

National Environmental Impact Assessment Guidelines

1995

Nepal's National Conservation Strategy is being implemented under the National Planning Commission/IUCN NCS Implementation Project, through a series of programmes in the key areas of environmental planning and assessment, national heritage conservation, education and public information. Coordinated by the National Planning Commission, the implementation project involves representatives of all the major ministries and government departments concerned with environmental issues, as well as increasing number of local non-governmental organisations.

Nepal is one of over 700 members of IUCN - The World Conservation Union, and is among more than 40 governments that have been assisted by IUCN in developing National Conservation Strategies. The National Conservation Strategy (NCS) for Nepal was completed in 1987 and endorsed as policy in 1988. IUCN was then requested by His Majesty's Government of Nepal to assist in the implementation of the NCS for Nepal.

Founded in 1948, IUCN is a membership organisation working to conserve the earth's soil, land, water, air and life systems. IUCN is active in 118 countries, and is an international agency whose membership includes both government and non-governmental organisations, providing them equal opportunity to work together to achieve effective conservation action. IUCN's aim is to establish a tangible link between development and the environment that will result in a lasting improvement in the quality of life of people all over the world.

National Environmental Impact Assessment Guidelines

1993

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National Conservation Strategy Implementation Project
National Planning Commission, HMG Nepal, in Collaboration with
IUCN - The World Conservation Union

Published by: National Conservation Strategy Implementation Project

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Citation: National Conservation Strategy Implementation Project, 1994.
Environmental Impact Assessment Guidelines 1993. Kathmandu.

Cover Artwork: Ekaram Maharjan

Available from: NPC/IUCN NCS Implementation Project
P.O. Box 3923
Kathmandu, Nepal

This publication has been prepared under the NPC/IUCN National Conservation Strategy (NCS) Implementation Project. The role of the Swiss Development Cooperation in supporting the NCS is gratefully acknowledged.

Preface

Development projects are instrumental to Nepal's economic growth, yet some of the projects implemented in the past have degraded the very basis of sustained development by over-exploiting natural resources without concern for the maintenance of environmental quality. Economic growth which proceeds without attention to proper management and replenishment of Nepal's environmental resource base can not be sustained. It must be recognised that development and conservation should be in tandem.

In Nepal's present situation, in which development is largely project-led, environmental impact assessment (EIA) is perhaps the most direct and effective means of combining the aims of conservation and development. This was recognised in HMG's National Conservation Strategy and in Nepal's Seventh Five-year Plan which anticipated the eventual establishment of an EIA system, a system which would require the conducting an EIA for each major development project prior to its approval by the relevant government departments. The Eighth Five-year Plan also requires that development projects be adequately assessed with environmental impacts before their implementation.

Although the need for EIA has been well recognised, guidelines have to be developed leading to a systematic application of EIA. Thus far, EIAs have been conducted for individual development projects, usually at the initiative of bilateral and multilateral donor agencies, following their own procedures. Currently, a number of sectoral agencies, including the Department of Industry, the Department of Roads, and the Water and Energy Commission Secretariat are undertaking important work on EIA procedures and standards. In particular, the Department of Soil Conservation and Watershed Management has a long history of activities regarding the development of EIA methods and undertaking specific studies. While there have been previous initiatives to develop EIA legislation for Nepal, these have not been pursued.

With this background, the National Planning Commission (NPC), in collaboration with IUCN - The World Conservation Union, has undertaken an ambitious programme to develop national and sectoral guidelines for establishing a national system for EIA. This intersectoral programme involves the preparation and testing of national EIA guidelines, followed by sectoral guidelines and, finally, the establishment of a formal system for the environmental appraisal of all forms of development projects.

As a first step, a workshop to draft National EIA Guidelines was conducted at the National Planning Commission from 2 to 14 September 1990. The task of preparing the draft guidelines was combined with intensive field observations. The workshop

participants themselves were responsible for developing practical guidelines suited to local conditions.

The 28 participants consisted of senior representatives from nine government departments, three ministries, and four divisions of the National Planning Commission. They constitute HMG's Environmental Core Group which is responsible for formulating and testing national and sectoral guidelines and ultimately an integrated EIA system for Nepal for the next two years.

The Environmental Core Group concept reflects the strong commitment of His Majesty's Government of Nepal to respond to the pressing need for an environmental planning and assessment framework through intersectoral cooperation. This unified and sustained effort is coordinated and facilitated by the National Planning Commission with assistance from IUCN. A National Environmental Planning and Assessment Steering Committee, chaired by the National Planning Commission, provides guidance and impetus to this coordinating role and to promoting the involvement of all relevant government agencies.

The first draft of the national guidelines was circulated for review and comment among all the relevant HMG ministries, departments, HMG commissions, local NGOs, educational institutions, international donor agencies and local consultation firms. Comments and suggestions were received from about 250 organisations, individuals and institutions.

A nine-day workshop was held in March 1991 to finalise the draft National EIA Guidelines. All Environmental Core Group members who participated in the September workshop participated in this follow-up workshop. In the second workshop, 25 sectoral project documents that had been submitted to the NPC for approval were reviewed, and the draft National EIA Guidelines were tested in a practical decision-making context. The critical steps of project approval and decision-making that occur in the NPC and in the sectoral ministries were tested against the EIA procedures proposed in the draft National Guidelines. Incompatibilities between the project documents and the draft guidelines were identified. After extensive discussions, the Core Group members revised some chapters of the draft National EIA Guidelines to make them practical and applicable to Nepal. During revision sessions, all comments and suggestions from the various reviewing organisations were also discussed. Pertinent comments were incorporated into the revised guidelines.

