental study. Section 8 of *WRA, 1992* requires preparation of an environmental study report by the proponent who wants to conduct survey or utilize water resources. Similarly Section 4 of the *Electricity Act, 1992* requires preparation of an environmental study report by proponent desiring to conduct survey of production, transmission and distribution of electricity. The Hydropower Development Policy, 2001 encourages the national and foreign private investors to invest in electricity sector to develop hydropower projects in such a way that it would have minimum impacts on the environment.

The then Ministry of Population and Environment (MOPE) was established in September 1995 to contribute on sustainable development through integrating environmental aspects into development process and improving quality of the environment. EPA and EPR were enacted to maintain clean and healthy environment by minimizing, as far as possible, adverse impacts likely to be caused from environmental degradation on human beings, wild animals, plants, nature and physical objects; and to protect the environment with proper use and management of natural resources, taking into consideration that sustainable development could be achieved from the inseparable inter-relationship between the economic development and environmental protection.

The hydropower projects that produce electricity of more than 1000kW, transmit electricity through 33kV or more, and distribute electricity through >1MVA transformer must conduct EA before their implementation. IEE and EIA reports should be approved from the Concerned Body and the Ministry of Environment, Science and Technology (MoEST) respectively.

EIA is generally carried out during the feasibility study. EPA, 1996 and EPR, 1997 provide approval process for IEE and EIA reports. As per EPR, 1997, each project under consideration is first screened to determine whether it should undergo an IEE or EIA.

4.1 Legal Provisions on EA

EPA, 1996 and EPR, 1997 provide provisions to carry out EAs before the implementation of development projects. Section 3 of EPA, 1997 obliges the proponent to carry out an IEE or EIA for the prescribed project. Section 4 of EPA, 1997 states that no one shall implement a proposal without

[1] *In this handbook, Environmental Assessment (EA) refers to both Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA).*

approving IEE and EIA from the Concerned Body (ministry related to project, i.e., MOWR in water resources proposals) or the Ministry (MoEST) of water resources sector.

EPA, 1996 defines some key terms as:

"*Environment*" means the interaction and inter-relationship among the components of natural, cultural and social systems, economic and human activities and their components.

"*Proposal*" means a proposal prepared in regard to carrying out of such development work, physical activity that may bring about change in the existing environmental conditions or any plan, project or programme which changes the land uses.

"*Proponent*" means a person, governmental, semi-governmental agency or non- governmental organisation or institution applying for approval of a proposal and getting approval for the implementation of such a proposal.

"*Initial Environmental Examination*" means a report on analytical study or evaluation to be prepared to ascertain as to whether, in implementing a proposal, the proposal does have significant adverse impacts on the environment or not, whether such impacts could be avoided or mitigated by any means or not.

"*Environmental Impact Assessment*" means a report on detailed study and evaluation to be prepared to ascertain as to whether, in implementing a proposal, the proposal does have significant adverse impacts on the environment or not, whether such impacts could be avoided or mitigated by any means or not.

According to EPR, 1997 the requirement of IEE or EIA is based on the threshold, sensitive area or investment criteria as provided in Schedules 1 and 2 pertaining to Rule 3 of the EPR, 1997.

Table 4.1: **Water Resources Projects Requiring IEE and EIA**

Proposals requiring IEE	Proposals requiring EIA
1. Supply of electricity through installation of transmission lines from 33kV to 66kV capacity; 2. Operation of rural electrification projects of 1 to 6 MVA (transformer) 3. Operation of electricity generation projects of 1MW to 5MW. 4. Any water resources development activity which displaces 25 persons to 100 persons with permanent residence 5. Clear felling or rehabilitation of national forests up to 5 hectares	1. Supply of electricity through installation of transmission lines of more than 66kV capacity; 2. Operation of more than 6 MVA rural electrification projects 3. Operation of electricity generation projects with a capacity of more than 5MW 4. Any water resources development activity which displaces more than 100 persons with permanent residence 5. Clear felling or rehabilitation of national forests of more than 5 hectares 6. Construction of multipurpose reservoirs 7. Inter-basin water transfer and use

In addition, there are other criteria that demand for IEE or EIA of the proposals. They are:

1. If the proposal is to be implemented in any area prescribed in Schedule 2 (K) of EPR, 1997, EIA is required. This includes areas like: (i) historical, cultural and archaeological sites; (ii) environmentally weak and wet areas; (iii) National Parks, Wildlife Reserves and Conservation Areas; (iv) semi arid, mountainous and Himalayan regions; (v) flood-prone and other dangerous areas; (vi) residential, school and hospital area; and (vii) areas with main sources of public water supply;

2. As per Schedule 1 (J) of EPR, 1997, operation of any plan, project or programme of any development work, physical activities or change in land use with a cost of Rs. 10 millions to Rs. 100 millions require IEE study except the proposal mentioned in Clause (A) to (I) and those below the standards of such proposals as well as the proposals below the standards of those mentioned in Schedule 2.
3. As per Schedule 2 (L) of EPR, 1997, operation of any plan, project or programme of any development work, physical activities or change in land use with a cost of more than Rs. 100 millions require EIA study except the proposal mentioned in Clause (A) to (K) and those below the standards of such proposals as well as the proposals below the standards of those mentioned in Schedule 1.
4. As per Section 6(2) of EPA, 1997, while examining the IEE report, if the concerned agency finds necessary to carry out EIA, the concerned agency may issue order to carry out EIA of the proposal.

4.2 Objectives of EA

The primary objective of an EA is to inform the decision-maker and stakeholders about the environmental implications of the implementation of the proposal. An EA acts as a tool for deriving conclusion on whether or not the proposed development activity should proceed. It ensures the involvement and participation of affected people and stakeholders. This, in turn, avoids possible delay of project implementation, and might save time and money.

Specifically, EA tool helps to:

1. Identify, predict and evaluate potential environmental impacts, both beneficial and adverse impacts;
2. Propose mitigation measures for significant adverse impacts, and enhancement measures for beneficial impacts;
3. Recommend environmentally appropriate alternatives; and
4. Also recommend framework for environmental monitoring, environmental auditing and environmental management plan.

4.3 Differences between IEE and EIA

An IEE requires relatively simpler procedures. Although scoping and public hearing are an essential component of any EA process, Nepal's legal regime on EA does not require scoping and public hearing for IEE study. A list of anticipated impacts and corresponding mitigation measures to be implemented are, in general, the end product of an IEE. However, EIA includes a series of extensive steps such as scoping, public hearing, environmental auditing, and preparation of environmental management plan together with steps involved in an IEE study. The major differences between an IEE and EIA are given below in the spirit of the existing environmental law (Table 4.2):

Table 4.2: **Difference between IEE and EIA**

IEE	EIA
● Generally conducted for small scale project ● Scoping not required ● IEE to be approved by Concerned Body within 21 days ● EMP not required ● Environmental auditing not required ● 15-days public notice to be published in national daily newspaper and notice to be affixed in the project area after the preparation of the draft IEE report ● Deals with generally known and easily predictable impacts ● Public input at different stages of report preparation ● May recommend for further assessment	● Generally conducted for large scale projects ● Scoping required ● EIA to be reviewed by Concerned Body and approved by MoEST within 60 days and by the latest within 90 days upon its receipt ● EMP required ● Environmental auditing required ● Public hearing is mandatory after the preparation of draft EIA report ● Also deals with unknown impacts ● Public inputs also during the approval process ● In general does not recommend for further assessment

4.4 Screening of Hydropower Projects for Environmental Assessment

Once the proponent receives a survey license from MOWR, the feasibility study work shall begin. The feasibility study should comprise of detailed engineering study as well as EA. The screening is the first stage of EA process and assist in determining the level of EA study. The screening will help identify whether the proposed project:

- Require an IEE;
- Require an EIA; and
- Unclear whether an IEE or an EIA is needed.

Screening of a hydropower proposal during the early stage of the planning cycle help to:

- Save time and money;
- Identify environmental issues of major concern; and
- Know the level of EA required.

Nepal has adopted threshold criteria to know the level of EA required for any proposal (Table 4.1). In addition, sensitive area and investment criteria are also used as mentioned above. On the basis of EPR, 1997, screening of EAs for hydropower project development is given in Figure 1.

4.5 EA Process

After the screening process and if the proposal requires IEE or EIA, the proponent should start the preparation of Terms of Reference (TOR) for IEE study, and Scoping Document and TOR for EIA study. The TOR for IEE shall be approved by the Concerned Body and the Scoping Document and TOR for the EIA study shall be approved by MoEST. MOWR is the Concerned Body for water resources projects.

IEE or EIA study begins with the approval of TOR for IEE, and Scoping Document and TOR for EIA. TOR for IEE and EIA should be prepared in the format as mentioned in Schedules 3 and 4 of ERP, 1997 respectively. Similarly, IEE and EIA reports should be prepared taking into consideration the aspects as included in Schedules 5 and 6 of EPR, 1997 respectively.

4.6 Resource and Time

The resource and time required for the completion of an EA study depends upon the size, nature and location of the proposal, and the complexity of the environmental issues. Aspects related to consultant selection, proper coordination between feasibility and EA study teams and response to and from concerned institutions also influence the resources and time required. In general, EA study requires inputs of subject specialists as included in the TOR. Depending upon the nature of the project and its location, inputs of Environmental Management Specialist, Hydropower Engineer, Engineering Geologist, Forest Specialist/Ecologist, Zoologist, Sociologist, Economist, and Policy and Legal Analyst would be required to prepare an EIA report.

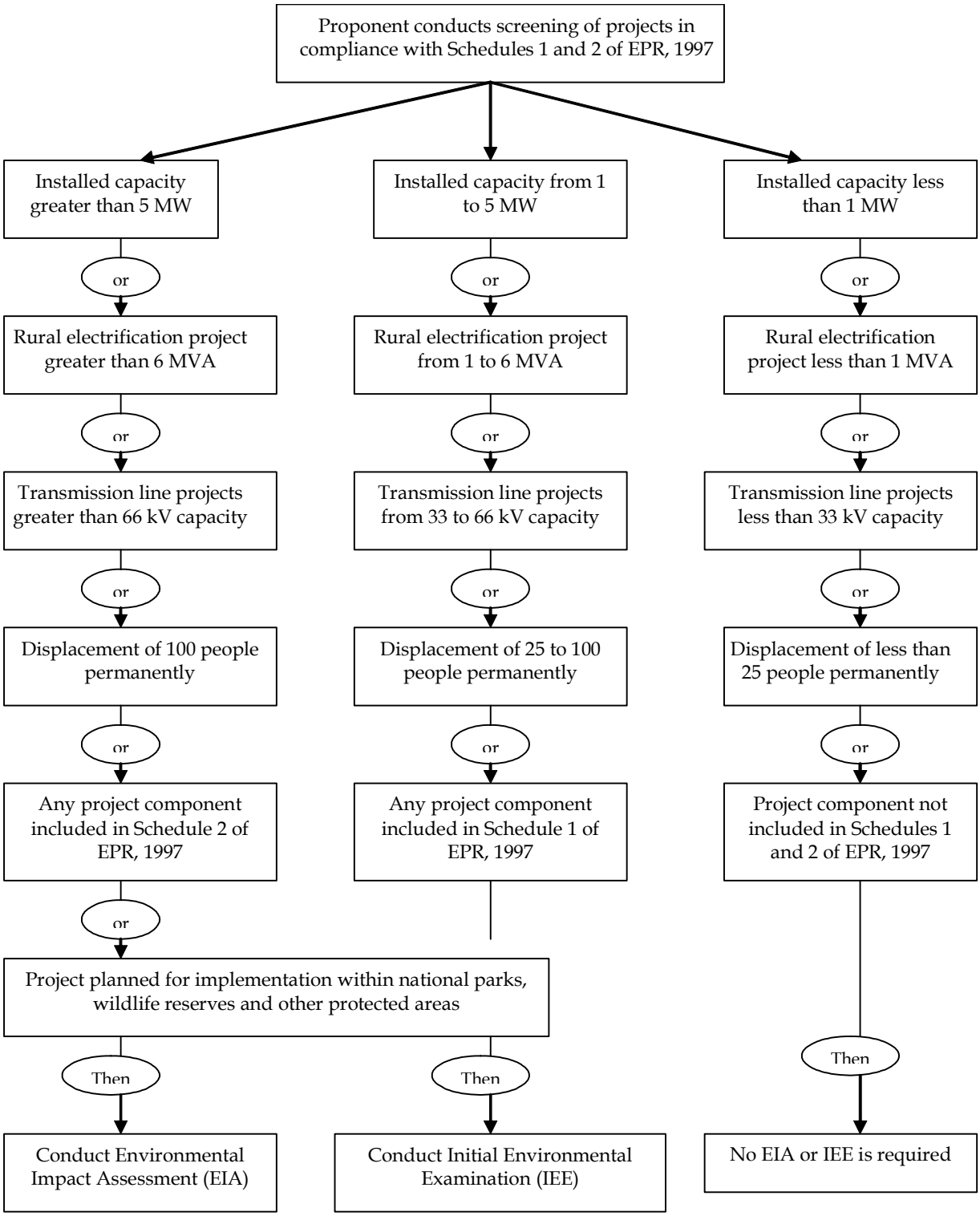


Figure 1: **Screening Process for Environmental Assessment of Hydropower Project**

The proponent might take the inputs of fish biologist, seismologist and rehabilitation specialist. The area of expertise required entirely depends on the nature of issues to be addressed during the study.

The EA team leader should be well-versed and trained with good understanding on the principles and practices of EA. S/he should be able to analyze and synthesize the information with multidisciplinary approach and integrate them into the EA report acceptable to all.

The time required for the completion of EA process depends upon the nature and location of the project, coverage of the study area and environmental issues to be addressed. A good EA team and efficient internal management can reduce the study time substantially.

4.7 Responsibility

The proponent is responsible for the preparation of EIA and its associated reports such as Scoping Document and TOR of proposals included in Schedule 2, and TOR and IEE report of proposals included in Schedule 1 of EPR, 1997.

The proponent is also responsible for the implementation of environment protection measures (benefit enhancement, and adverse impacts mitigation measures) as included in the approved IEE and EIA reports including in-built environmental monitoring. EPR, 1997 has obliged the Concerned Body, MOWR in case of water resources development proposal, for environmental monitoring and MoEST for environmental auditing.

Environmental Scoping

Scoping is a basis for the preparation of TOR. It helps to derive the scope of work for IEE or EIA study. However, it is not legally required for an IEE. Nepal's legal regime on EA requires for the preparation and approval of Scoping Document for EIA level of study.

Available secondary information is used to prepare the Scoping Document. A reconnaissance field visit should also be carried out to generate project-specific issues and collect opinions and concerns of the affected communities in the process for determining the scope for EIA study. Scoping generally involves the following tasks:

- Involvement of relevant institutions, interested and affected stakeholders;
- Identification and selection of alternatives; and
- Identification of significant issues to be examined during the EIA study.

5.1 Objective of Scoping

The main objectives of Scoping are to:

- Identify issues for consideration in an EIA study;
- Provide an opportunity for public involvement in determining the issues to be assessed;
- Collect issues and concerns of the stakeholders and/or affected communities;
- Determine the assessment methods to be used;
- Facilitate early agreement on contentious issues;
- Prioritise issues and concerns for EIA study;
- Save time and money; and
- Contribute to prepare TOR for EIA study.

5.2 Component-based Issues

One of the major tasks of Scoping is to identify issues, list issues raised by affected parties and stakeholders and prioritise them for EIA study. Issues may either be definable impacts (e.g. air pollution), or the cause of an impact (e.g. disposal of spoils) or a generally expressed concern (e.g. social disruption in communities). Some of the issues identified or raised might not be related to the project activity or area and Scoping should eliminate insignificant issues to streamline EIA study.