A draft internal NPC working procedure was designed to incorporate the draft National EIA Guidelines into the existing project approval system. The draft working procedure was prepared to ensure that environmental considerations, through the National EIA Guidelines, are reflected in administrative decision-making for project authorisation. This revised document is the National EIA Guidelines. These guidelines were prepared entirely through a participatory process to produce a document suited to the Nepalese context. The guidelines contain the steps necessary to ensure that environmental considerations are incorporated in the project planning and implementation processes and that environmental approaches are adapted to the existing administrative, institutional and political system of Nepal.

These guidelines were endorsed by His Majesty's Government of Nepal on 27 September 1992 and gazetted on 19 July 1993 in Volume 43, Number 5.

Introduction

The Environment

The term 'environment' can be defined as all physical, chemical and biological factors and conditions that influence the existence and development of an organism or a system of organisms. With man as the principal participant in the system of organisms, socio-economic, aesthetic and cultural factors become an integral part of the definition. Components of the environment are intricately related through dynamic interdependencies. When one component of this relationship is changed or disturbed, the influence is manifested or felt in other parts of the environmental system.

Environmental Problems

Environmental problems can be caused by natural events or by man-made decisions regarding the utilisation of natural resources. Natural disasters such as floods and earthquakes can rarely be influenced or controlled, but the environmental consequences of these events can be avoided or minimised by proper planning. Events such as soil erosion, desertification and pollution are usually caused by human activities. The causes and effects of these events are often well-known and the resulting problems can usually be avoided through planning and a thorough consideration of environmental impacts.

There is an interdependency between environmental impacts and other impacts that may not seem directly related to the initiating event. For example, an increase in human population may result in an increased demand for firewood, which may lead to deforestation of an area. Deforestation may further cause flooding and subsequent erosion of valuable top soil. A loss of top soil and fertility of land will ultimately cause a decline in the agricultural productivity of an area.

Environmental Problems in Nepal

Many of Nepal's environmental problems have resulted from the mismanagement of natural resources through an uncoordinated development process in which environmental impacts have not been considered at the project formulation or feasibility stage. To fulfill the basic needs of a growing population, Nepal is continuously engaged in implementing major development projects for poverty alleviation. In all major development activities, Nepal has extensively utilised its natural resource base. These activities have produced some adverse environmental impacts, primarily because of mismanagement of resources. As a result, development projects that have been formulated to overcome poverty, illiteracy, and malnutrition have subsequently created environmental problems such as epidemics, flooding, erosion, landslides, and deforestation. These adverse impacts have, in some cases, negated the objectives of the development project.

Environmental Policies in Nepal

The consideration of environmental aspects in Nepal's development policies has never been emphasised during the development planning process. Nepal has not adopted any legislation or administrative instructions addressing environmental impacts of development projects. The Seventh Five-year Plan was the first to consider the environment as a distinct component in the planning process, and to stipulate the preparation of an environmental impact assessment (EIA) for all major development projects. The development of the National Conservation Strategy (NCS) and its endorsement by His Majesty's Government of Nepal was also achieved during the Seventh Five-year Plan period. The plans and programmes formulated in the Seventh Five-year Plan were of great significance to environmental protection in Nepal. The formulation of concrete environmental policies, endorsement of the NCS by the government and initiatives taken by the government towards developing an appropriate institutional system indicate that Nepal is aware of its environmental problems and has realised the need to address environmental problems through an intersectoral approach.

Unfortunately, implementation of environmental programmes, such as the EIA policy stated in the Seventh Five-year Plan, has not been realised to the extent previewed, largely due to lack of coordination among sectoral programmes, insufficient skilled manpower, a lack of appropriate legislation and funds and, above all, a lack of appropriate institutional arrangement.

Realising the increasing importance of environmental problems in the country, the Eighth Five-year Plan anticipates the establishment of a national system for EIA. It stipulates EIAs for all major development projects, particularly roads, hydropower, industry, irrigation, housing, drinking water, and sewerage. The Eighth Five-year Plan makes it mandatory that EIAs be conducted at the stage of feasibility study.

Environmental Impact Assessment

In developing countries such as Nepal, there is an increasing realisation that if economic benefits from development is to be sustainable, environmental aspects must be considered at the initial phase of project planning. The correct choice of technology in implementing a development activity can minimise the adverse environmental impacts of development, enhance the quality of the human and natural environment and bring sustained overall benefits.

It is well-known that corrective and remedial actions to solve an environmental problem can cost much more than preventive or prophylactic measures. Further, corrective measures implemented to control irreversible damage may not be effective in preventing further damage. Therefore, it is imperative that development projects be formulated on the basis of environmental soundness. Environmental impact assessment is a planning tool that can be applied to any developmental project to ameliorate potentially negative environmental impacts by specifying appropriate mitigation measures.

EIA can be viewed both as a planning tool and as a mechanism for decision-making. As a planning tool, an EIA presents methodologies and techniques for identifying,

predicting, and evaluating environmental impacts of projects during the formulation and feasibility stages. The output from the EIA process presents decision-makers with the information necessary to determine whether or not a project should be implemented. EIA is generally used to

- identify potential environmental impacts;
- analyse the significance of the environmental impacts;
- determine whether the impacts can be mitigated;
- recommend preventive and mitigation measures;
- identify alternatives to the proposed project; and
- recommend whether the proposed project should be implemented.