The hydropower project might affect the physical, chemical, biological, socio economic and cultural environment of the given area. To streamline issues prioritisation, major areas of concern are given below: However, these areas can be expanded further depending upon scale, location and nature of hydropower projects.

Physical Environment

- Landform, landslide, debris flow and sedimentation
- River profile, and water flows in the main river and its tributaries
- Surface and groundwater quality
- Groundwater reserve and flow
- Air quality
- Noise level
- Vibration impact on houses and other existing structures, etc.

Biological Environment

- Forests and its categories as per forest laws such as community, State-managed, leasehold, private and religious forests
- Wild animals
- Avifauna
- Herpetofauna
- Species use pattern
- Endangered, endemic and threatened species of plants and animals
- Fragmentation of habitats
- Fishery and aquatic life, etc.

Socio-Economic and Cultural Environment

- Population, ethnic group, settlement pattern and migration
- Social services such as education, health, sanitation and drinking water
- Infrastructure facilities
- Economic activities including agricultural production
- Acquisition of land and property
- Sudden cash inflow
- Social values and practices
- Law and order situation
- Cultural heritage, values and norms
- Women, children and other vulnerable groups
- Overall quality of life during and after the project construction, etc.

5.3 Identification and Selection of Alternatives

During the scoping stage, project alternatives might be identified and examined. At this stage, alternative analysis provides indications on the environmental benefits and adverse impacts with and without project, and enables the project proponent and the decision-makers as well to choose the best alternative and integrate environmental aspects into the development. The following questions should be addressed:

- How should alternatives be identified?
- What is the reasonable range of alternatives that should be considered?
- What level of investigation should be made to each alternative?

5.4 Methods of Scoping

5.4.1 Preparation and Dissemination of Information Materials

Background information on the nature of proposal (including the purpose and need for project, proposed actions, location, timing, methods of operation and so on), as well as a brief description of the affected environment, should be disseminated in order to assist interested and affected parties to provide their comments and suggestions during the Scoping process.

Background information should be clear and user-friendly. It should not include unnecessary technical and scientific terms so that the general public can easily understand it. Necessary documents should be made available to public and adequate time should be given to read and provide suggestions. Information should be prepared in simple Nepali language or it should be target-group based.

5.4.2 People's Involvement: Identification and Notification

The concerned people and organisations should be involved in Scoping phase of EIA. It is necessary to think about who should be involved, how they should be informed about the proposed activity and what methods could be employed to obtain their comments and suggestions.

The proponent should establish linkage with local communities, in particular the "to be" affected people, and stakeholders. The proponent should prepare a list of affected people and stakeholders to inform them timely for public consultation. The EPR, 1997 oblige the proponent to publish a 15-day public notice in the national daily newspaper to inform the stakeholders about the proposal. Emphasis should be given to also involve the disadvantaged communities and provide them opportunities to participate in public participation programmes. Some of the effective approaches of identification and notification of interested and affected communities could be:

(a) Use of established lists or directories or village record on population;

(b) Networking (identifying interested and affected parties through a chain referral system); and

(c) Announcement in media and/or affixing of notice in appropriate public places.

The proponent should also establish a linkage with the decision-making and other relevant institutions and interest groups. Timely consultation with relevant institutions might help in solving problems, if any. This will help in determining the major concerns of various institutions whose interests may be affected by the proposal.

5.5 Participation in Scoping

Whatever methods are employed for public involvement it should be suitable to the local circumstances. The importance of using a combination of methods in the Scoping process should be emphasized. Different methods could be used at different stages of public participation. For example, public meetings may follow publication of a notice to inform the public about the proposal. Thereafter, it may be appropriate to undertake face-to-face interviews or a series of consultation meetings for more in-depth information. The following methods would encourage people to participate in scoping process:

5.5.1 Public Meeting

A public meeting is a gathering of interested and affected people to present and exchange information and views on a proposal. The proponent should begin public meeting with a description of the proposal and its anticipated effects. Displays of posters and other illustrative material might be useful to provide the public a good understanding of different aspects of the proposal or proposed actions.

Concerned people should then be invited to raise issues and concerns they consider necessary to be addressed during the EIA study. After the collection of views and concerns, the facilitator should explain how their suggestions would guide the assessment process. It should also be explained how interested parties could make further contributions, such as providing comments on the draft EIA report.

Public meetings appear to be simple and most direct way of gaining contact with the public. But people might raise complex issues. The public meeting should be held at project site at least once to provide the local people an opportunity to raise their concerns.

5.5.2 Telephones

The proponent would have a separate telephone or "hot-line" number to establish a communication with stakeholders and collect issues and concerns about the proposal. Such numbers could be included in the brochures, reports, etc. so that citizens can call to ask questions or make comments about the proposal.

5.5.3 Project Information Centre

A Project Information Centre (PIC) may be established at the project office. Exhibits or displays can be organized in PIC to inform the public on a proposal to obtain comments. Such displays enable information access to a large number of people at their own place.

Exhibits and displays can be effective in helping people visualize the proposed project or plan. Physical models and drawings should be meticulously prepared. The use of videos and narrated slide shows can also be useful, especially for illiterate people.

5.5.4 Public Notice

Additional notice in newspaper can be published to provide information to the general public on the proposal and at the same time solicit their comments and suggestions. It can also be used for announcing public meetings or other public involvement activities. It is important to place a notice in a prominent section in the national newspaper. The information provided should be accurate, clear and concise. The language should be simple. In case of limited distribution of newspaper, this method of communication should only be used as a back-up to other methods.

Rule 4 of EPR, 1997 requires the proponent to publish a 15-day public notice in a national daily newspaper seeking written suggestions from the concerned parties or individuals. A sample of Scoping notice is given in Annex 2.1.

5.5.5 Interview and Questionnaire

Surveys can be conducted to determine public attitudes, values and perceptions on issues related to a proposal. Following methods might be used:

- Self-administered questionnaires;
- Personal interview; and
- Telephone surveys.

5.5.6 Workshops

The term 'workshop' is used here for a wide variety of small meetings in which a limited number of participants can be briefed about the proposal, or be engaged in the review of information, definition of issues, problem-solving and review of plans. Workshops are expected to produce useful results as well as provide a forum for exchanging information.

5.6 Content of Scoping

A Scoping Document should include:

- Project highlights and scoping methodologies including methods for issues prioritisation and consultation with interested and affected communities and stakeholders;
- Potential alternatives to be examined during the EIA study;
- Specific guidelines for undertaking and preparing the EIA report; and
- Priority issues to be addressed during the EIA study.

The main text of Scoping report should be concise and easily understandable.

5.7 Submission and Approval

As per Rule 4 of EPR, 1997, the proponent prepares and submits a Scoping Document for approval. In case of hydropower projects, the proponent submits it to DOED. DOED reviews the documents and forwards to MOWR with its comments and suggestions. MOWR again reviews it and forwards to MoEST with its suggestions. MoEST shall determine the Scoping document as submitted or in the revised form.

Terms of Reference

The Scoping exercise is the basis for developing TOR, and issues identified in Scoping are included in it. The first amendment of EPR, 1997 has deleted the provisions for Scoping in case of IEE. Hence TOR preparation is the first step in IEE study. The TOR shall be prepared by the proponent in the format as mentioned in Schedules 3 and 4 of EPR, 1997 for IEE and EIA study respectively.

The TOR assists in accomplishing the following:

- Including the issues to be addressed;
- Systematizing the working procedures;
- Delineating the specific activities to be undertaken;
- Fitting the IEE/EIA report into the context of existing policies, laws, 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; and
- Estimating the budget and human resources needed.

6.1 Format of TOR

The formats of TOR for IEE and EIA as mentioned in Schedules 3 and 4 of EPR, 1997 are given below:

Work-Schedule (Terms of Reference) of Initial Environmental Examination

1. Name and address of the individual or institution preparing the report:
2. Proposal's:
   a) General introduction
   b) Relevancy of the proposal
3. Procedure to be adopted while preparing the report:
4. Policies, laws, and manuals to be taken into account while preparing the report :
5. Preparation of the report:
   a) Time
   b) Estimated budget
6. (deleted from the Schedule by First Amendment 1999)
7. Specific impact of the implementation of the proposal on the environment:
   a) Physical and chemical
   b) Biological
   c) Social and economic
   d) Cultural
8. Alternatives for the implementation of the proposal:
   a) Design
   b) Project site
   c) Technology, procedure of operation, time schedule, raw materials to be used
   d) Other matters
9. Matters concerning the prevention of the impact of the implementation of the proposal on the environment
10. Matters to be monitored while implementing the proposal.
11. Other necessary matters.

1. Name and address of the individual or institution preparing the report:
2. General introduction of the proposal:
3. Data needed for the preparation of the report, and procedure of collecting them
4. Policies, laws, rules and manuals to be taken into account while preparing the report.
5. Preparation of the report:
    a. Time
    b. Estimated budget
    c. Necessary Experts
6. Scope determined for the preparation of the report.
7. Impact on the environment of the implementation of the report:
    a. Physical and chemical
    b. Biological
    c. Social and economic
    d. Cultural
8. Other alternatives for the implementation of the proposal:
    a. Design,
    b. Project site,
    c. Technology, procedure of operation, time-schedule and raw materials to be used
    d. Environment management system,
    e. Whether or not the risks resulting from the implementation of the proposal can be accepted,
    f. Other matters.
9. Measures to remove any negative impact that may be noticed while implementing the proposal.
10. Particulars of the cost and returns of the proposal.
11. Matters to be monitored while implementing the proposal.
12. Relevant information, reference lists, annexes, maps, photographs, tables and charts, graphs and questionnaires to be mentioned at the time of preparing the report.

6.2 Submission and Approval of TOR

In accordance with Rule 5 of EPR, 1997, the proponent shall prepare a TOR for IEE study in the format mentioned above, and submit it to DOED for approval. DOED reviews the TOR and forwards it to MOWR with its comments. If the proposal will be implemented in the forest areas, DOED in general sends the TOR to MFSC for comments and suggestions. MOWR approves it as submitted or in the revised form, and sends the letter of approval to DOED, which in turn, communicates with the proponent.

In case of TOR for EIA study, the proponent prepares and submits it to DOED which reviews and forwards to MOWR. MOWR send the TOR along with its suggestions to MoEST for necessary approval. MoEST might form a review committee for opinions and suggestions, and approves it as submitted or in the revised form. The decision is communicated to MOWR and the proponent as well.

As per Rule 5 of EPR, 1997, MoEST may give approval to the Scoping Document and TOR at the same time if the proponent submits them at once.

Preparation of Environmental Assessment Report

Project-specific baseline information is collected from primary and secondary sources. On the basis of baseline information and project activities, impacts are identified, predicted and evaluated on the physical, chemical, biological, socio-economic and cultural aspects of the environment. Based on the nature of impacts, benefit enhancement and adverse impact mitigation measures are proposed for both construction and operation stages of the project. Similarly, environmental monitoring and auditing requirements are included in the EIA report along with the environmental management plan. This chapter describes the key elements of the EIA report right from baseline information collection to environmental auditing.

7.1 Baseline Condition

The existing physical, chemical, biological, socio-economic and cultural environmental condition of the project area is often referred to as the baseline condition. Adequate and accurate baseline information is critically important to assess environmental impacts. The type and extent of baseline data and information depends upon the nature and complexity of environmental issues associated with the proposed project. The approved TOR provides guidance on the type and extent of baseline information required.

For a small run-of-the-river scheme, secondary information derived from existing maps and records including field level data and information may be adequate, while for a large hydropower projects, detail data and information should be collected and analysed. Baseline data and information needed for a generation project differs with that of a transmission or a distribution project. Collection of unnecessary data and information is the waste of resources and may create unnecessary confusion. Inadequate data may seriously affect the accuracy of impact identification and prediction, and will affect other stages of EA.

The accuracy of impact identification and prediction will always be higher when the baseline data and information is accurate and adequate. Baseline information also provides benchmark against which the effectiveness of adopted mitigation and enhancement measures can be measured. Hence, baseline information is critically important in EA process.

7.1.1 Collection of Baseline Information

Baseline information can be collected from maps and reports and field study, questionnaire surveys such as checklists, inventory, and sampling depending upon the nature and location of the project, and data and information required as per the approved TOR.

Baseline information on physical environment components such as topography, geology, and land use can be obtained from topographic, geological and land use maps whereas noise level, air and water quality data should be generated through measurements. Water quantity and flow can be derived from the project report and Department of Hydrology and Meteorology (DHM) reports. If the river flow data is not available from secondary sources, it should be measured in the field.

Baseline information on biological components such as vegetation and wildlife should be collected from field surveys whereas information on rare, endangered, threatened and protected species can be derived by comparing the list of plant and animal species with CITES appendices, IUCN Red Data Book and Nepal's protected and use regulated species. Data and information on fish abundance and diversity can be gathered through interviews with local fisherman, fish sampling or secondary information.

Baseline information on socio-economic and cultural aspects can be partly obtained from district profile, village profile, CBS reports and handbooks. The detailed socio-economic and cultural condition of the project affected families (PAFs) and severely project affected families (SPAFs) might be collected through questionnaire surveys, focussed group discussion (FGD) and participatory rural appraisal (PRA).

Indicative components of physical, chemical, biological, socio-economic and cultural environment that are taken into account while recording the existing environmental condition of the project area are given below (Table 7.1).

Table 7.1: **Nature and Source of Baseline Data**

Components	**Required Information on**	**Source/Method of Collection**
Physical		
Climate	▪ Precipitation ▪ Temperature ▪ Humidity and evapo-transpiration ▪ Wind direction	▪ Project Feasibility Study Report ▪ DHM reports
Hydrology	▪ River Flow	▪ Project Feasibility Study Report ▪ DHM reports ▪ Flow Measurement
Air quality and Noise level	▪ Oxides of carbon, sulphur and nitrogen ▪ Particulate matters ▪ Noise level	▪ Measurement, analysis with calibrated equipment ▪ Sound level
Water	▪ Surface water quality ▪ Ground water quality	▪ Sampling, testing and laboratory test
Geology	▪ Rock and soil type ▪ Geological structure ▪ Landslides ▪ Debris flow ▪ Active faults	▪ Geological maps ▪ Aerial photographs ▪ Site walkthrough and observation ▪ Measurement
Land	▪ Land Use	▪ Land use map ▪ Topographic map ▪ Field walkthrough
Watershed	▪ Soil loss ▪ Condition of watersheds	▪ Loss estimation ▪ Map measurement on area of degraded lands
Biological		
Flora	▪ Forest type ▪ List of major plant species ▪ Ethnobotanically important plant species ▪ Aquatic plants	▪ Field investigation, sampling, inventory and identification ▪ Herbarium collection and identification ▪ Interview ▪ Site visit
Fauna	▪ Types of wild mammals ▪ Types of birds ▪ Types of reptiles ▪ Types of amphibians ▪ Other animals including aquatic animals ▪ Wildlife habitat	▪ Field investigation ▪ Interview ▪ Site walkthrough and observation ▪ Secondary Data

Components	Required Information on	Source/Method of Collection
Fish	▪ Types of fish species ▪ Fish movement ▪ Habitat status	▪ Fish sampling ▪ Interview with fisherman ▪ Secondary data ▪ Field observation
Species status	▪ Availability and status of rare, endangered, protected/use regulated, threatened plant and animal species.	▪ Verification of list of collected flora and fauna with IUCN Red List, CITES Appendices, Nepal's protected or use regulated list of plants (Annex 3.1, 3.2, 3.3 and 3.4)
Socio-Economic and Cultural		
Demography	▪ Population distribution and ethnic composition	▪ Village profile ▪ District profile and ▪ Household survey
Houses and settlement	▪ Types of houses and settlement pattern	▪ Village profile ▪ District profile ▪ Site visit
Education	▪ Number and type of educational institutions ▪ Number of enrolments ▪ Literacy rate ▪ Percentage of child attending schools	▪ Village and district profiles ▪ Questionnaire survey ▪ Interview ▪ School record
Health and sanitation	▪ General health condition ▪ Types of common diseases ▪ Status of health institution	▪ Village and district profiles ▪ Questionnaire survey ▪ Interview
Infrastructure	▪ Status of road, electricity, telephone, post office, drinking water supply, markets, Industries, banking, police	▪ Village and district profiles ▪ Questionnaire survey ▪ Interview and FGD

7.2 Impact Identification and Prediction

Hydropower development projects would have environmental impacts, beneficial or adverse. The main objective of impact identification is to specify the resources that are likely to be affected by project implementation. Impact identification begins when baseline data on both the project and the surrounding environment are available.

7.2.1 Types of Impacts

Impacts are categorized and presented in the following areas:

1. **Physical Environment:** Impacts affecting the components of the physical environment such as landform, surface and groundwater flow, water quality, air quality, noise level and slope stability are described.
2. **Biological Environment:** Impacts affecting the biological components such as flora, fauna, habitat, aquatic life are included.
3. **Socio-economic and Cultural Environment:** Impact affecting people and economy such as population distribution, agricultural production, religious and cultural practices, health, infrastructures, etc. are described under it in the EIA report.

Impacts on physical, biological and socio-economic and cultural environment are categorized as direct, indirect and/or cumulative as follows:

a) **Direct Impacts –** Direct impact refers to alterations to existing environmental conditions as a direct consequence of project activity. A direct impact can have far reaching effects, producing indirect impacts, depending on the structure and function of a particular system, which is being stressed by development activities.

b) **Indirect Impacts –** Indirect impact results when one component of the environment produces repercussions (side effect) on other related components. Prediction refers to impact that might occur.

c) **Cumulative Impacts –** An environmental impact produced by a single activity or a project may not be significant in itself. But, a series of similar impacts created by several activities of a project or different projects may produce the combined or cumulative effects. An ecosystem may be considerably affected by cumulative impacts. It is necessary to consider the cumulative impacts of projects as they affect the same area.

Impacts vary from low to high intensity and range from adverse to beneficial. The magnitude, extent and duration of impacts should also be highlighted in the EIA report.

- **Magnitude of Impact i**s defined as the severity of each potential impact and indicates whether the impact is reversible or irreversible, and indicates the estimated potential rate of recovery. The magnitude of an impact should not be considered high if a major adverse impact can be mitigated. The magnitude of impact is often expressed as high (H), moderate (M) or low (L).
- **Extent of Impact** refers to the spatial extent or the zone of influence of an impact. An impact can be as site-specific (SS) or limited to the project area, as a locally occurring (L) within the watershed of the proposed project, as a regional impact (R) that may extend beyond the watershed, as a national impact (N) affecting resources on a national scale, or as a transboundary impact (T) affecting resources of more than one country.
- **Duration of Impact** refers to temporal dimension and might be categorised as short-term (ST), medium-term (MT), and long-term (LT).

Criteria should be used to describe the magnitude, extent and duration of impacts. It might differ for projects and should consider the type and location of project, and sensitivity of environmental resources.

7.2.2 Methods for Impact Identification

Several methods are available to identify environmental impacts. For this, checklist and matrix are commonly used. A simple checklist is useful for impact identification, ensuring that no impact is overlooked. It helps to list potential impact areas, and assess the character and nature of the impacts. This is usually expressed as adverse or beneficial, short-term or long-term, or significant or insignificant impacts.

Matrix is commonly used to display link between the proposed project activities and potentially affected environmental components. The simple method is to combine checklists of development actions and environmental components within a two dimensional matrix, as means to identify potential impacts. This is also referred to as an Interaction Matrix. The response of each environmental component to each development action indicates potential impacts are likely to occur and, in such cases, a cross might be used to mark the interaction cell. At this stage, the types of impact are not usually categorized as direct or indirect, but the complete matrix furnishes a visual summary. Maps overlay and GIS help to identify impacts clearly.

7.2.3 Methods for Impact Prediction

Predictions are described in quantitative or qualitative terms. Impact predictions should at least do the following:

- Determine the initial reference or baseline condition; and
- Estimate the future state with and without the proposed action.

Impacts should be predicted using mathematical models, statistical tools, geographical information system (GIS), field, and laboratory experimental methods. In many cases, experts' judgments are used. The judgment refers to the use of technical or local expertise (based on scientific or indigenous knowledge). Experience of a project in one place could be utilized for similar places.

7.2.3.1 Choice of Prediction Method

The assessor should select impact prediction methods for a particular project, bearing in mind that it produces appropriate results; it could be replicable; and the method is consistent and adaptable. More than one method is often used for impact prediction. For example, establishment of an industry requires considerations of water pollution, air pollution and socio-economic aspects. For each, different methods may be used to predict impacts that are likely to occur.

In general practice, there is a tendency to use the less formal predictive methods such as expert judgement. Even when formal predictive models are used, they tend to be simple. A simple EA method is more understandable to stakeholders. However, scientific and computer-based models are also useful for impact prediction if:

- Project requires handling of a large volume of data;
- There exists complex interrelationships; and
- There might be statistical probability.

However, usage of complex model might be time-consuming and expensive, and it might have limited use for particular sectors of the environment.

7.2.3.2 Uncertainty in Impact Prediction

When the impact of some activity is predicted, the assessor might give an impression that it is going to happen with certainty. Predictions may, in fact, have elements of uncertainty of occurrence, which usually affect the accuracy. Uncertainty is common when considering the physical, social and economic environment, and policies, legislations and priorities.

In resolving questions of uncertainty, the issue of probability of occurrence and confidence limit of impact prediction has to be addressed. All predictions should be expressed in such a way that each outcome falls within a range of percentage of confidence. For example, a new industrial unit might emit a noise level of 65 to 70 DBA, as concluded at the 95 percent confidence level. This means that only 5 percent out of 100 would be the noise level predicted to exceed the expected range.

7.2.4 Impact Evaluation

Impacts are identified and predicted and all of them might not be significant. Hence, it is necessary to evaluate the significance of identified and predicted impacts for making the best use of limited resources - technical, financial and human resources - and avoid, minimise or compensate the significant impacts. In general, impacts should be evaluated taking into consideration the national policies, laws, standards, and international commitments.

7.3 Consideration of Alternatives

Consideration of alternatives to a proposed project is one of the key steps of an EA study. Alternatives are examined to arrive at development options and to maximize the benefits and avoid or minimise the unwanted impacts. During alternative analysis, scale and location of the project, environmental issues, design, raw materials and construction technology, economic factors and operational modalities should be considered. Such analysis should provide adequate information on possible impacts of each alternative on the environment:

A comparison of adverse impacts against beneficial impacts should be included in the EA report while considering the alternatives of the project (with and within project).

7.4 Environment Protection Measures and their Implementation

Environment protection measures (EPM) refer to benefits enhancement and adverse impacts mitigation measures. Adverse impacts can be avoided, minimised and/or compensated. Appropriate measures should be selected with due consideration on the nature of impacts and environmental sensitivity of the project area. The principles of impact mitigation are to: (i) ensure environmental and social benefits; and (ii) avoid, reduce or compensate undesirable impacts. Following mitigation measures could be considered and appropriate measures should be selected. Such measures should be included in the EA report.

7.4.1 Preventive Measures

Some potential adverse impacts may be avoided by introducing preventive measures. This measure follows the concept of 'prevention is better than cure'. Impact avoidance is possible through proper design. For example, realignment or relocation of structures might avoid potential adverse impacts. Implementation of health education programs, environmental awareness programs through timely orientation, information sharing, education and communication activities are examples that might help in preventing the impacts.

7.4.2 Corrective Measures

Corrective measures may be adopted to reduce adverse impacts to acceptable levels. The following are examples of corrective measures:

- Installation of pollution control devices;
- Construction of a wastewater treatment plant;
- Construction of a fish ladder (in dams, weirs) to ensure upstream and downstream movement of fish species; and
- Conservation of endangered and threatened flora and fauna.

7.4.3 Compensatory Measures

Compensatory measures are actions, which compensate for unavoidable impacts. Examples of compensatory measures include:

- Restoration of damaged resources;
- Creation of new habitats;
- Resettlement and rehabilitation of displaced people; and
- Compensation of life and property to affected persons.

7.5 Environmental Monitoring

Monitoring is an important element of an EA report that helps to know the compliance and effectiveness of environment protection measures (EPMs). Monitoring can be done during pre-construction, construction and operational stages of the project and depends upon the nature of EPMs. Lack of appropriate monitoring impedes scientific and management progress in impact assessment and limits learning from experience.

Environmental monitoring functions well if appropriate indicators are selected. During the preparation of EA report, it is important to identify indicators for both beneficial and adverse impacts. For each impact, indicators should be developed to proceed monitoring smoothly and successfully. Monitoring is essential for:

- Ensuring that impacts do not exceed the standards;
- Checking the implementation of mitigation measures in the manner described in the EA report; and
- Providing early warning of potential environmental damage.

Environmental monitoring is meant to generate meaningful information and improve implementation of mitigation measures, and it should accomplish the following:

- Indicators should be used in monitoring activities;
- Relevant information should be checked;
- Criteria in relation to chosen indicators should be established;
- Objective judgment should be made on the information collected;
- Tangible conclusions based on the processing of information and objective judgments should be drawn; and
- Appropriate mitigation measures should be undertaken by the proponent.

7.5.1 Types of Monitoring

Various types of monitoring activities are currently in practice. The following types are commonly considered in EA process:

a) Baseline Monitoring refers to donduct a survey of environmental parameters in the project area before construction begins in order to update baseline information.

b) Compliance Monitoring refers to compliance with the implementation of EPMs.

c) Impact Monitoring refers to the effectiveness of EPMs after their implementation.

7.5.2 Intensity of Monitoring

The level or intensity is to determine on the basis of potential severity of the environmental impact being monitored. Monitoring might be regular, periodic or intermittent. Intensity of monitoring might be increased during construction period and periodic monitoring might be useful for operational stage. However, it depends upon the nature of monitoring indicators, location of monitoring and environmental sensitivity of the project area.

If some components are potentially more significant than others in causing adverse environmental impacts, emphasis should be given to monitor the selected indicators of these components.

7.5.3 Selection of Monitoring Parameters

The Manual for Preparing Environmental Management Plan for Hydropower Projects prepared by DOED provide guidance to streamline environmental monitoring of hydropower projects. A monitoring plan defines precisely the parameters, indicators, methods, location and schedule for monitoring. Monitoring parameters and indicators should be linked with EPMs. An example of developing monitoring requirement is given in Table 7.2. Information contained in the table is only indicative and it would help in developing project and impact specific indicators with corresponding methods, and design monitoring requirements for hydropower projects. The monitoring data should be compared with the baseline data to know the changes.

Table 7.2: **Indicative impact Monitoring Parameters**

Parameters	Indicators	Method	Location	Schedule
Physical Environment				
Slopes	Accumulation of debris, and cracks in slopes	Site observation, measurement	Areas of unstable slopes	Regular during construction period
Water Quality	Temperature, pH, turbidity, TSS, hardness, chloride sodium, Coliform, DO, BOD, COD, etc.	Water sampling and testing	Designated locations at upstream and downstream of the weir	Once a month during construction, and after rainy season during operation period
Air Quality	Particulate matter, SO_2, CO_2, NO_2, PbO_2, dust accumulation on house, vegetation, surrounding areas	Low-volume sampler, visual inspection, and measurement	In and around construction sites and along access roads	Continuously during construction period
Noise level	Increase or decrease in noise level	Sound level meter	Tunnel and powerhouse site	Once in three months
Biological Environment				
Fisheries	Species-based fish population and density	Fish sampling and discussions with local fishermen	Upstream and downstream of the weir	Three times a year before, during and after monsoon
Forest and Vegetation	Number of trees and shrubs, and presence of ground cover	Measurement, field observation , and discussion with user groups, local people and DFO	In and around construction sites/camps, access road	Twice a year during construction period
Compensatory planatation	Number of trees planted	Measurement and field observation	Plantation site	Once a year during dry month
Wildlife habitat	Number and species of wild animals reported	Discussion with local people	In and around project area	Once a year during winter season
Socio-Economic and Cultural Environment				
Public health	Cases of communicable diseases	Health post/ hospital record, discussions with local people and health professionals	Affected settlements, project sites	Once in three months during construction period
Resettlement and Rehabilitation	Social and economic conditions of the displaced people	Discussions with displaced people, observation	Resettled site(s)	Once a year for about three years after resettlement
Employment to local people	Number of local people employed by project	Review of records and interview	Project site	Monthly during construction period

7.6 Environmental Auditing

Environmental auditing refers to a systematic, periodic, documented and objective review of project activities related to meeting the environmental requirements. Three parties are generally involved in an environmental audit. They are: an auditor, a person or a team conducting an audit; an auditee, a project or components of a project being audited; and the third party, the institution that want to know the result of an audit. An environmental audit could be internal or external depending upon the institution involved as an auditor and mandatory or voluntary depending upon whether or not the proposed audit is the requirement of the law.

7.6.1 Types of Environmental Auditing

The National Environmental Impact Assessment Guidelines, 1993 has mentioned the following types of audits.

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 approaches adopted during the EIA study.

Apart from the above-mentioned audit types there are other types of audits designed according to audit purpose. Compliance Audit and Management Audit are often used. Compliance audits are used to evaluate project compliance status with the current environmental requirements while the management audits are designed to evaluate an organization's ability to carry out its environmental management programme.

Selection of a type of audit entirely depends upon the audit programme goals and objectives. Wide ranges of audit types are available and a particular audit type can be chosen according to the need. Some audit programmes use only one type of audit while others might use two or more than two types in combination.

7.6.2 Frequency of Auditing

Environmental auditing is, in general, carried out after the construction stage once in the project cycle. However, it should not be perceived as a one-time event. Several factors determine how often the auditing should be conducted:

- Audit goals and objectives;
- Nature of the project operation and associated environmental risks;
- Resources available for carrying out the programme;
- Project's compliance status; and
- Project's overall environmental management history.

On the basis of audit findings, necessary corrective measures should be implemented.

7.6.3 Designing an Audit Programme

Design of an environmental audit programme requires careful consideration of desired goals and objectives. Design factors include:

- Scope of audit;
- Frequency of audit;
- Types of audit; and
- Level of effort required.

7.6.4 Audit Methods

Several methods can be used to generate data and information and know the pre- and post-construction stage environmental condition. Questionnaire, photo-monitoring, reference materials, aerial photographs, and measurement can used to generate necessary data. A pre-visit questionnaire consists of a series of written questions directed to the project manager to determine the nature and extent of any environmental issues noticed during the construction stage and prevailing at the project area. Protocols are the actual working documents, which provide the audit team an outline for conducting on-site audit. Reference materials such as geological, land use and topographical maps and relevant reference books can be useful in evaluating details about potential environmental risks posed by a project. Aerial photographs are invaluable as a reference point for reviewing project structures and land use status. In some case, sampling and laboratory analysis of air and water parameters might be required to know the changes on their quality. Observations, interview, FGD and PRA might also be used to collect and verify data and information.

As a desk study, the auditing team should carefully review the EIA and monitoring reports before starting auditing works. The EIA report provides information on project commitments while monitoring report give clear indication on non-compliance and problematic areas. Prior to field study, the team should inform the project management timely about the auditing.

7.6.5 Selection of Auditing Parameters

The Manuals for Preparing Environmental Management Plan for Hydropower Projects, 2002 prepared by DOED provide general guidance on auditing parameters and indicators. Auditing parameters should be sufficiently linked with baseline and monitoring parameters. Auditing methods should also be similar with those used to collect baseline data and monitoring in order to avoid and/or minimise method-based errors. The following table provides indicative parameters, indicators and methods for environmental auditing (Table 7.3).