In a resource-poor country like Nepal where development is a fairly recent phenomenon, assessing the environmental impacts of proposed projects may seem costly. However, in the long term, this is not the case. The application of EIA to a project helps decision-makers to balance the pressure of immediate gain from over-exploitation of natural resources with the long-term sustainable utilisation of resources and the protection of human well-being and the environment.

Environmental Impact Assessment in Nepal

The need for EIA was stressed in the Seventh Five-year Plan (1985-1990) which required preparation of EIA for all major development projects related to the sectors of tourism, water resources, transportation, urbanisation, agriculture, forestry, and industry. However, in the absence of national environmental impact assessment procedures or guidelines, a systematic method for incorporating environmental considerations in development has yet to be implemented. EIA has been carried out for some development projects in hydro-power development, irrigation and drinking water schemes and road construction. These studies were not undertaken as a mandatory requirement of His Majesty's Government of Nepal but rather as a requirement stipulated by loan and donor agencies. The Eighth Five-year Plan has reemphasised the need for an EIA system to integrate environmental concerns into the development process. It is within this system that EIA procedures need to be integrated at appropriate stages and on a systematic basis.

Development of a National System for Environmental Impact Assessment for Nepal

In accordance with the recommendations of the Resource Planning Section of the National Conservation Strategy, a national system of environmental impact assessment is being developed. First, National EIA Guidelines will be prepared. The National Guidelines will establish the overall policy, framework, and format on which specific sectoral EIA guidelines will be based. These guidelines will ensure that consistent and technically adequate EIAs are prepared for consideration by the National Planning Commission, HMG ministries and departments, project proponents and decision-makers. The establishment of a national system of EIA will fill the gap between policy formulation and programme implementation. The absence of a national system was the main constraint in translating the plans and policies of the Seventh Five-year Plan into the actual preparation of EIAs.

Need for EIA

Environmental impact assessment is needed to

- make development projects environmentally sustainable;
- reduce adverse environmental impacts;
- identify environmental impacts on ecologically fragile landscapes before development projects;
- assess the effects of development pressures on the natural resource base as well as on the sociocultural aspect;
- reduce the overall environmental and economic costs of projects; and
- optimise project benefits.

What is EIA?

EIA is a management tool for studying and evaluating potential environmental consequences of proposed development projects in order to

- identify beneficial and adverse environmental impacts;
- examine the significance of the environmental implications;
- assess whether adverse impacts can be mitigated;
- recommend preventive and mitigation measures;
- advise whether proposed development projects should proceed;
- inform decision-makers and interested parties about the environmental implications of projects; and
- provide information for decision-makers to determine whether a project should be implemented and in what form.

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His Majesty's Government
National Planning Commission Secretariat

NOTICE*

National Environmental Impact Assessment Guidelines, 1993

WHEREAS it is expedient to assess the environmental impacts likely to be caused by a project, and promote its positive impacts and mitigate or eliminate adverse impacts by undertaking preventive and other effective measures after integrating the environmental impacts in the planning cycle of all the projects to be initiated in the Kingdom of Nepal, prior to their initiation, so as to make the economic benefits from development projects sustainable,

NOW THEREFORE, His Majesty's Government has framed the following guidelines:

Chapter I
Preliminary

1. **Short Title, Extent and Commencement:** (1) These guidelines shall be called "National Environmental Impact Assessment Guidelines, 1993".
(2) These guidelines shall come into force immediately.
2. **Definitions:** Unless contrary intentions appear, in these guidelines:
 - (a) "Guidelines" means the Environmental Impact Assessment Guidelines, 1993.
 - (b) "Project" means project concerning establishment of industries and development construction activities proposed to be initiated in the Kingdom of Nepal.
 - (c) "Proponent" means the individual or organisation proposing to initiate a project.
 - (d) "Impact Mitigation Measures" means measures to be adopted to minimise or completely remove adverse impacts and to enhance positive impacts on environment.
 - (e) "Screening" means action undertaken to determine whether or not environmental impact assessment is necessary.

* Unofficial translation of National Environmental Impact Assessment Guidelines published in Nepal Rajpatra (Gazette) Volume 43, Number 5, 19 July 1993.

Chapter II

Objectives and Uses of Guidelines

3. **Objectives:** The objectives of the guidelines are as follows:
 - (a) Assist in the assessment of impacts likely to be caused on the environment by implementation of the project.
 - (b) Facilitate to optimise the benefits of development without degrading environmental quality, the natural resource base and the cultural heritage of the society.
 - (c) Help to discover protective and preventive measures to remove adverse impacts likely to be caused on the environment by implementation of the project.
 - (d) Facilitate to integrate environmental considerations into project planning cycle.
 - (e) Provide information to decision-makers to determine whether or not the proposed project is to be implemented from an environmental perspective and what mode should be adopted to implement the proposed project.

4. **Uses of the Guidelines:** The following organisations or individuals shall use the guidelines:
 - (a) Proponents.
 - (b) National Planning Commission Secretariat.
 - (c) Line ministries and departments.
 - (d) Consultants involved in environmental impact assessment.
 - (e) Project implementors.
 - (f) Environmentally concerned interest groups and the general public.