7.6.6 Audit Report

Audit report should be prepared after the completion of site visit and field study. The report should be clear, concise and user-friendly with adequate supporting date and information.
The audit report should clearly focus on pre-project and post-construction stage environmental condition. Overall, the report should be as short as possible without compromising on necessary details. Once the audit report is prepared, it is necessary to make it public and send to the concerned organisation including the project for its implementation.

7.6.7 Legal Provisions for Environmental Auditing

Rule 14 of the EPR, 1997 requires MoEST to undertake an environmental audit of a project subjected to EIA two years after the commencement of service relating to the implementation of the proposal. MoEST is also responsible to maintain the updated records thereof.

Schedule 6 (matters to be mentioned while preparing reports relating to EIA) of the EPR, 1997 requires the project proponent to mention the auditing format and relevancy of environmental auditing in the EIA report.

Table 7.3: **Indicative Parameters for Environmental Auditing**

Parameter	Indicator	Location	Methods	Sources
Physical Environment				
Air quality	Particulate matters, SO_2, CO_2, NO_2, PbO_2 etc; Dust accumulated on roofs, vegetation and surrounding area	Intake, powerhouse, crushing plant area, surrounding area and access road	Measurements, laboratory analysis, and visual inspection	Field study and EIA and monitoring reports
Noise	Noise level in the targeted area	Powerhouse, crushing plant, surrounding area and access road	Measurements from sound meter, and careful hearing	Data analysis and hearing
Vibration of structures	Cracks in structures complain, and compensation	Settlements near the project site	Interview, and observation	Local people and office records
Biological Environment				
Forests and vegetation	Number of trees and shrubs cut down, and amount of firewood consumed	Project site and nearby forest area	Official records	Project office, DFO or user group
Wildlife diversity	Frequency of mammals, birds, reptiles etc. seen in the project area	Vicinity of the project site	Observation, and interview	Local people
Fisheries	Species of fish population, and abundance	Upstream and downstream of the weir	Sampling, and interview	Analysis; Local people
Socio-economic and Cultural Environment				
Employment to local people	Number of local people employed during construction and operation phases	Project site	Review of project records and interviews	Project records and local people
Child labour	Number of child labour employed	Project site	Review of project records and interview	Project records and local people
Public health	Cases of communicable diseases	Project site, health post and hospital	Review of records and interviews	Records of health post and hospital and project expense on health of workers
Social disturbance	Cases of events	Project site	Record review, consultation with local people	Records

7.7. Implementation of Environment Management Plan

EMP should include plan for the implementation of environment protection measures (benefits augmentation, and adverse impacts mitigation measures). It should also include implementation mechanism for monitoring and auditing. EMP should clearly indicate the requirements for staffing, co-ordination, budgeting and reporting for its effective implementation.

7.8 Public Involvement

Public involvement provides a cornerstone for project planning and implementation. Effectiveness of EA is largely determined by how successfully the community understands the project and is involved in the process. Public involvement should begin early during the Scoping and continue throughout different phases of EA. Public involvement helps to:

- Recognise traditional practices and knowledge;
- Create public awareness, and enhance the chances of project success;
- Facilitate individual and groups' involvement right from the planning stage; and
- Encourage a sense of responsibility towards making development project environmentally sound and cost effective.

In general, local beneficiaries, target groups, user groups, interested and affected parties, and special interest groups such as women and indigenous and disadvantaged group of people should be involved in EA process. Furthermore, relevant local bodies such as VDCs, municipalities, and DDCs, elected and social leaders, relevant NGOs and CBOs, and academia should also be involved during the preparation and implementation of EA report taking into consideration the nature and location of the project.

7.8.1 Public Notice

As per Rule 7 (2) of EPR, 1997, the proponent shall publish a notice in the national level daily newspaper (Annex 4.1). In case of IEE, it should also affix a notice in the concerned VDCs or Municipalities and DDC Office, school, hospital and health posts requesting concerned institutions and individuals to offer their written opinions and suggestions within 15 days, with regard to the possible impact due to implementation of the proposal on the environment and prepare a deed of public inquiry (Muchulka[1]) of that deed (Annex 4.2). Opinion and suggestions obtained shall be included in the IEE report. The publication of notice in a national daily newspaper and affixing of a notice in the notice board of the offices of VDCs/Municipalities, DDCs, school, hospital, etc. should be carried out after the preparation of the draft IEE report.

7.8.2 Public Hearing

In accordance with the provision of Rule 7 (2) of EPR, 1997, a public hearing should be conducted at the project site to collect concerns, opinions and suggestions of the local people to be affected, directly or indirectly, by the proposed project before finalising the EIA report.

The public notice and hearing provides opportunities the local people and stakeholders to offer their comments and suggestion on the draft IEE and EIA reports. In addition, there are several possibilities of public involvement during an EA process which can serve as supplementary to those mentioned above. Wider public involvement, generally, means realistic EA reports.

7.8.3 Process for Involvement

There are several methods to involve people at different levels. They might be involved through: (i) community meetings for information sharing; (ii) workshops and training; (iii) inter-personal contact and interviews; (iv) dialogue with user groups and local leaders; (v) questionnaire surveys, interviews and discussions; and (vi) Rapid Rural Appraisal (RRA), Participatory Rapid Appraisal (PRA), and Appreciative Inquiry (AI). Similar methods might be used to involve other stakeholders.

7.9 EA Report Preparation

In Nepal, the legal regime on the environment has provisions for the preparation of and approval procedure for project level EA, i.e. IEE and EIA.

7.9.1 IEE Report Preparation

The IEE report format is given in Schedule 5 of EPR, 1997. The matters listed in the schedule are common for all types of projects that require IEE study. Additional information should be included to make the IEE report comprehensive for hydropower projects. The format is also included in the following box.

7.9.2 EIA Report Preparation

A comprehensive and good EIA report avoids duplication and unnecessary things. Using the standard format for report preparation, there might be some duplication in write-ups. In general practice, a good quality EIA report contains less than 100 pages including 10 pages of the Executive Summary. An Executive Summary should be non-technical, and this should be synopsis of contents described in the main report. The EIA report could also be prepared in Nepali language. However, it would be appropriate to include executive summary both in Nepali and English language.

The EIA report should contain all aspects as mentioned in Schedule 6 (see box below) of EPR, 1997.

[1] *Muchulka is an authenticated proof document of any evident*

Schedule 5 of Environment Protection Rules, 1997
(Pertaining to Rule 7)

Matters to be Mentioned While Preparing Reports Relating to Initial Environmental Examination

1. Name and address of individual or institution preparing the report.
2. Summary of the proposal: (To briefly mention the following matters in regard o the possible impact of the implementation of the proposal on the environment)
   a) Objective of the proposal
   b) Impact on landuse
   c) Adverse impact on the environment, impact on human lift, and population pressure
   d) Damage to be suffered by local goods or objects
   e) Other necessary matters
3. The following matters must be explicitly mentioned in respect to the proposal
   a. Type of proposal
      (1) Processing, (2) Manufacturing, (3) Installation, (4) Service delivery, (5) Others
   b. If related to delivery, the nature and type of goods to be delivered.
   c. Proposals
      (1) Installed capacity, (2) Number of hours to be operated per day or year
   d. Materials to be used (Quantity and year is to be mentioned)
   e. Emission resulting from the implementation of the proposal (the time of operation and the consequent volume of emission to be specified).
      (1) Solid, (2) Liquid, (3) Air, (4) Gas, (5) Noise, (6) Dust, (7) Others
   f. Energy to be used
      (1) Type, (2) Source, (3) Volume of consumption (per hour, day and year)
   g. Manpower requirements
   h. Resources required for the implementation of the proposal
      (1) Total capital, (2) Working capital, (3) Land area, (4) Buildings and their types, (5) Machinery and tools, (6) Others
   i. Detailed particulars of the area where the project is to be implemented:
      (1) Maps, (2) Population and condition relating to settlements in the area, as well as in the nearby areas, (3) Particulars of any sensitive things or objects, if any, located close to the area where the proposal is to be implemented, (4) Current situation, (5) Sources of water, (6) Arrangements made for disposing or processing waste, (7) Paths for movement in the area where the proposal is to b implemented
   j. Manufacturing process
   k. Details of technology
   l. Other necessary matters
4. Impact of the implementation of the proposal on the environment :
   a) Impact on the Social, economical and cultural spheres :
      (1) Impact on human health, (2) Degradation of cultivable land, (3) Destruction of forest, (4) Changes in social, cultural and religious norms and values, (5) Others
   b) Biological impacts
      (1) Pollution, (2) Flora and fauna, (3) Natural habitats and communities
   c) Physical impacts
      (1) Land, (2) Atmosphere, (3) Water, (4) Noise, (5) Man-made objects, (6) Others
5. Alternatives for the implementation of the proposal
   (1) Design, (2) Project site, (3) Process, time-schedules, (4) Raw materials to be used, (5) Others
6. Measures to reduce or control the impact of the implementation of the proposal on the environment
7. Matters to be monitored while implementing the proposal
8. Other necessary matters

***Note**: Data, maps, photographs, tables, charts, graphs, etc. shall be enclosed, as required, while preparing the report.*

Schedule 6 of Environment Protection Rules, 1997
(Pertaining to Rule 7)

Matters to be Mentioned While Preparing Reports Relating to Environmental Impact Assessment

1. Name and address of individual or institution preparing the report :
2. Summary of the proposal : (To mention the following matters in regard o the possible impact of the implementation of the proposal on the environment)
   a. Objective of the proposal
   b. Impact on land-use
   c. Adverse impact on the environment, impact on human lift, and population pressure
   d. Damage to be suffered by local goods or objects
   e. Other necessary matters
3. Summary of the Report : Brief particulars of the matters mentioned in the report relating to the environmental impact assessment
4. Particulars of the Proposal :
   a. To specify the technical, geographical, environmental economic, social, cultural and physical aspects of the proposal
   b. To specify the objectives, working policies and work-schedule of the activities to be undertaken during each phase of the implementation of the proposal
5. Basic Information relating to the proposal : To mention basic information about the geo-physical, cultural, biological, and social and economic conditions of the area to be assessed, as well any possible change that may occur there before the implementation of the proposal, according to the nature of the proposal. In case there are any date which are not available or any subject which cannot be covered by the study, they too should be mentioned.
6. Identification of Environmental Impact : To mention the possible positive and negative impacts on the following spheres of the environment while implementing the proposal, and estimate and specify the volume of possible impact according to time and work schedules as far as possible :
   a. Geographical area likely to have positive or negative impact of the implementation of the project, and their time-schedule.
   b. Impact of waster and pollution to be emitted through the implementation of the proposal
   c. Direct, indirect and cumulative impact of the implementation of the proposal on the environment.
7. Analysis of the Alternatives for the proposal : The following matters are to be analyzed :
   a. Matters concerning the design of the proposal, project site, technology, operation procedure, time-schedule and raw materials to be used.
   b. Comparison is to be made on the basis of the fixed and working capital, local suitability, institutional training and supervision needed for the implementation of the proposal, and the environmental cost and returns and economic significance of each alternative measures are to be analyzed as far as possible.
   c. Short, medium and long-term adverse impact of the implementation of the proposal.
   d. Sources of energy to be used for implementation of the proposal, and measures to be adopted for saving such energy.
   e. Analysis of the consequences of the non-implementation of the proposal.

Schedule 6 Contd…
(Pertaining to Rule 7)

Matters to be Mentioned While Preparing Reports Relating to EIA …

8. Measure to reduce environmental impact:
   a. To mention practical preventive measures to be adopted for all activities which could a have a negative impact on the environment
   b. In case the environmental impact cannot be fully avoided through preventive measures, arrangements made for payments of compensation shall be mentioned. The effectiveness of the preventive measures shall be analyzed from the viewpoint of their cost on the basis of a comparison with other possible alternatives.
   c. The effectiveness of the preventive measures shall be analyzed from the viewpoint of their cost on the basis of a comparison with other possible alternatives
9. To mention matters concerning environmental management plans.
10. Review of policy and legal Provisions: To review the related policies, laws, and rules on the basis of the nature and scale of the proposal. If any policy or legal provision needs to be reformed, to specify the same.
11. Monitoring of the Proposal: To mention the procedure of monitoring the impact of the implementation of the proposal on the environment, as well as the monitoring and evaluation
12. To mention the format and relevancy of environmental examinations.
13. Reference materials : To make a lost of publications quoted as references while preparing the report in the following manner :
    a. Author,
    b. Date of Publication,
    c. Title of Material quoted,
    d. Name of publication or journal which is quoted,
    e. Year, volume, number, etc. (if any)
    f. Page number.
14. To include the following particulars in the Annexes :
    a) Maps relating to the composition of land, geographical location, lands-use and land-capacity, and other maps related to the study,
    b) Aerial photographs, as far as possible, of the proposal implementation site and surrounding areas,
    c) Questionnaire or list of subject matters used for field research,
    d) Such matters connected with the evaluation of the environmental impact as chars and photographs,
    e) Hydrological and climatic data (by arranging them serially according to the period),
    f) Data relating to flora and fauna of the proposal implementation site,
    g) Geological and risk evaluation data (if available),
    h) Information relating to the quality of air and water and noise level before and after the operation of the project, if available),
    i) Matrix or serial graphs relevant to the environmental impact assessment,
    j) Such audio-visual supports as maps, slides, records and video films,
    k) Cropping techniques, and data relating to livestock farming, soil features, and quantity of chemical fertilizers used,
    l) List of writing reference materials used at the time of preparing the study report.
    m) List of invitees and participants, and records of discussions, meetings and gatherings, among the concerned agencies, and brief particulars of monitoring operations,
    n) List of names of individuals and institutions comprising the study team involved in the preparation of the environmental impact assessment report.
    o) Names, address and telephone umbers of individuals and institutions contacted in the course of the study.

Review and Approval Process

Environmental documents are kept in the public domain. Environmental assessment is carried out for all development initiatives that will likely impact on the environment, except of the proposals related to national security. Such reports should be reviewed at different levels and stakeholders should be involved in review process.

8.1 EA Review Process

The main objective of review is to critically examine the EA report and ensure that the following criteria are met:

1. EA report is in concurrence with approved TOR and EPR, 1997;
2. The study has identified all significant adverse environmental impacts likely to arise during project implementation with mitigation measures for each impact;
3. Methodology adopted, techniques applied, assumptions made and limitations mentioned are adequately described;
4. Reasonable alternatives have been evaluated on the environmental ground and suggested to the proposed actions;
5. Report results are scientifically and technically sound and coherently organized so as to ensure that it is understood by decision-makers and general public; and
6. Sources of information cited in the report are relevant and accurate.

8.1.1 Review Parameters

Some parameters should be carefully checked while reviewing the EA report to examine whether they have been adequately addressed. The reviewers should evaluate the report thoroughly. They should also consider the following indicative review outline:

(i) Impacts

a. Does the project have an impact on any environmentally sensitive area?
b. Is there a clear statement of significant beneficial and adverse impacts?
c. Have the risks been evaluated?
d. Has attention been paid to off-site impacts, including transboundary impacts, and to the possible time lag before effects are manifested?

(ii) Mitigation Measures

a. What mitigation measures are proposed and what alternative sites have been considered?
b. What lessons from previous similar projects have been incorporated into the EA report?
c. Have concerned people and groups been effectively involved?
d. Is adequate consideration given to provision of compensation for loss or damage of land and property, or for involuntary resettlement?

(iii) Procedures

a. Does the EA procedure comply with national policies, laws, standards and guidelines?
b. How have the beneficial and adverse effects of the project been integrated into the economic analysis of the project?

(iv) Implementation

a. Are institutional arrangements adequate to implement environment protection measures?

b. Does EA report specify responsibility for environmental monitoring and auditing?
c. Have budget been included for the implementation of environmental protection measures and do they have adequate funds and technical capacity to implement them?

8.1.2 Review Responsibility

In general, EA reports are reviewed officially by the approving agency. However, the following agencies and organizations are also involved in review of EA report:

- Project proponent, in case the report is prepared through consulting services;
- Concerned department and ministry; (see Chapter on Institutional Roles and Responsibilities)
- NGOs, CBOs, affected people and stakeholders; and
- Subject experts.

The project proponent shall receive comments and suggestions from reviewers and refine the report and submit for necessary approval. The Concerned Body shall review and approve the IEE report and MoEST is responsible to review and approve the EIA report as per EPA, 1996 and EPR, 1997.

Section 6 of EPA, 1996 empowers MoEST to form a committee comprising also of experts to render opinions and suggestions on EIA report. MoEST forms such committee on case-by-case basis, i.e., for each proposal. The composition of the EIA Report Suggestion Committee is as follows:

• Joint-Secretary and Chief, Environment Division, MoEST	Chairman
• Representative (Class II Officer) of the Concerned Body related to proposal	Member
• Expert of representative of the association related to proposal (not exceeding 3)	Member
• Representative of the government or NGO (not exceeding 3)	Member
• Under-Secretary (Law), MoEST	Member
• Under-Secretary, Environment Assessment Section, MoEST	Member-Secretary

In general, MoEST organises the meeting of such committee, as and when necessary, to collect suggestions, and publish the EIA report for 30-days to seek suggestions of the stakeholders before the approval of any EIA report. MoEST might also collect opinions and suggestions of individuals and other institutions, if necessary.

8.2 EA Report Approval Process

8.2.1 IEE Report

The approval process starts with the submission of IEE report of hydropower projects to DOED along with the proofs of Muchulka, public notice, opinions and suggestions received as per Rule 7 (2) of EPR, 1996 and recommendations of concerned VDC and/or Municipality. After examination and review, DOED forwards the report to MOWR with its comments and suggestions. If the project will be implemented in the forest area or passes through forest areas, DOED has a practice of sending a copy of the IEE report to MFSC for review and comments. Receiving the comments from DOED and MFSC, MOWR after its own review shall grant approval within 21 days upon its receipt with or without conditions. MOWR might also send the comments to the proponent for report refinement. This is also an opportunity for the proponent to express their concerns about comments and suggestions on the report. If so, the proponent shall submit revised report and MOWR shall grant approval with or without conditions for the implementation of the proposal.

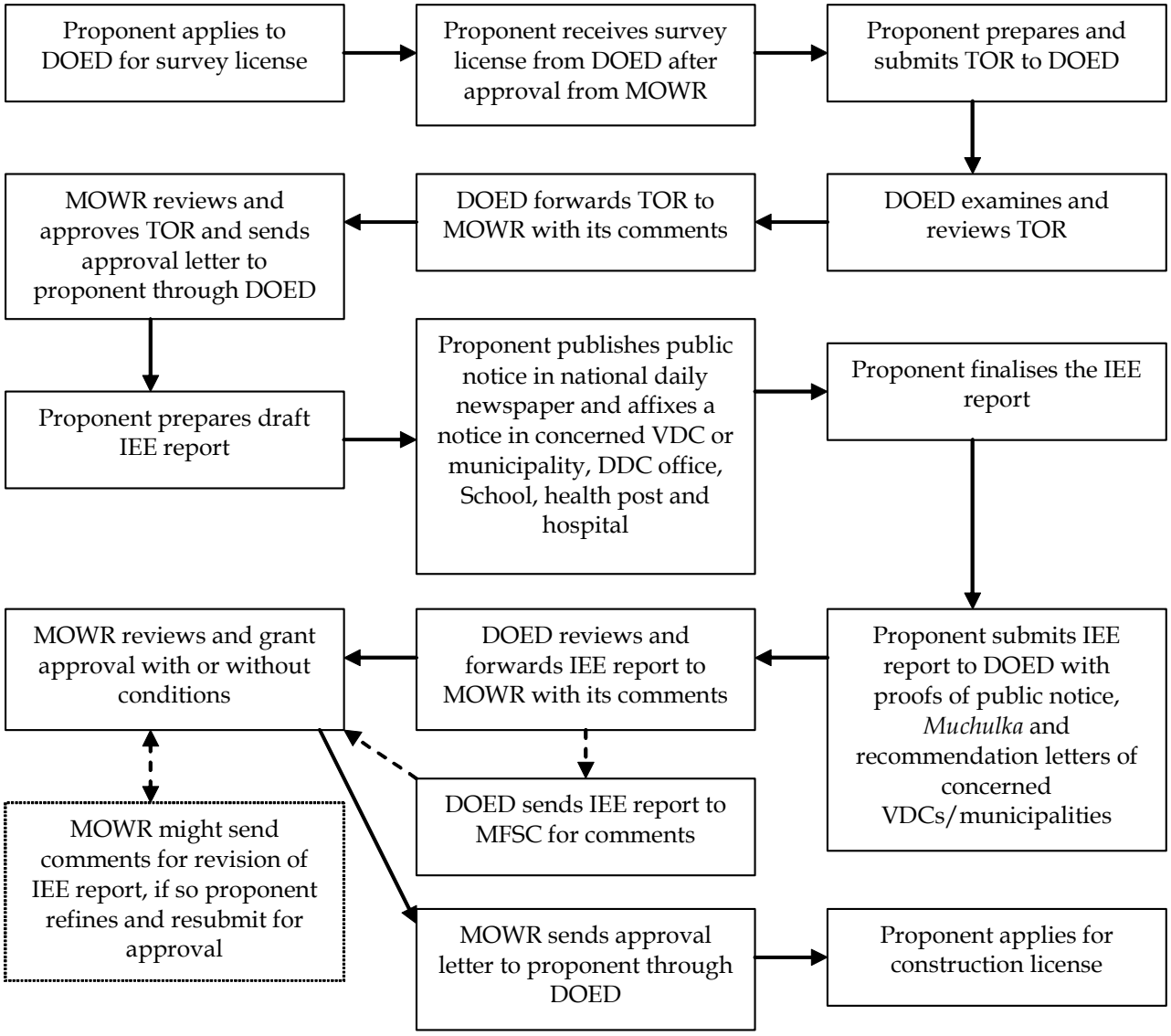
8.2.2 EIA Report

The proponent submits the EIA report of the hydropower projects to DOED along with the proofs of public hearing and recommendations letters of the concerned VDCs/Municipalities (Annex 4.3). DOED reviews the report and forwards to MOWR with its comments and suggestions. MOWR reviews it and forwards to MoEST along with its suggestions within 21 days upon its receipt. After checking necessary legal requirements and compliance with approved TOR, MoEST issues a 30-day public notice (Annex 4.4) to make the EIA report public. MoEST forms and organises the meeting of the EIA Report Suggestion Committee to collect opinions and suggestions. MoEST examines the report in the light of suggestions received from public notice and review committee and approves

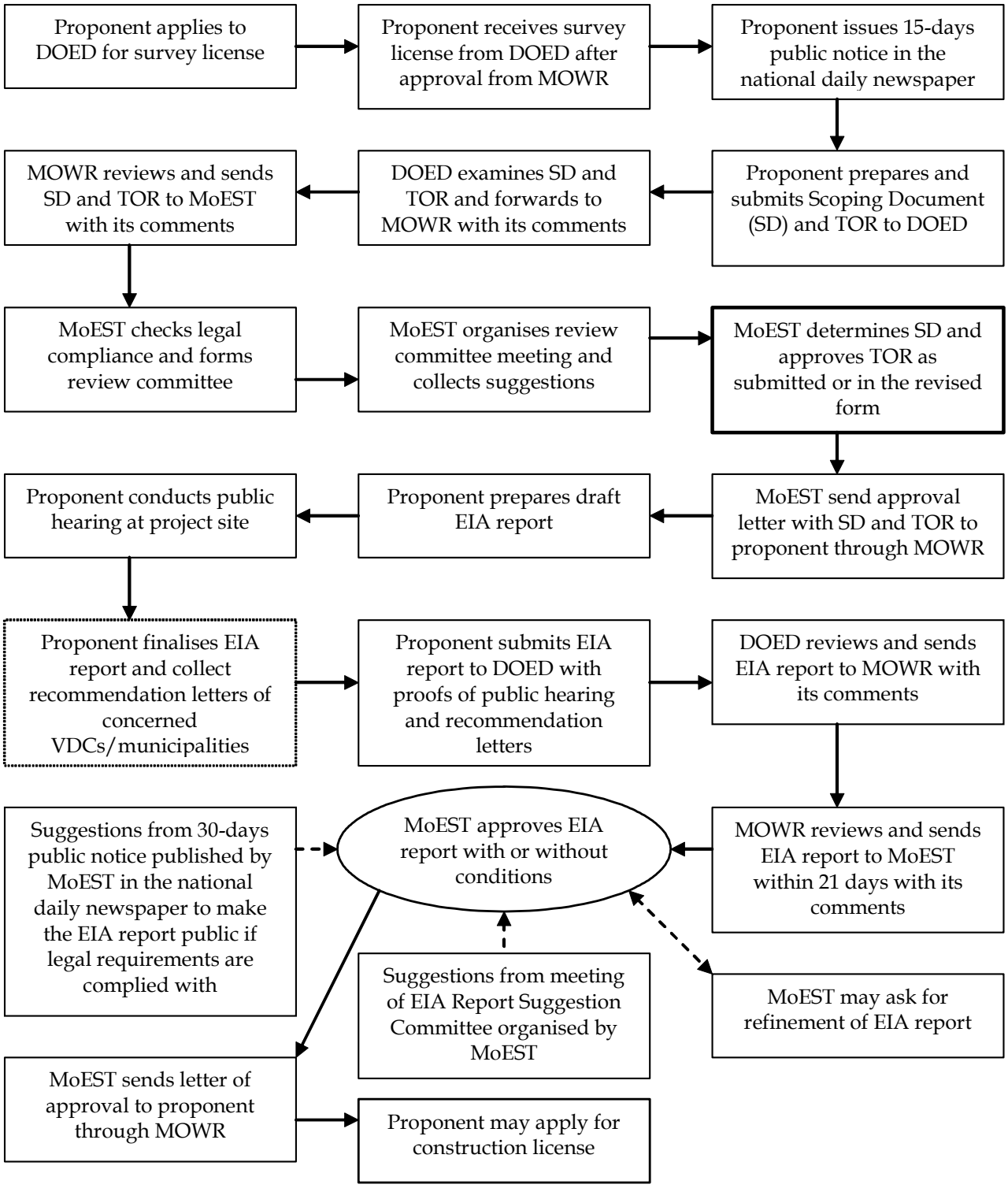
EIA report with or without conditions. As per EPR, 1997, MoEST shall grant approval within 60 days or 90 days.

The steps for approval process of IEE and EIA reports are given in the following charts.

Steps for Approval Process of IEE Report of Hydropower Project



Steps for Approval Process of EIA Report of Hydropower Project



Relevant Guidelines and Manuals

DOED, 2001. *Manual for Preparing Scoping Document for Environmental Impact Assessment of Hydropower* Project. Department of Electricity Development, Ministry of Water Resources in collaboration with USAID and International Resources Group, Kathmandu

DOED, 2001. *Manual for Preparing Terms of Reference for Environmental Impact Assessment of Hydropower Projects, with Notes on EIA Report Preparation.* Department of Electricity Development, Ministry of Water Resources in collaboration with USAID and International Resources Group Kathmandu.

DOED, 2001. *Manual for Public Involvement in Environmental Impact Assessment Process of Hydropower Projects*. Department of Electricity Development, Ministry of Water Resources in collaboration with USAID and International Resources Group Kathmandu.

DOED, 2002. *Manual for Developing and Reviewing Water Quality Monitoring Plans and Results for Hydropower Projects*. Department of Electricity Development, Ministry of Water Resources, in collaboration with USAID and International Resources Group Kathmandu.

DOED, 2002. *Manual for Preparing Environmental Management Plan for Hydropower Projects*. Department of Electricity Development, Ministry of Water Resources, in collaboration with USAID and International Resources Group Kathmandu.

DOED, 2004. *Manual for Conducting Public Hearing in Environmental Assessment Process for Hydropower Projects*. Department of Electricity Development, Ministry of Water Resources, in collaboration with USAID and International Resources Group Kathmandu.

DOED, 2005. *Manual for Addressing Gender Issues in IEE and EIA for Hydropower Projects*. Department of Electricity Development, Ministry of Water Resources, in collaboration with USAID and International Resources Group Kathmandu.

MFSC, 1995. *EIA Guidelines for Forestry Sector,* 1995. Ministry of Forests and Soil Conservation, Kathmandu.

MFSC, 2002. *Guidelines for Review of IEE and EIA of Forestry Sector*. Ministry of Forests and Soil Conservation, Kathmandu.

MFSC, 2004. *Manual for Initial Environmental Examination for Forestry Sector*. Ministry of Forests and Soil Conservation, Kathmandu.

MOICS, 1995. *EIA Guidelines for Forestry Sector,* 1995. Ministry of Industry, Commerce and Supplies, Kathmandu.

NHRC, 2002. *National Environmental Health Impact Assessment Guidelines* (draft). National Health Research Council, Kathmandu.

NHRC, 2002. *National Health Care Waste Management Guideline*. Nepal Health Research Council, Kathmandu.

NPC, 1993. *National Environmental Impact Assessment Guidelines* 1993. National Planning Commission Secretariat, Kathmandu.

Tucker, G., Bubb P., de Heer M., Miles L., Lawrence A., Bajracharya S. B., Nepal R.C., Sherchan R., Chapagain N.R., 2005. *Guidelines for Biodiversity Assessment and Monitoring for Protected Areas*. KMTNC, Kathmandu.

Application Letter Relating to Information to Conduct Survey for Generation of Electricity Ranging from 100 – 1000kW

Schedule 1

(Pertaining to Rule 3 of the Electricity Rules, 1993)

To,
The Secretary
Ministry of Water Resources
Through
Department of Electricity Development

Sir,
I am providing this information since I am going to conduct survey, generation, transmission or distribution of hydropower with a capacity of 100 to 1000 kilowatt with the following particulars pursuant to Rule 3 of the Electricity Rules, 1993 (2050B.S.).

1. Full name and address of the person or corporate body willing for survey/generation/transmission/distribution of hydroelectricity:-
2. Aim and purpose of the survey/generation/transmission/distribution of hydroelectricity:
3. Area for the survey/generation/transmission/distribution of hydroelectricity :
   a. Zone :
   b. District
   c. Village Development Committee/Municipality
4. Capacity :
5. Particulars required by Rule 3 of the Electricity Rules, 1993 :

The facts mentioned above are correct and true. In case if it is found false I/we am/are prepared to bear according to law.

Seal of the Corporate Body

.....
Signature of the person or Corporate body providing the information

Signature:
Name:
Address:
Date:

Application Letter for License to Conduct Survey for Electricity Generation

Schedule 2
(Pertaining to Rule 4 of the Electricity Rules, 1993)

To,
The Secretary
Ministry of Water Resources
Through
Department of Electricity Development

Sir,
I am submitting this application with the following particulars to conduct a survey for generation of electricity pursuant to Rule 4 of the Electricity Rules, 1993.