5. **Conditions Under which Guidelines Should be Used:** In case of a project, the guidelines must be used in the following stages:
 - (a) In the course of a pre-feasibility study.
 - (b) In the course of a feasibility study.
 - (c) Before undertaking an environmental impact assessment study.
 - (d) While reviewing environmental impact assessment report.
 - (e) At all decision-making points in the project cycle.
 - (f) In the course of environmental monitoring.
 - (g) At the post-auditing stage.

6. **Environmental Impact Assessment to be Conducted:** Before implementing a project, the impact likely to be caused on the environment by the project shall be assessed after conducting necessary studies of the impact.

Chapter III

Project Screening and Initial Environmental Examination

7. **Need for Project Screening:** (1) Screening of a project is imperative to determine whether environmental impact assessment is necessary for a project.
- (2) Screening undertaken pursuant to sub-section (1) shall facilitate the following:
- Save time and money.
 - Inform about the need and scale of the project.
 - Immediately identify environmental issues of major concern.
 - Determine whether an environmental impact assessment study needs to be conducted.
- (3) The screening process shall divide the project proposals into the following categories:
- Clearly requiring an environmental impact assessment.
 - Not requiring an environmental impact assessment.
 - The need for an environmental impact assessment is not clear.
8. **Project Screening Criteria:** (1) In the course of project screening, it shall be determined whether or not environmental impact assessment is necessary generally based upon indicators such as prescribed parameters, financial threshold and sensitive area:
- If the project land requirement is determined as being large in comparison to the scale of the surrounding environment.
 - If the affected area extends beyond the immediate locality and is likely to cause adverse impact on the population outside the project area.
 - If the project's construction is highly visible and disrupts aesthetic values.
 - If the project requires high capital investment and costly land.
 - If expensive machinery and processing plants are required for the project.
 - As it is possible that a small scale project may cause serious impact on the environment while a large scale project may not cause significant impact, due attention must be paid to various factors other than those mentioned in clauses (a), (b), (c), (d) and (e) while making environmental impact assessments for projects.
- (2) An initial environmental examination report must be prepared for those projects which may cause significant impact on environment, whose impact may be known easily and for which mitigation measures may be discovered easily, as mentioned in Schedule 1.
- (3) An environmental impact assessment report must be prepared for the proposed projects mentioned in Schedule 2.
- (4) Apart from projects mentioned in sub-section (1), environmental impact assessment must also be made on the basis of project areas, as mentioned in Schedule 3.
- But, an environmental impact assessment shall not be required for projects which fall within areas mentioned in Schedule 3 if exempted by the prevailing law.

9. **Initial Environmental Examination:** In cases where it has not been ascertained whether environmental impact assessment for a project is necessary, initial environmental examination shall be conducted to determine whether the project may cause significant impact on the environment and whether such impact may be removed by adopting appropriate measures.
- However, in case initial environmental examination is sufficient to provide definite solutions to identified environmental problems likely to appear by the implementation of the project, an environmental impact assessment shall not be necessary.
10. **Matters to be Considered while Undertaking Initial Environmental Examination:** (1) During the initial environmental examination it is necessary to prepare a short list describing various activities to be adopted in the course of project implementation and the natural resources which will be affected by the concerned project.
- (2) The activities described in sub-section (1) include location of the project, necessity of means and resources, production of solid wastes, relevant policy, rules, guidelines and so forth.
11. **Responsibility for Project Screening and Initial Environmental Examination:** The National Planning Commission Secretariat, concerned line ministries and departments, and the project proponents shall be responsible for project screening and initial environmental examination.
12. **Appropriate Time for Project Screening and Initial Environmental Examination:** Project screening and initial environmental examination should be usually undertaken during the pre-feasibility stage of a project.

Chapter IV

Scoping for Environmental Impact Assessment

13. **Scoping:** (1) After completing the work for project screening, scoping shall be undertaken with the aim of discovering the alternatives to the proposed activities of the project identified as having potentially significant impacts on the environment, selecting appropriate alternatives, and determining the issues to be considered during the environmental impact assessment.
- (2) Scoping for environmental impact assessment shall be conducted to attain the following objectives:
- (a) Identify the issues and relevant aspects to be considered for environmental impact assessment.
 - (b) Ensure contextual relevance of environmental impact assessment.
 - (c) Enable agencies responsible for an environmental impact assessment study to properly brief the study team on the alternatives and on impact to be considered at different levels of analysis.
 - (d) Determine evaluation procedures to be adopted in the course of environmental impact assessment.
 - (e) Find out all the aspects likely to be affected by the project.

- (f) Provide an opportunity for public involvement in determining the factors to be assessed.
- (g) Facilitate early agreement on contentious issues.
- (h) Save time and money.
- (i) Prepare terms of reference for environmental impact assessment.

(3) Scoping for environmental impact assessment should be done continuously during the project planning and designing phases as required.

14. **Methods of Scoping for Environmental Impact Assessment:** While scoping for environmental impact assessment, attention should be paid particularly to the following subjects:

- (a) **Making a Plan for Public Involvement:** Public involvement and communication plans are the most important tools for assisting a scoping exercise. As the main purpose of scoping in the early stage of project planning is to clearly define all the communities and agencies which should be allowed to influence decisions relating to the proposal, the plan should determine the persons to be involved for discussions and when and how the communication exercise is to be undertaken. For this, consent must be obtained from the concerned authorities and government agencies. While formulating a plan for public involvement, the proponent, concerned experts, local people to be affected by the project, and the special interest groups should be included in the list of contact persons. In order to involve the affected group under this process and to collect necessary information, the following procedures should be partially or fully adopted:
 - (1) Collect suggestions in writing from the relevant government agencies and the public.
 - (2) Hold community meetings and collect suggestions from the general public.
 - (3) Conduct preliminary field study or observation of the project site.
 - (4) Arrange workshops or seminars.
 - (5) Establish an intersectoral task force.
- (b) **Collecting Relevant Data and Information:** At this stage, data and information pertinent to the nature of the project should be collected and a preliminary list of potential environmental impacts and practical alternatives should be prepared. For detailed information of the proposed project, necessary maps, drawings and other relevant materials should also be attached. Such basic information and data help to formulate appropriate mitigation measures and form a basis for further discussion about the impact..
- (c) **Providing Necessary Notification and Information to the People Likely to be Affected by the Project:** The data and information collected pursuant to clause (b) should be refined and forwarded by the concerned project proponent to the relevant persons and organisations for necessary comments. For larger projects, suggestions and comments must be obtained by publishing public notices and holding meetings at project sites and central levels. Those people likely to be affected by the proposed project must be notified directly. Immense effort must be made to make the concerned public more active and responsible in collecting verbal

and written reactions about the concerned project from the local residents.

- (d) **Identifying Major Issues of Public Concern:** A comprehensive list should be prepared by compiling all issues raised by the affected party in connection with the process of scoping of the study. Each issue must be categorised and no issue should be ignored or discarded while making the list.
 - (e) **Evaluating the Seriousness of the Issues on the Basis of Available Information:** After having identified the major issues and classified them under different categories, their validity should be evaluated from a technical perspective. If certain questions of technical nature remain unresolved, a discussion panel or workshop should be arranged at an appropriate venue to resolve the problems.
 - (f) **Establishing Priorities for Environmental Impact Assessment:** The issues classified under different categories pursuant to clause (d) must be analysed in detail and the key issues relevant to the project should be arranged in order of priority after separating those issues which may be resolved immediately and those which have no relevance to the proposed project.
 - (g) **Developing a Strategy for Addressing Priority Issues:** After adopting appropriate alternatives or other mitigation measures for the prioritised issues relevant to the project pursuant to clause (f), those issues which may be resolved immediately must be dropped from the list and a term of reference should be prepared in order to define guidelines for further study, if further study is necessary, to resolve the remaining issues. The information required for environmental impact assessment depends upon the type, level and magnitude of the project concerned.
15. **Agencies Responsible for Scoping:** (1) The responsibility of scoping for environmental impact assessment shall be vested in the relevant authorising agency which may get the job done through the project proponent after providing necessary guidelines for scoping.
- (2) While conducting the scoping exercise for environmental impact assessment, the concerned agencies of His Majesty's Government associated with development works such as public works, forest, agriculture, livestock, water resources, health, along with relevant donor agencies and key local personalities, politicians, teachers, women, students, farmers, etc., must also be involved.
- (3) Scoping for environmental impact assessment should be an open exercise with wide public involvement. It should also involve review agencies and representatives of agencies associated with development projects.
16. **Appropriate Time for Scoping:** Scoping for environmental impact assessment shall be carried out at an initial stage of project planning after completion of the project screening. The appropriate time for scoping for environmental impact assessment should be at the pre-feasibility stage of the project cycle.

Chapter V

Preparation of Terms of Reference for Environmental Impact Assessment

17. **Terms of Reference for Environmental Impact Assessment:** (1) Generally, the terms of reference for environmental impact assessment shall be prepared on the basis of the scoping exercise.
- (2) If environmental impact assessment is deemed necessary in the process of the screening exercise, the terms of reference must be prepared for the following activities to provide specific guidelines for environmental impact assessment:
- Systematise the working procedure.
 - Delineate major activities to be implemented.
 - Fit environmental impact assessment with existing policy, rules and administrative procedures.
 - Accomplish the job within a specified time limit.
 - Give special emphasis to then most significant aspects of the study.
 - Provide technical guidance relating to main aspects of the environment which require delineation in the course of study.
18. **Format of Terms of Reference:** The terms of reference shall be prepared in the format prescribed in Schedule 4.

Chapter VI

Environmental Impact Assessment Report

19. **Environmental Impact Assessment Report:** (1) Upon completion of the environmental impact assessment exercise of a project requiring environmental impact assessment, the project proponent must prepare an environmental impact assessment report taking the following points into consideration:
- The report must be concise.
 - Adequate attention must be paid to significant environmental issues and impact. *→ suggestive, important, meaningful*
 - The extent and depth of impact analysis must commensurate with the nature of potential impact.
 - Due importance must be paid to the responsibilities of target users such as project proponent, designers and decision-makers.
- (2) Expenses to be incurred for the preparation of the environmental impact assessment report shall be borne by the project proponent.
20. **Format of Environmental Impact Assessment Report:** The environmental impact assessment report must be prepared in the format prescribed in Schedule 5.
21. **Annexes to Environmental Impact Assessment Report:** Annexes containing information relevant to the concerned project operation and project area should be attached to the environmental impact assessment report. All materials and

information used in the course of preparing the environmental impact assessment report should be included in Annexes. Annexes may be attached with the main report as its component or may be presented under a separate volume. The information and materials to be included in Annexes shall be as prescribed in Schedule 6.