1. Full name and address of the person or corporate body willing to conduct survey for generation of electricity :
2. Type of electricity to be surveyed for generation :
3. Name of water resources if survey is to be conducted for generation of Hydroelectricity :
4. Area of Survey :
   a) Zone :
   b) District :
   c) V.D.C./Municipality :
   d) Boundary :

East	West
North	South

5. Nature of survey:
6. Estimated cost of survey :
   (justification also should be given)
7. Duration of Survey :
   From ..... to ..... (date)
8. Other particulars :

The facts mentioned above are correct and true. In case if it is found false, I/we am/are prepared to bear according to law

Seal of the Corporate Body

Applicant's
Signature :
Name :
Address :
Date :

Application Letter for License to Conduct Survey for Electricity Transmission

Schedule 3

(Pertaining to Rule 5 of the Electricity Rules, 1993)

To,
The Secretary
Ministry of Water Resources
Through
Department of Electricity Development

Sir,
I am submitting this application with the following particulars to conduct a survey of transmission of electricity pursuant to Rule 5 of the Electricity Rules, 1993.

1. Full name and address of the person or corporate body willing to conduct survey for transmission of electricity :
2. Particulars of the project/place from where the electricity to be transmitted is to be provided :
3. Particulars relating to place of transmission :
   From : To :
4. Area of survey of transmission of electricity :
   a) Zone :
   b) District :
   c) V.D.C./Municipality :
   d) Boundary :
      East West
      North South
5. Voltage and quantity of transmission of electricity :
6. Nature of survey :
7. Estimated cost of survey :
   (Justification also should be given)
8. Duration of Survey :
   From ..... to ..... (date)
9. Other particulars :

The facts mentioned above are correct and true. In case if it is found false, I/we am/are prepared to bear according to law.

Seal of the Corporate Body

Applicant's
Signature :
Name :
Address :
Date :

Application Letter for Survey License to Conduct Survey for Electricity Distribution

Schedule 4
(Pertaining to Rule 6 of the Electricity Rules, 1993)

To,
The Secretary
Ministry of Water Resources
Through
Department of Electricity Development

Sir,
I am submitting this application with the following particulars to conduct a survey for distribution of electricity pursuant to Rule 6 of the Electricity Rules, 1993.

1. Full name and address of the person or corporate body willing to conduct survey for distribution of electricity :
2. Description of the project/place from where the electricity to be distributed is to be provided :
3. Area of survey:
   a) Zone :
   b) District :
   c) V.D.C./Municipality :
   d) Boundary :

East	West
North	South

4. Nature of survey :
5. Estimated cost of survey :
   (Justification also should be given)
6. Duration of Survey :
   From ..... to ..... (date)
7. Other particulars :

The facts mentioned above are correct and true. In case if it is found false, I/we am/are prepared to bear according to law.

Seal of the Corporate Body

Applicant's
Signature :
Name :
Address :
Date :

Application for Obtaining a Development License for Electricity Generation

Schedule 6
(Pertaining to Rule 12 of the Electricity Rules, 1993)

To,
The Secretary
Ministry of Water Resources
Through
Department of Electricity Development

Sir,
I am submitting this application with the following particulars along with the necessary documents for generation of electricity pursuant to Section 4 of the Electricity Act, 1992 (2049 B.S.) and Rule 12 of the Electricity Rules, 1993.

1. Full name and address of the person or corporate body who is going to produce electricity :
2. Name of the project of electricity :
3. Means to produce electricity :
4. If water resources is to be used :
   a) Name of the river :
   b) Area where water resources is to be utilized :
      i) Zone : ii) District :
      iii) VDC/Municipality :
      iv) Boundary :
         East West
         North South
   d) Quantity of water to be utilized :
5. Description of main structures and where to be located ?: :
6. Date of commencing the work :
7. Date of completing the work :
8. Other particulars :

The facts mentioned above are correct and true. If it is found false, I/we am/are prepared to bear according to law.

Seal of the Corporate Body

Applicant's
Signature :
Name :
Address :
Date :

Application for Obtaining a Development License for Electricity Transmission

Schedule 7
(Pertaining to Rule 13 of the Electricity Rules, 1993)

To,
The Secretary
Ministry of Water Resources
Through
Department of Electricity Development

Sir,
I am submitting this application with the following particulars along with the necessary documents for transmission of electricity pursuant to Section 4 of the Electricity Act, 1992 and Rule 13 of the Electricity Rules, 1993.

1. Full name and address of the person or corporate body who is going to transmit the electricity :
2. Description of the project/place from where the electricity to be transmitted is to be provided :
3. Description of the point from where the electricity is to be transmitted and destination of transmission :
   a) Zone :
   b) District :
   c) VDC/Municipality :
4. Quantity and voltage of electricity to be transmitted :
5. Date of commencing the work :
   Date of completing the work :
6. Other particulars :

The facts mentioned above are correct and true. If it is found false, I/we am/are prepared to bear according to law.

Seal of the Corporate Body

Applicant's
Signature :
Name :
Address :
Date :

Application for Obtaining a Development License for Electricity Distribution

Schedule 8

(Pertaining to Rule 14 of the Electricity Rules, 1993)

To,
The Secretary
Ministry of Water Resources
Through
Department of Electricity Development

Sir,
I am submitting this application with the following particulars along with the necessary documents for distribution of electricity pursuant to Section 4 of the Electricity Act, 1992 and Rule 14 of the Electricity Rules, 1993.

1. Full name and address of the person or corporate body who is going to distribute the electricity :
2. Description of the project/place from where the electricity to be distributed is to be provided :
3. Quantity and voltage of electricity to be distributed :
4. Area where the electricity is to be distributed :
   a) Zone :
   b) District :
   c) VDC/Municipality :
   d) Boundary

East	West
North	South

5. Date of commencing the work :
   Date of completing the work :
6. Other particulars :

The facts mentioned above are correct and true. If it is found false, I/we am/are prepared to bear according to law.

Seal of the Corporate Body

Applicant's
Signature :
Name :
Address :
Date :

Sample of Public Notice Published by DOED

(A Copy of Public Notice of Piluwakhola Project)

श्री ५ को सरकार (तत्कालिन)
जलस्रोत मन्त्रालय
विद्युत् विकास विभाग
प्रदर्शनीमार्ग, काठमाडौं

पिलुवाखोला जलविद्युत आयोजना सम्बन्धी

सार्वजनिक सूचना

कोशी अञ्चल, संखुवासभा जिल्लाको चैनपुर गा.वि.स. स्थित पिलुवाखोलाबाट ३००० किलोवाट क्षमताको पिलुवाखोला जलविद्यूत् आयोजनाको विकास गर्न अरुण उपत्यका जलविद्युत् विकास कम्पनी (प्रा.) लिमिटेडले विद्युत् ऐन, २०४९ को दफा ४ तथा विद्युत नियमावली, २०५० को नियम १२ बमोजिम विद्युत उत्पदानको अनुमतिपत्रको लागि दरखास्त पेश गरेकोले विद्युत नियमावली, २०५० को नियम १६ को प्रयोजनको लागि तपसिलका विवरणहरु खोली यो सूचना प्रकाशित गरिएको छ। प्रस्तावित पिलुवाखोला जलविद्युत आयोजनाको निर्माण तथा सञ्चालन गर्दा उल्लेखनीय प्रतिकुल असर पर्ने भएमा यो सूचना दैनिक गोरखापत्रमा प्रथम पटक प्रकाशित भएको मितिले ३५ (पैतीस) दिनभित्र यस विद्युत् विकास विभाग समक्ष जो सुकैले पनि प्रतिक्रिया दिन सक्ने जानकारी गराइन्छ।

तपसील

१) अरुण उपत्यका जलविद्युत् विकास कम्पनी (प्रा.) लिमिटेड प्रचलित कम्पनी ऐन, २०५३ अन्तर्गत गठन भएको संस्था हो।

२) पिलुवाखोला जलविद्युत् आयोजनाको जडित क्षमता ३००० किलोवाट हुने र यसबाट वार्षिक सरदर १.८०१ करोड किलोवाट घण्टा विद्युतशक्ति उत्पादन हुनेछ।

३) आयोजनाको हेडवर्क्स चैनपुर गा.वि.स वडा नं. १ स्थित हाइलुङ्गफेदीमा रहनेछ। उक्तस्थानमा २ मिटर उचाई २२.४ मिटर लम्बाइको स्पिलवेसहितको कंक्रिट ग्राभिटी बाँध निर्माण गरिनेछ। यस बाँधबाट पिलुवाखोलाको पानी उक्त खोलाको दायाँ किनारमा निर्माण गरिने इन्टेकद्वारा सोही गाविसमा निर्माण गरिने ४६ मिटर लामो, १०.८ मिटर चौडा, ३.५ मिटर गहिरो २ वटा च्याम्बर भएको सतहगत डिसेन्डिङ्ग वेसिनमा फर्काइनेछ। डिसेन्डिङ्ग वेसिनबाट निस्केको पानीलाई सोही गाविसमा निर्माण गरिने १.८० मिटर चौडाइ, १.४० मिटर गहिरो तथा ३३२० मिटर लम्बाइको ढुङ्गाको गाह्रो तथा कंक्रिट लाइनिङ्ग भएको नहर (Power Canal) तर्फ फर्काइनेछ। सोही गाविसमा १.८० मिटरदेखि २.५० मिटर गहिरो ५८५ घनमिटर क्षमताको सतहगत टैंक (Fore Bay) निर्माण गरिनेछ। सोही गाविसको घट्टेखोला फाँटमा निर्माण गरिने १९.१० मिटर लम्बाइ, ८.५० मिटर चौडाइ तथा ११.५० मिटर उचाइको सतहगत विद्युत्गृहतर्फ पानी पुऱ्याउनको लागि १६७.५० मिटर लम्बाइ, ०.७५ देखि १.३ मिटर व्यास भएको सतहगत स्टिल पेनस्टकको निर्माण गरिनेछ। विद्युतगृहमा १५०० किलोवाट क्षमता भएको दुईवटा टर्बाइन सेटहरु तथा २००० किलो भोल्ट एम्पियर क्षमता भएको २ वटा जेनेरटर सेटहरु जडान गरिनेछन्। विद्येत्गृहबाट निस्किने पानीलाई करिब १०० मिटर लामो टेलरेस कुलोमार्फत पिलुवाखोलामा छाडिनेछ।

उक्त आयोजनाबाट विद्युत् उत्पादन गर्न पिलुवाखोलाबाट अधिकतम् ३.५ घनमिटर प्रति सेकेण्ड पानी फर्काइनेछ र परियोजनाको डिजाइन हेड १०२ मिटर हुनेछ। यसरी पानी फर्काउदा परियोजनाको हेडवर्कभन्दा तल (Downstream) का जीवजन्तु, जलचर तथा बोट विरुवाहरुको लागि न्यूनतम १६७ लिटर प्रति सेकेण्ड पानी अविच्छिन्न रुपमा छाड्न प्रस्ताव भएको छ।

उक्त आयोजनाबाट उत्पादित विद्युत् करिब २४० मिटर लामो ३३,००० भोल्टको विद्युत् प्रसारण लाइनबाट हाल निर्माणधीन सिंधुवाखाँदबारी ३३ के.भी. प्रसारण ग्रिडमा जोडिनेछ।

४) यो आयोजना आर्थिक वर्ष २०५८/५९ (सन् २००२) सम्ममा पूरा गरिने लक्ष्य रहेको छ।

५) आयोजनाको निर्माण तथा सञ्चालन गर्दा विद्युत् ऐन, २०४९ को दफा २४ बमोजिम भू-क्षय, बाढी, वायू प्रदुषण आदि द्वारा वातावरणमा उल्लेखनीय प्रतिकूल असर नपर्ने गरी स्वीकृत वातावरणीय अध्ययन प्रतिवेदनअनुसार निर्माण गर्न लगाइनेछ।

यस आयोजनाको सम्बन्धमा थप अन्य कुराहरु बुझ्नुपरेमा अरुण उपत्यका जलविद्युत् विकास कम्पनी (प्रा.) लिमिटेड, काठमाडौं महानगरपालिका, वडा नं. ३४, बानेश्वर, काठमाडौं, फोन नं. ४७९२८५/४७४८९५ मा सम्पर्क राख्न सकिनेछ।

Survey License for Electricity Generation

Schedule 5 (A)

(Pertaining to Rule 8 of the Electricity Rules, 1993)

License No :

Government of Nepal

Ministry of Water Resources

Sir,

As per your application submitted on ..... (date) seeking to obtain a license for generation of electricity, this license has been hereby issued to you with the following particulars in accordance with Sub-section (2) of Section 4 of the Electricity Act, 1992 and Rule 8 of the Electricity Rules, 1993.

1. Full name and address of the person or corporate body willing to conduct survey for generation of electricity :
2. Type of electricity to be surveyed for generation :
3. Name of water resources to be surveyed for generation of electricity :
4. Area of Survey:
   a) Zone :
   b) District :
   c) VDC/Municipality :
   d) Boundary

East	West
North	South

5. Nature of Survey :
6. Period of validity of survey :
   From ..... to ..... (date)
6. Other Conditions:

License Issuing Authority's
Signature :
Date :
Name :
Designation : Secretary
Ministry of Water Resources

Survey License for Electricity Transmission

Schedule 5 (B)
(Pertaining to Rule 8 of the Electricity Rules, 1993)

License No :

Government of Nepal
Ministry of Water Resources

Sir,

As per your application submitted on ..... (date) seeking to obtain a license for transmission of electricity, this license has been hereby issued to you with the following particulars in accordance with Sub-section (2) of Section 4 of the Electricity Act, 1992 and Rule 8 of the Electricity Rules, 1993.

1. Full name and address of the person or corporate body willing to conduct survey for transmission of electricity :
2. Particulars of the project/place from where the electricity to be transmitted is to be provided :
3. Particulars relating to place of transmission :
   From ..... to .....
4. Area of Survey:
   a) Zone :
   b) District :
   c) VDC/Municipality :
   d) Boundary

East	West
North	South

5. Voltage and quantity of electricity to be transmitted :
6. Nature of survey :
7. Period of validity of license:
   From ..... to ..... (date)
6. Other Conditions:

<u>License Issuing Authority's</u>
Signature :
Date :
Name :
Designation : Secretary
Ministry of Water Resources

Survey License for Electricity Distribution

Schedule 5 (C)
(Pertaining to Rule 8 of the Electricity Rules, 1993)

License No :

Government of Nepal
Ministry of Water Resources

Sir,

As per your application submitted on ..... (date) seeking to obtain a license for distribution of electricity, this license has been hereby issued to you with the following particulars in accordance with Sub-section (2) of Section 4 of the Electricity Act, 1992 and Rule 8 of the Electricity Rules, 1993.