Chapter VII

Identification of Environmental Impact

22. Objectives: Any economic development project has some environmental implication, whether beneficial or adverse. Therefore, it is essential to identify changes apparent in the environmental condition along with favourable or adverse impacts resulting from activities associated with the concerned project. The exercise of impact identification must start at the initial stage of studying data and information relevant to the concerned project and surrounding environment.
23. Types of Environmental Impact: (1) In connection with the process of environmental impact assessment, attention must be paid to the following impacts categories:
- (a) **Socioeconomic Impact:** A study of socioeconomic impacts of the concerned project should be conducted to examine the activities that would bring about changes to the existing economic and social conditions of the communities within the project area or its vicinity. The socioeconomic impacts may be beneficial or adverse.
 - (b) **Biological and Physiochemical Impact:** Impacts under this category relate to effects on biophysical resources like vegetation, wildlife, crops and aquatic life. The changes caused in soil and land form, soil erosion, flood, and sedimentation are known as physical impacts. The chemical changes caused in air, water and soil quality by project activities are known as chemical impacts.
 - (c) **Cultural Impact:** Attention should be paid to the impacts likely to be caused on cultural heritage by project activities. Areas of study should include historical and religious sites and traditional practices likely to be affected by project activities.
- (2) Environmental impacts mentioned in sub-section (1) may be categorised as direct, indirect or cumulative as follows:
- (a) **Direct Impact:** Direct impact refers to a direct alteration in the existing environmental condition as a consequence of project activity.
 - (b) **Indirect Impact:** Indirect impact results when one component of the environment has repercussions on other related components. A direct impact can have long-term effects, producing numerous indirect impacts, depending on the structure and function of the particular system being stressed by development activities.
 - (c) **Cumulative Impact:** Environmental impact caused by a single activity may not be significant. However, a series of similar types of impacts created by more than one project or the combined effect of

several impacts created by one project may be significant. As a result, an ecosystem may be dramatically affected by such cumulative impacts. Therefore it is necessary to pay special attention to cumulative impacts likely to be caused by those projects sharing mutual resources and affecting a particular area.

Methods of Impact Identification and Comparison: (1) The techniques and procedures to be adopted for environmental impact assessment may vary from one project to another. Some projects cause impact of greater intensity on the environment while other projects cause impact of lesser intensity. Similarly, the impacts of some projects are beneficial while others are harmful. Therefore, decision-makers should consider these factors seriously before making decisions about a project. The following methods may be adopted for impact identification and comparison:

(a) **Checklist Method:**

1. This method starts with the preparation of a list of environmental, social and economic factors which may be affected by the concerned project. Methods ranging from the simple to the complex may be adopted while preparing such a list.
2. One of the most effective and widely used methods combines a checklist with threshold of concern. A checklist of environmental resources is usually compared against a threshold of concern value. Any impact that exceeds the threshold of concern value is considered to be significant. Threshold values are generally available as a standard for the resources concerned. Significance of the impact is determined by comparing impact rating and threshold of concern.
3. A simple checklist is basically a summary of the range of environmental impact and should start with listing potential impact areas. The next step is to assess the character and nature of the impacts. This should usually be accomplished by using descriptive terms such as adverse or beneficial, short term or long term, insignificant or significant effect, etc.

(b) **Matrix Method:**

1. Among different methods adopted to display interrelations between project components or activities and potentially affected environment, the matrix method is the most familiar and widely used technique. A matrix is developed by combining a checklist of development actions and a checklist of environmental components within a two dimensional matrix through which the potential impacts can be identified. This is also referred to as an interaction matrix. The likelihood of impacts by each development component on each environmental component should be marked in an interaction cell with a predetermined sign. The result is an identification of potential impacts. At this stage of identification the type of impact is not categorised as direct or indirect, but the completed matrix clearly shows the impacts and provides initial guidance for extensive study.
2. Another matrix method depicts in-detail those resources likely to be affected by project activities. It clearly identifies potential

impact areas, predicts impact severity, specifies corresponding mitigation measures, and helps identify agencies responsible for implementing mitigation measures. This type of matrix is simple, covers all aspects and provides a complete environmental impact assessment overview in summary form which can provide easy and clear guidance for decision-makers.

(c) **Network Method:**

The network method is an expanded form of matrix method and it reflects the interrelationship between cause, condition and effect. It allows for identification of cumulative as well as primary, secondary and tertiary impacts. This method may also be described as an "Impact Tree". Since the environmental impacts are generally complex, the network approach is quite useful for studying such impacts. Each project activity causes one or more changes within the existing environment which, in turn, produces one or more subsequent changes.

25. **Impact Prediction:** (1) The next step after impact identification is to predict the magnitude, extent and duration of the impact. The prediction of impact caused by the implementation of certain development activities should be made on the basis of available baseline data on environmental conditions. Such anticipated changes or impacts should be described in quantitative or qualitative terms. For predicting the environmental impact, at least the following must be undertaken:

- (a) Determine the initial or basic environmental condition.
- (b) Predict the future environmental condition in case the concerned project is not implemented.
- (c) Estimate the future environmental condition in case the concerned project is implemented.

(2) In the process of impact prediction, special attention must be paid to the following aspects:

- (a) **Magnitude of Impact:** The magnitude of impact is determined on the basis of each potential impact's severity. It also indicates whether or not the impact is reversible. If the impacts are reversible, it indicates the potential rate of recovery. The magnitude of impact is considered to be serious if a major adverse impact cannot be mitigated. A major adverse impact would affect the potential subsistence, recreational and commercial use of biophysical resources, with the result that the value of resources would be reduced far below publicly acceptable level. Moderate to minor unmitigated impacts of a similar nature would make the resources still usable but at some inconvenience to the public.
- (b) **Extent of Impact:** The spatial extent or the zone of influence of the impact should always be determined. The extent of an impact may be confined to the project site or area. If the impacts of the proposed project is limited to the watershed alone, it is called a local impact. An impact are considered to be of regional level if it extends beyond the watershed. Similarly, if the resources are affected at national scale, it is known as a national impact.
- (c) **Duration of Impact:** As environmental impacts have a temporal dimension, they should be discovered through an environmental impact assessment. Impacts arising at different phases of the project cycle need to be appropriately considered. Generally, an impact that

lasts for only 3 years after project initiation may be classified as short term; an impact that continues for more than 3 years but less than 20 years may be considered as medium term; and an impact that lasts beyond 20 years is considered to be long term. The types of impact produced during different phases of construction of a project are generally of a temporary nature.

26. **Impact Ranking Methodology:** (1) In order to compare the relative environmental impacts of a project, an assessment framework relevant to the concerned project must be prepared. The framework should ascertain the magnitude, extent and duration of the types of impact associated with the project.

(2) Normally a numerical scale should be developed in order to provide a qualitative assessment of various types of predicted impacts. The following ranking methodology is found to be used in many studies:

Magnitude		Extent		Duration	
High/Major	60	Regional	60	Long Term	20
Moderate	20	Local	20	Medium Term	10
Minor	10	Site Specific	10	Short Term	05

A sum of the impact values for magnitude, extent, duration provides a maximum of 140 and a minimum of 25.

(3) This type of ranking methodology is useful for comparing different project alternatives. The impact values or scores for each of the alternatives are summed up and multiplied by the probability of occurrence of the particular impact. The final impact scores for all alternatives can then be compared and the highest value corresponds to the greatest potential for environmental impact.

Chapter VIII Impact Mitigation Measures

27. **Environmental Impact Mitigation Measures:** Impact mitigation measures must be adopted with the objective of reducing and removing undesirable impacts and maximising project benefits. The following measures, which are appropriate and relevant to most development projects, must be adopted:

(a) *Consideration of Alternatives:* (1) Consideration of alternatives to a proposed project is one of the key functions of environment impact assessment. Environmental impact assessment examines alternative ways to achieve the objectives of the proposed project. Its objective should be to reach a point at which the benefits are maximised and the undesirable impacts minimised. The proposal of a development project must consider the alternatives of the following aspects:

- (1) scale
- (2) technology
- (3) location

- (4) fuel
- (5) mitigation measures
- (6) raw materials
- (7) design
- (8) time schedule
- (9) economic aspects

(2) A comparative study of adverse impacts and benefits of the project must also be included, taking into consideration the alternative of totally abandoning the project.

- (b) **Adoption of Compensatory Measures:** Compensatory measures are actions which are undertaken to compensate for unavoidable or adverse impacts. Compensatory measures must specifically include the following activities:
 - (1) Restoration of damaged natural resources,
 - (2) rehabilitation of displaced settlements, and
 - (3) compensation to affected persons.
- (c) **Adoption of Corrective Measures:** Corrective measures should be adopted to reduce adverse impacts to acceptable levels. The following corrective measures must be adopted while implementing the project:
 - (1) Installation of pollution control devices,
 - (2) construction of polluted water treatment plants, and
 - (3) construction of fish ladders in dams and weirs.
- (d) **Adoption of Preventive Measures:** Some impacts of serious nature may be reduced or eliminated before their occurrence by adopting preventive measures. Preventive measures are as follows:
 - (1) Implementation of health education programme, and
 - (2) initiation of public awareness programme.
- (e) **Implementation of Mitigation Measures:** As implementation of mitigation measures requires funding, a statement of estimated expenditure must be included in the environmental impact assessment report. All proposed mitigation measures must be integrated in the project design so that these measures may automatically form a part of the construction and operational phases of the project. This is a more cost-effective approach than adding mitigation measures to an existing project.

Chapter IX

Review of Draft Environmental Impact Assessment Report

6 EIA Report
Review
Criteria

- 28. **Release for Public Review:** A draft environmental impact assessment report must be released for public review and comments. The review of the draft environmental impact assessment report and the comments received should be made available for review by the project proponent, along with non-government organisations, agencies, independent institutions and concerned public.
- 29. **Objectives:** The report review must attain the following objectives:

- (a) Whether the draft environmental impact assessment report complies with the terms of reference presented at the beginning of the study.
- (b) Whether the draft report is in concurrence with the National Environmental Impact Assessment Guidelines.
- (c) Whether the draft report addresses the key environmental issues which need to be finalised prior to making a decision.
- (d) Whether the report results are scientifically and technically sound and coherently organised so as to be understood by decision-makers and the public in general.
- (e) Whether the study identifies all significant adverse environmental impacts likely to arise through project implementation with mitigation measures for each impact.
- (f) Whether the methodology adopted, techniques applied, assumptions made and limitations faced during the course of study have been fully described.
- (g) Whether reasonable alternatives have been suggested to the proposed action.
- (h) Whether the sources of information cited in the report are relevant.