1. Full name and address of the person or corporate body willing to conduct survey for distribution of electricity :
2. Particulars of the project/place from where the electricity to be distribution is to be provided :
3. Area of Survey:
   a) Zone :
   b) District :
   c) VDC/Municipality :
   d) Boundary

East	West
North	South

4. Voltage and quantity of electricity to be distributed :
5. Nature of survey :
6. Period of validity of license :
   From ..... to ..... (date)
6. Other Conditions:

License Issuing Authority's
Signature :
Date :
Name :
Designation : Secretary
Ministry of Water Resources

License for Electricity Generation

Schedule 9 (A)
(Pertaining to Rule 17 of the Electricity Rules, 1993)

License No :

Government of Nepal
Ministry of Water Resources

Sir,

As per your application submitted on ..... (date) seeking to obtain a license for generation of electricity, this license has been hereby issued with the condition as follows :

1. Full name of the person or corporate body obtaining the license :

   Address :

2. Name of the project of electricity :
3. Means to produce the electricity :
4. If water resources is to be utilized :
   a. Name of the River :
   b. Area where utilization of water resources is to be provided :
      i. Zone :
      ii. District :
      iii. VDC/Municipality :
      iv. Boundary

      East West

      North South
   c. Quantity of water resources to be utilized :
5. Description of main structures and where to be located ?
6. Period of validity of license:
7. Other Conditions:

License Issuing Authority's
Signature :
Date :
Name :
Designation : Secretary
Ministry of Water Resources

License for Electricity Transmission

Schedule 9 (B)

(Pertaining to Rule 17 of the Electricity Rules, 1993)

License No :

Government of Nepal
Ministry of Water Resources

Sir,

As per you application submitted on ..... (date) seeking to obtain a license for transmission of electricity, this license been hereby issued with the conditions as follows:

1. Full name of the person or corporate body obtaining the license :

   Address :

2. Name of the project of transmission :

3. Description of the point from where the electricity is to be transmitted and destination of transmission :

   a) Zone : b) District :

   c) VDC/Municipality :

4. Quantity and voltage of electricity to be transmitted:

5. Period of validity of license:

   From ..... to ..... (date)

6. Other Conditions:

License Issuing Authority

Signature :

Date :

Name :

Designation : Secretary

Ministry of Water Resources

License for Electricity Distribution

Schedule 9 (C)
(Pertaining to Rule 17 of the Electricity Rules, 1993)

License No :

Government of Nepal
Ministry of Water Resources

Sir,

As per you application submitted on ..... (date) seeking to obtain a license for distribution of electricity, this license has been hereby issued with the condition as follows :

1. Full name of the person or corporate body obtaining the license :
   Address :

2. Name of the project of distribution :
3. Description of the project/plant from where the electricity is to be distributed is to be provided :
4. Quantity and voltage of electricity to be distributed :
5. Area where the electricity is to be distributed :
   a) Zone :
   b) District :
   c) VDC/Municipality :
   d) Boundary :

East	West
North	South

6. Period of validity of license:
From ..... to ..... (date)
7. Other Conditions:

License Issuing Authority's
Signature :
Date :
Name :
Designation : Secretary
Ministry of Water Resources

Sample Scoping Notice Published by the Proponent

(A Public Notice of Balanch-Aattriya 132kV Transmission Line)

बलाँच–अत्तरिया १३२ के. भी. प्रसारण लाईन आयोजनाको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन तयारीको लागि

क्षेत्र निर्धारण सम्बन्धी सार्बजनिक सूचना

(प्रथम पटक प्रकाशित मिति २०६०/०३/२१)

महाकाली अञ्चलको दार्चुला तथा बैतडी जिल्लाहरुको सिमानामा रहेको चमेलिया नदीमा प्रस्तावित चमेलिया जलविद्युत आयोजनाबाट उत्पादन हुने ३० मेघावाट विद्युत शक्तिलाई १३२ के.भी. प्रशारण लाइनको माध्यमले कैलाली जिल्लाको अत्तरिया स्थित सवस्टेशनमा जोडिने कार्यक्रम रहेको छ ।

उपरोक्त सम्बन्धमा नेपाल विद्युत प्राधिकरणद्वारा निम्न बमोजिमको प्रस्ताव कार्यान्वयन गर्न लागिएको छ ।

प्रस्तावकको नाम	नेपाल विद्युत प्राधिकरण, दरबारमार्ग, काठमाडौं ।
प्रस्तावकको व्यहोरा	बलाँच-अत्तरिया १३२ के.भी. प्रसारण लाईनको रेखांकन (Route) दार्चुला जिल्लाको शिखर गा.वि.स. को बलाँचमा निर्माण गरिने विद्युतगृहबाट शुरु भई आयोजना प्रवेशमार्गको गोकुलेश्वर-बलाँच खण्ड तथा महाकाली राजमार्गको अत्तरिया-डडेल्धुरा-सतबाँझ-गोकुलेश्वर खण्डको दायाँ बायाँ हुँदै अत्तरिया सवस्टेशनमा पुऱ्याइने कार्यक्रम रहेको छ । बैतडी जिल्लाको खोचेलेक, सतबाँझ, खोड्पे, डडेल्धुरा जिल्लाको अनारखोली, अमरगढी नगरपालिका डोटी जिल्लको बुडर र कैलाली जिल्लाको सहजपुर, गोदावरी भएर जाने प्रसारण लाईनको लम्बाई करीब १३१ कि.मी. हुनेछ ।
प्रभाव पर्न सक्ने जिल्ल/गा.वि.स./न.पा.	दार्चुला जिल्लाको शिखर, देथला तथा गोकुलेश्वर गा.वि.स.हरु, बैतडी जिल्लाको रुद्रेश्वर, गोकुलेश्वर, सितड, न्वाली, देउलेक, श्रीकोट, गुरुखोला, हटैराज, बासुलिड, भुमेश्वर, पाटन, सिलंगा सिद्धेश्वर र सिद्धपुर गा.वि.स.हरु डडेल्धुरा जिल्लाको अमरगढी नगारपालिका, समैजी, गनखेत, असीग्राम गा.वि.स.हरु : डोटी जिल्लाको घटेश्वर, छतिवन र कैलाली जिल्लाको सहजपुर, गोदावरी, मालाखेती तथा गेटा गा.वि.स. हरुका प्रसारण लाइन जाने क्षेत्रहरु ।

यो प्रस्थाव कार्यान्वयन गर्नु अघि वातावरण संरक्षण नियमावली, २०५४ (प्रथम संशोधन २०५५) को दफा ४ बमोजिम वातावरणीय प्रभाव मूल्याङ्कन तयार गरी (तत्कालिन) जनसंख्या तथा वातावरण मन्त्रालयबाट स्वीकृत गराउनु पर्ने प्रावधान रहेको छ । वातावरणीय प्रभाव मूल्याङ्कन गर्ने क्रममा उक्त नियमावली बमोजिम प्रस्तावित आयोजनाको कार्यान्वयनबाट निम्न क्षेत्रहरुमा के कस्तो प्रभाव पर्नेछ सो उल्लेख गरी क्षेत्र निर्धारण (Scoping) गर्नु परेको छ ।

१. सामाजिक, आर्थिक तथा सांस्कृतिक प्रणली
२. जैविक प्रणाली
३. भैतिक प्रणाली
४. मानवीय क्रियाकलाप यिनको अवयवहरुका अन्तरक्रिया तथा अन्तरसम्बन्ध

यसै सिलसिलामा उल्लेखित प्रस्ताव कार्यान्वयन गर्दा उपयुक्त क्षेत्रमा के कस्तो प्रभाव पर्न सक्दछ, सो प्रसारण लाईनको रेखाङ्कन (Route) मा पर्ने गाउँ विकास समिति वा नगरपालिका तथा त्यस क्षेत्रका विद्यालय, अस्पताल, स्वस्थ्य चौकी तथा सरोकारवाला व्यक्ति वा संस्थाको लिखित राय सुझाव लिन परेकोले यो सार्वजनिक सूचना पहिलो पल्ट प्रकाशित मितिले १५ (पन्ध्र) दिन भित्र निम्न ठेगानामा आई पुग्ने गरी लिखित राय सुझाव उपलब्ध गराई दिनु हुन अनुरोध गरिन्छ ।

राय सुझाव पठाउने ठेगानाहरू :

शाह कन्सल्ट इन्टरनेशनल प्रा.लि. १११/४४ मितेरीमार्ग, वानेश्वर, काठमाडौं । पोष्ट बक्स नं. ३८४० फो नं. ४४७१८५२ फ्याक्स ४४७१८५२ इमेल : shahcoint@wlink.com.np	नेपाल विद्युत प्राधिकरण वातावरण तथा सामाजिक अध्ययन विभाग अद्वैतमार्ग, काठमाडौं पोष्ट बक्स नं. २०२८५ फोन नं. ४२२६७३० फ्याक्स ४२२५२४८	नेपाल विद्युत प्राधिकरण चमेलिया जलविद्युत आयोजना मीन भवन, काठमाडौं फोन नं. ४४८२७८८ फ्याक्स नं. ४४७६०८६ इमेल : neachp@wlink.com.np	नेपाल विद्युत प्राधिकरण चमेलिया जलविद्युत आयोजना साइट कार्यालय बलाँच, शिखर गा.वि.स वडा नं. ४ दार्चुला

Use Regulated Plant Species and Forest Products under the Forest Rules, 1995

BOTANICAL NAME OR FOREST RESOURCE	VERNACULAR NAME	FAMILY	IUCN STATUS	CITES
Species banned for collection, use, sale, distribution, transportation and export				
Dactylorhiza hatagirea	Panch Ounle	Orchidaceae		II
Picrorhiza scrophulariiflora	Kutki	Scrophulariaceae		
Juglans regia (bark)	Okhar	Juglandaceae		
Species banned for export				
Abies spectabilis	Talis patra	Pinaceae		
Cinnamomum glaucescens	Sugandakokila	Lauraceae		
Cordyceps sinensis	Yarsa gomba	Clavicipitaceae		
Lichen species	Jhyau			
Nardostachys grandiflora	Jatamansi*	Valerianaceae	V	
Rauvolfia serpentina	Sarpaganda, harbaruwa	Apocynaceae	E	II
Asphaltum (rock exudate)	Silajit			
Taxus buccata subsp. *wallichiana*	Loth salla	Taxaceae		II
Valerina jatamansii	Sugandabala	Valerianaceae		
Timber trees banned for felling, transportation and export				
Acacia catechu	Khayer	Leguminosae	T	
Bombax ceiba	Simal	Bombacaceae		
Dalbergia latifolia	Satisal	Leguminaceae		
Juglans regia	Okhar	Juglandaceae		
Michelia champaca	Champ	Magnoliaceae	E	
Pterocarpus marsupium	Bijaya sal	Leguminaceae		
Shorea robusta	Sal, Sakhuwa	Dipterocarpaceae		

Source: Nepal Gazette

* Products processed in the country can be exported abroad with special permission from the FSC.
IUCN Threat categories: E=Endangered; T=Threatened; V=Vulnerable
CITES has Appendices I, II and III

Protected Animals under the National Parks and Wildlife Conservation Act, 1973

SCIENTIFIC NAME	LOCAL NAME	COMMON NAME	IUCN STATUS	CITES
Mammals				
01. Ailurus fulgens	Habrey	Red panda	V	I
02. Antilope cervicapra	Krishnasar	Black buck	V	III
03. Bos gaurus	Gaurigai	Gaur	V	I
04. Bos mutus	Chaurigai	Wild yak	E	I
05. Bubalus arnee	Arna	Wild water buffalo	E	III
06. Canis lupus	Bwanso	Tibetan wolf	V	I
07. Caprolagus hispidus	Hispid kharayo	Hispid hare	E	I
08. Cervus duvauceli	Barasingha	Swamp deer	E	I
09. Elephas maximus	Hatti	Asiatic elephant	E	I
10. Felis Iynx		Lynx	E	II
11. Hyaena hyaena	Hundar	Striped hyaena		
12. Macaca assamensis	Assamese Rato Bandar	Assamese monkey		
13. Manis crassicaudata	Salak	Indian Pangolin		II
14. Manis pentadactyla	Salak	Chinese pangolin		II
15. Moschus chrisogaster	Kasturi Mriga	Musk deer	E	I
16. Ovis ammon	Nayan	Great Tibetan sheep		I
17. Panthera tigris	Bagh	Bengal tiger	E	I
18. Panthera uncia	Hiun Chituwa	Snow leopard	E	I
19. Pantholops hodgsoni	Chiru	Tibetan antelope		I
20. Pardofelis nebulosa	Dwanshe Chituwa	Clouded leopard	V	I
21. Platanista gangetica	Suns	Gangetic dolphin	V	I
22. Prionailurus bengalensis	Chari Bagh	Leopard cat		I
23. Prionodon pardicolor	Silu	Spotted linsang		I
24. Rhinoceros unicornis	Gainda	Asian one-horned rhinoceros	E	I
25. Sus salvanius	Pudke Bandel	Pigmy hog	Ex (?)	I
26. Tetracerus quadricornis	Chauka	Four-horned antelope	V	III
27. Ursus arctos	Himali Rato Bhalu	Brown bear		I
Birds				
01. Buceros bicornis	Raj Dhanesh	Giant hornbill		I
02. Catreus wallichii	Cheer	Cheer pheasant	E	I
03. Ciconia ciconia	Seto Saras	White stork		
04. Ciconia nigra	Kalo Saras	Black stork		II
05. Eupodotis bengalensis	Khar Mujur	Bengal florican	E	I
06. Grus grus (G. antigone)	Saras	Common crane		II
07. Lophophorus impejanus	Danfe	Impeyan pheasant		I
08. Sypheotides indica	Sano Khar Mujur	Lesser florican	E	II
09. Tragopan satyra	Munal	Crimson-horned pheasant		III
Reptiles				
01. Gavialis gangeticus	Ghadial Gohi	Gharial	E	I
02. Python molurus	Ajingar	Asiatic rock python	V	I
03. Varanus flavescens	Sun Gohori	Golden monitor lizard	I	I

Source: NPWC Act, 1973

CITES: Appendices I, II and III

IUCN categories: Ex=Extinct; E=Endangered; I=Indeterminate; V=Vulnerable

Nepal's Flora and Fauna included in CITES Appendices

APPENDIX I	APPENDIX II	APPENDIX III
Flora	02. *Ceropegia* sp. (Milkweeds)	10. *Cycas pectinata* (Himalayan cycas)
01. *Saussurea lappa*	03. *Cyatheaceae* (Tree ferns)	11. *Gnetum montanum* (Genetum)
	04. *Cycadaceae* (Cycas)	12. *Meconopsis regia* (Himalayan yellow poppy)
	05. *Dioscorea deltoidea* (Dioscorea)	13. *Podocarpus neriifolius* (Podocarpus)
	06. *Orchidaceae* (Orchids)	14. *Talauma hodgsonii* (Magnolia)
	07. *Podophyllum hexandrum* (May apple)	15. *Tetracentron sinense* (Tetracentron)
	08. *Rauvolfia serpentina* (Serpentine)	
	09. *Taxus wallichiana* (Himalayan yew)	
Mammals		
01. *Ailurus fulgens* (Red panda)	30. *Cuon alpinus* (Wild dog)	37. *Antilope cervicapra* (Black buck)
02. *Bos gaurus* (Gaur bison)	31. *Equus hemionus* (Wild ass)	38. *Arctictis binturong* (Bear cat)
03. *Bos grunniens* (Yak)	32. *Manis* species (Pangolin)	39. *Bubalus arne* (Wild buffalo)
04. *Canis lupus* (Wolf)	33. *Primates* species (Monkey)	40. *Canis aureus* (Jackal)
05. *Capra falconeri* (Markhor)	34. *Pteropus* species (Flying fox)	41. *Herpestes edwardsii* (Common mongoose)
06. *Caprolagus hispidus* (Hispid hare)	35. *Ratufa* species (Squirrel)	42. *Herpestes fuscus* (Brown mongoose)
07. *Cervus duvaucelii* (Swamp deer)	36. *Tupaia glis* (Common tree shrew)	43. *Herpestes urva* (Crab-eating mongoose)
08. *Elephas maxiums* (Elephant)		44. *Marmota himalayana* (Himalayan marmot)
09. *Felis bengalensis* (Leopard cat)		45. *Martes flavigula* (Yellow-throated marten)
10. *Felis marmorata* (Marble cat)		46. *Martes foina intermedia* (Stone marten)
11. *Felis temmincki* (Golden cat)		47. *Mellivora capensis* (Haoney badger)
12. *Lutra lutra* (Otter)		48. *Mustela altaica* (Pale weasel)
13. *Melursus ursinus* (Sloth bear)		49. *Mustela kathiah* (Yellow-bellied Weasel)
14. *Moschus chrisogaster* (Musk deer)		50. *Mustela sibirica* (Himalayan weasel)
15. *Naemorhedus goral* (ghoral)		51. *Paguma larvata* (Himalayan palm)
16. *Naemorhedus sumatraensis* (Himalayan serow)		52. *Paradosurus hermaphroditus* (Common palm civet)
17. *Neofelis nebulosa* (Clouded leopard)		53. *Pradoxurus jerdoni* (Brown palm civet)
18. *Ovis ammon hodgsonii* (Argali)		54. *Tetracerus quadricornis* (Four-horned antelope)
19. *Panthera tigris* (Tiger)		55. *Viverra zibetha* (Large Indian civet)
20. *Panthrea pardus* (Common leopard)		56. *Viverricula indica* (Small Indian civet)
21. *Uncia uncia* (Snow leopard)		57. *Vulpes bengalensis* (Indian fox)
22. *Pantholops hodgsoni* (Chiru)		58. *Vulpes montana* (Mountain fox)

23. *Plata*
24. Pres
25. *Prion*
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27. *Seler* (Him
28. *Sus s*
29. *Ursu*
Birds
01. *Acer* (Ruf
02. *Aqui*
03. *Arde* (Gre
04. *Buce*
05. *Catr* phe
06. *Eupo* (Ben
07. *Falco*
08. *Falco* (Bar
09. *Falco* (Red
10. *Grus* (Blac
11. *Haliu* (Wh
12. *Loph* (Hin
13. *Psitt*

Source: IUCN-Nepal 1995b - Nepal's Flora and Fauna in the current CITES lists

CITES: Appendix I: Species threatened with extinction; Appendix II: Species not yet threatened, but which could become endangered if trade is not controlled; Appendix III: Species identified by any party as being subject to regulation in that country and which require international co-operation to control trade.

Nepal's Threatened Animals in the IUCN Red List

ORDER/FAMILY	SCIENTIFIC NAME	COMMON NAME	STATUS
CLASS: MAMMALIA			
Carnivora/CANIDAE	01. Canis lupus	Grey Wolf	V
	02. Cuon alpinus	Asiatic Wild	V
	03. Vulpes benghalensis	Bengal Fox	I
FELIDAE	04. Catopuma temmincki (Felis temmincki)	Asiatic Golden Cat	I
	05. Neofelis nebulosa	Clouded Leopard	V
	06. Panthera tigris tigris	Tiger	E
	07. Prionaliurus marmorata (Felis marmorata)	Marbled Cat	K
	08. Prionaliurus viverrinus, Felis viverrinus, F. viverrina)	Fishing Cat	K
	09. Uncia uncia (Panthera unica)	Snow Leopard	E
MUSTELIDAE	10. Aonyx cinerea	Oriental Small-clawed Otter	K
	11. Lutra perspicillata	Smooth -coated Otter	K
URSIDAE	12. Ailurus fulgens	Lesser Panda (Red Panda)	V
	13. Melurus ursinus (Ursus ursinus)	Sloth Bear	V
	14. Selenarctos thibetanus (Ursus thibetanus)	Asiatic Black Bear	V
Cetacea/LATANESTIDAE	15. Platanista gangetica	Ganges River Dolphin	V
Proboscidea/ELEPHANTIDAE	16. Elephas maximus	Asian Elephant	E
Perissodactayla/ RHINOCEROTIDAE	17. Rhinoceros unicornis	Greater One-horned Rhinoceros	E
Artiodactyla/SUIDAE	18. Sus salvanius	Pygmy Hog	E
CERVIDAE	19. Cervus duvauceli duvauceli	Swamp Deer	I
BOVIDAE	20. Antilope cervicapra	Blackbuck	V
	21. Bos gaurus (B. frontalis)	Gaur	V
	22. Bos mutus (B. grunniens)	Wild Yak	E
	23. Bubalus arnee (B. bubalus)	Wild Water Buffalo	E
	24. Capricornis sumatraensis (Naemorhedus sumatraensis)	Mainland Serrow	T
	25. Hemitragus jemlahicus	Himalayan Thar	K
	26. Tetracerus quadricornis	Four-horned Antelope	V
Lagomorpha/OCHOTONIDAE	27. Ochotona nubrica	Nubra Pika	I
LEPORIDAE	28. Caprolagus hispidus	Hispid Hare	E
CLASS: AVES			
Pelacaniformes/ PELACANIDAE	01. Pelecanus philippensis	Spot-billed Pelican	I
Ciciniformes/CICONIIDAE	02. Leptoptilos dubius	Greater Adjutant Stork	E
	03. Leptoptilos javanicus	Lesser Adjutant Stork	V
Falconiformes/ACCIPITRIDAE	04. Aythya baeri	Baee's Pochard	V
	05. Aegypius monachus	Cinerous Vulture	V
	06. Aquila heliaca	Imperial Eagle	R
	07. Haliaeetus albicvilla	White-tailed Eagle	V
	08. Haliaeetus leucoryphus	Pallas's Sea-Eagle	R
FALCONIDAE	09. Falco naumanni	Lesser Kestrel	R
Galliformes/PHASIANIDAE	10. Catreus walllichi	Cheer Pheasant	E
	11. Francolinus gularis	Swamp Francolin	V
	12. Tragopan melanocephalus	Western Tragopan	E

Source: IUCN-Nepal 1995. Endangered Wildlife - Nepal's threatened animals in the IUCN Red list 1994

Gruifor
Charadr
SCOLO
Coraciif
BUCER
Passerif
MUSCI
CLASS
Testudi
Crocody
GAVIA
Sauria/
Serpent
COLUB

Sample Public Notice on Draft IEE Report

वातावरण संरक्षण नियमावली, २०५४ को नियम ७ (२) सँग सम्बन्धित सूचनाको ढाँचा

प्रस्तावकको नाम:
प्रस्तावको नाम:

मस्यौदा प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदनमा राय सुझावको लागि

सार्वजनिक सूचना

(प्रथम पटक प्रकाशित मितिः .....)

..... (जिल्लाको नाम) को ..... गा.वि.स./नगरपालिका (नाम) को वडा नं. ..... मा कार्यान्वयन गर्न प्रस्ताव गरिएको ..... (प्रस्तावको नाम) को प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदनको मस्यौदा नेपाल सरकारबाट स्वीकृत कार्यसूची अनुसार तयार भएको छ। उक्त प्रस्ताव कार्यान्वयन गर्दा वातावरण तथा स्थानीय वासिन्दामा पर्न सक्ने प्रभाव तथा सो मस्यौदा प्रतिवेदनमा राय सुझाव भए यो सूचना ..... (पत्रिकाको नाम) राष्ट्रिय दैनिकमा पहिलो पल्ट प्रकाशन भएको मितिले १५ (पन्ध्र) दिनभित्र निम्न ठेगानामा आई पुग्ने गरी उपलब्ध गराई दिन हुनको लागि वातावरण संरक्षण नियमावली, २०५४ को नियम ७ (२) को प्रयोजनको लागि यो सूचना प्रकाशन गरिएको छ। यसै वमोजिमको राय सुझाव प्रस्तावसंग सम्बन्धित मन्त्रालयलाई पनि पठाउन सकिने छ।

उक्त प्रस्तावको **मस्यौदा प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन** अध्ययन गर्न वा आफैले उतार गरी लैजानको लागि ..... (प्रतिवेदन राखिएको गाउँ विकास समिति वा नगरपालिकाको कार्यालय, जिल्ला विकास समितिको कार्यालय, विद्यालय, अस्पताल, स्वास्थ्य केन्दको नाम दिने) तथा प्रस्तावकको कार्यालयमा राखिएको व्यहोरा पनि अनुरोध गरिन्छ।

राय सुझाव पठाउने ठेगाना

प्रस्तावकको नामः ..... ठेगानाः .....

टेलिफोन नंः ..... फ्याक्स नंः ..... इमेलः .....

Sample of Muchulka (Deed of Public Enquiry)

वातावरण संरक्षण नियमावली, २०५४ को नियम ७ (२) संग सम्बन्धित सूचना टाँसेको मुचुल्काको ढाँचा

श्री ..... (व्यक्तिको नाम) ले निम्नानुसारको सूचना यस ..... (नाम) कार्यालयको सूचना पाटीमा टाँसेको ब्यहोरा प्रमाणित गरिन्छ ।

प्रस्तावकको नाम:

प्रस्तावको नाम:

मस्यौदा प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदनमा राय सुझावको लागि

सार्वजनिक सूचना

..... (जिल्लाको नाम) को ..... गा.वि.स./नगरपालिका (नाम) को वडा नं. ..... मा कार्यान्वयन गर्न प्रस्ताव गरिएको ..... (प्रस्तावको नाम) को प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदनको मस्यौदा नेपाल सरकारबाट स्वीकृत कार्यसूची अनुसार तयार भएको छ। उक्त प्रस्ताव कार्यान्वयन गर्दा वातावरण तथा स्थानीय वासिन्दामा पर्न सक्ने प्रभाव तथा सो मस्यौदा प्रतिवेदनमा राय सुझाव भए १५ (पन्ध्र) दिन भित्र निम्न ठेगानामा आइपुग्ने गरी उपलब्ध गराई दिन हुनको लागि वातावरण संरक्षण नियमावली, २०५४ को नियम ७ (२) को प्रयोजनको लागि यो सूचना गरिएको छ। यसै वमोजिमको राय सुझाव प्रस्तावसंग सम्बन्धित मन्त्रालयलाई पनि पठाउन सकिने छ। उक्त प्रस्तावको **मस्यौदा प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन** अध्ययन गर्न वा आफैले उतार गरी लैजानको लागि ..... (प्रतिवेदन राखिएको गाउँ विकास समिति वा नगरपालिकाको कार्यालय, जिल्ला विकास समितिको कार्यालय, विद्यालय, अस्पताल, स्वास्थ्य केन्दको नाम दिने) तथा प्रस्तावकको कार्यालयमा राखिएको ब्यहोरा अनुरोध गरिन्छ ।

<u>राय सुझाव पठाउने ठेगाना</u>

प्रस्तावकको नाम: ..... ठेगाना: .....

टेलिफोन नं: ..... फ्याक्स नं: ..... इमेल: .....

सूचना टाँसेको प्रमाणित गर्ने कर्मचारीको नाम: ..... पद: .....

कार्यालयको नाम: कार्यालयको छाप:

मिति:

Sample of Recommendation Letter of VDC and/or Municipality

वातावरण संरक्षण नियमावली, २०५४ को नियम १० सम्बन्धित सिफारिश पत्रको ढाँचा

(सम्बन्धित गाउँ विकास समिति वा नगरपालिकाको प्याडमा)

च.नं.

श्री ..... (प्रस्तावकको नाम)
..... (ठेगाना)

विषय: सिफारिस गरिएको बारे ।

प्रस्तुत विषयमा श्री ..... (प्रस्तावकको नाम) ले मिति ..... मा यस कार्यालयमा ..... (प्रस्तावको नाम) को प्रारम्भिक वातावरणीय परीक्षण/वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन निवेदन दिनु भएकोले यो पत्र लेखिएको छ। उक्त प्रस्तावको प्रारम्भिक वातावरणीय परीक्षण/ वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा उल्लेख भएका विषय तथा वातावरणीय प्रभाव र संरक्षणका उपायहरुको बारेमा यस कार्यालयलाई जानकारी भएकोले उक्त प्रस्ताव कार्यान्वयन हुन/नहुनको लागि सिफारिस गर्दछु।

हस्ताक्षर:

पदाधिकारीको नाम:

पद:

मिति:

नोटः कार्यालयको छाप अनिवार्य रुपमा हुनु पर्नेछ ।

Sample of Public Notice Issued by MoEST

श्री ५ को सरकार (तत्कालिन)
वातावरण, विज्ञान तथा प्रविधि मन्त्रालय
मध्यमाञ्चल विकास क्षेत्रको दोलखा जिल्लामा निर्माण गर्नको लागि प्रस्तावित
माथिल्लो तामाकोशी जलविद्युत आयोजनाको

वातावरणीय प्रभाव मूल्याङ्कन

(Environmental Impact Assessment)

प्रतिवेदनमा राय सुझावको लागि आव्हान गरिएको सार्वजनिक सूचना

(हिमालय टाइम्समा प्रथम पटक प्रकाशित मिति २०६२।१२।१३)

दोलखा जिल्लाको लामावगर गाँउमा वाँध र तामाकोशी नदी र गोङ्गर खोलाको मिलन विन्दुदेखि करिव १५० मीटर माथि विद्युतगृह निर्माण गरी ३०९ मेगावाट विद्युत उत्पादन गर्न नेपाल विद्युत प्राधिकरणले प्रस्ताव गरेको यो जलबिद्युत आयोजनाको सञ्चालन गर्दा दोलखा जिल्लाको लामावगर, ओराङ्ग, गौरीशंकर, लामिडाँडा, खारे, वुर्लुङ्ग, लादुक, सुस्माछेमावति, सुन्द्रवति, सुनखानी गा.वि.स. हरु र भिमेश्वर नगरपालिकामा प्रभाव पर्ने देखिन्छ। प्रस्तावित आयोजनाको विद्युत उत्पादन तथा प्रशारण लागत करिव ३४ करोड अमेरीकी डलर हुने जलस्रोत मन्त्रालयमार्फत यस मन्त्रालयमा स्वीकृतिको लागि प्राप्त वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा उल्लेख छ।

वातावरण संरक्षण ऐन, २०५३ को दफा ६ बमोजिम यो प्रतिवेदनमा राय सुझाव दिनका लागि सर्वसाधारणले प्रतिवेदन आफैले उतार गरी लैजान पाउने व्यवस्था रहेको छ र वातावरण संरक्षण नियामावली, २०५४ को नियम ११ बमोजिम सर्वसाधारण व्यक्ति वा संस्थाको राय सुझाव सङ्कलन गर्ने सिलसिलामा निम्न स्थानहरुमा उक्त प्रतिवेदन खुल्ला हुनेछ। यो प्रतिवेदनमा उपयुक्त राय सुझाव प्राप्त भएमा यस मन्त्रालयले उक्त प्रस्ताव कार्यान्वयनको लागि स्वीकृति दिने क्रममा त्यस्ता सुझावहरुलाई पनि ध्यानमा राख्नेछ। उक्त प्रतिवेदन सम्बन्धमा सर्वसाधारण व्यक्ति वा संस्थाको कुनै राय सुझाव भए यो सूचना यस दैनिकमा पहिलो पटक प्रकाशन भएको मितिले ३० (तीस) दिन भित्र सम्बद्ध व्यक्ति वा संस्थाले आफनो राय सुझाव निम्न ठेगानामा पठाई दिनु हुन यसै सूचनाद्धारा सूचित गरिन्छ। उक्त प्रतिवेदनहरु आफैले उतार गरी लैजान सकिने व्यहोरा समेत जानकारी गराइन्छ।

प्रतिवेदन हेर्न वा उतार गर्न सकिने स्थानहरु :

श्री वातावरण, विज्ञान तथा प्रविधि मन्त्रालयको पुस्तकालय, काठमाडौ।
श्री त्रिभुवन विश्वविद्यालयको केन्द्रिय पुस्तकालय, किर्तिपुर, काठमाडौ।
श्री वन अनुसन्धान तथा सर्भेक्षण विभागको पुस्तकालय, ववरमहल।
श्री जिल्ला वन कार्यालय, दोलखा
श्री भिमेश्वर नगरपालिका, दोलखा
श्री जलस्रोत मन्त्रालय, सिंहदरबार, काठमाडौ।
श्री बिद्युत बिकास विभाग, अनामनगर, काठमाडौ।
श्री जिल्ला विकास समितिको कार्यालय, दोलखा।
श्री नेपाल विद्युत प्राधिकरण, काठमाण्डौ।
माथि उल्लिखित सवै गाँउ विकास समितिको कार्यालयहरु

राय सुझाव पठाउने ठेगाना

वातावरण, विज्ञान तथा प्रविधि मन्त्रालय
वातावरणीय मूल्यांङ्कन शाखा
सिंहदरबार, काठमाडौ।
फो.नं: ४२४७३९१, ४२२५५९६, ४२२५४८६
फयाक्स नं. ९७७-१-४२२५४७४