30. **Review Parameters:** The following parameters must be carefully checked while reviewing the environmental impact assessment report:

(a) Impact Identification:

- (1) Whether the project has any impact on an environmentally sensitive area.
- (2) Whether there is a clear statement of significant beneficial and adverse impacts.
- (3) Whether the probable risks likely to be caused by the impacts have been evaluated.
- (4) Whether attention has been paid to off-site effects, trans-boundary effects and the possible time lag before effects are manifested.

(b) Mitigation Measures:

- (1) Whether mitigation measures have been proposed and alternative sites considered.
- (2) Whether experiences from previous similar projects have been incorporated into the environmental impact assessment.
- (3) Whether adequate attention has been paid to compensate for loss or damage of property or to the provision of resettlement.

(c) Working Procedures:

- (1) Whether the environmental impact assessment working procedures conform to relevant laws and national and sectoral guidelines and regulations.
- (2) In which phase of decision-making the environmental impact assessment has been included.
- (3) How the beneficial and adverse impacts of the project have been integrated into the economic analysis of the project.
- (4) Whether the scoping procedure was satisfactory.

(d) Implementation:

- (1) Whether the institutional arrangements for implementing the recommended mitigation measures are satisfactory.

- (2) Whether the agency responsible for impact monitoring and environmental standard enforcement programme has been specified in the environmental impact assessment report.
 - (3) Whether the expenditures to be incurred while undertaking environmental protection measures have been estimated and whether financial and technical capability and resources required to implement these measures are available.
31. **Agencies Responsible for Environmental Impact Assessment Review:** (1) The draft environmental impact assessment report must be reviewed by the following agencies:
- (a) Project proponent.
 - (b) National Planning Commission, Environment Division.
 - (c) Line ministries/departments associated with the project.
 - (d) Non-government organisations and representatives from the affected population.
- (2) The project proponent must collect comments and suggestions from the reviewers and get the report revised by environmental impact assessment study team.

Chapter X Environmental Impact Monitoring

32. **Need for Monitoring:** Environmental impact monitoring must be conducted to fulfill the following objectives:
- (a) Ensure that the impact does not exceed legal standards.
 - (b) Check the implementation of mitigation measures to see whether it is in conformity with the environmental impact assessment report.
 - (c) Provide timely warning of potential environmental damage.
33. **Principles of Monitoring:** To improve the implementation of mitigation measures, the following activities must be undertaken in the process of environmental impact monitoring:
- (a) Determine carefully the indicators to be used in the process of monitoring.
 - (b) Collect important and relevant information.
 - (c) Apply measurable criteria with regard to prescribed indicators.
 - (d) Conduct objective analysis of the information collected.
 - (e) Work out clear conclusions based on objective analysis and processed information.
 - (f) Make rational decisions based on the conclusions drawn pursuant to clauses (a) to (e).
 - (g) Recommend improved mitigation measures to the implementing agencies.
34. **Types of Monitoring:** Environmental impact monitoring should be conducted at different stages as follows:
- (a) *Baseline monitoring:* Prior to the initiation of construction activities for the proposed project, surveys should be conducted of

construction site and basic environmental parameters of the surrounding areas. This would help subsequent monitoring to identify changes in those parameters compared to the baseline.

- (b) **Impact monitoring:** The ecological, social and economic, and public health parameters within the project area must be measured during the project construction and operation phases in order to detect environmental changes which may have occurred as a result of project implementation.
- (c) **Compliance monitoring:** This type of monitoring employs periodic sampling or continuous recording of specific environmental quality indicators or pollution levels to ensure project compliance with recommended environmental protection standards.

35. **Regular Monitoring:** The environmental impact must be monitored regularly to obtain necessary data and information in order to draw accurate conclusions concerning the impact of the project. Environmental impact monitoring provides information required to ensure that project implementation has the least possible adverse environmental impact on the people and environment of the area concerned.

36. **Intensity of Monitoring:** (1) In order to make the environmental impact monitoring a success as anticipated, it should be granted proper importance in the project cycle.

(2) A selection or scoping should specially be made of the most important and critical parameters that could influence the project and its surrounding environment.

(3) The extent to which monitoring ought to be intensified should be determined on the basis of potential severity of the environmental impact.

37. **Selection of Impact Indicators:** Environmental impact monitoring should not be limited to only a few programme components. Therefore, while determining the impact indicators, it is necessary to ensure that all programme components are covered by monitoring. If some programme components are potentially more significant than others in causing adverse environmental impact, emphasis should be given to monitor the selected indicators for these significant components.

38. **Institutional Aspects:** (1) As effectiveness of monitoring depends upon institutional aspects, these aspects should not be ignored. Agencies responsible for the monitoring process must be firmly committed, particularly with regard to the following :

- (a) Willingness on the part of the institutions and personnel involved to support the monitoring process with the necessary level of resources and ability.
- (b) Maintaining continuity of the monitoring process.
- (c) Developing technical capabilities of the personnel involved in monitoring.
- (d) Maintaining the integrity and honesty of the monitoring process.
- (e) Making decisions only after a thorough review of results.
- (f) Making the information obtained from monitoring available to all agencies concerned.

- (g) Making necessary institutional reforms in the planning and implementing agencies and related organisations.
- (2) The responsibility of environmental impact assessment monitoring should be given to the National Planning Commission and to the sections responsible for plan formulation under the regional and district level agencies of His Majesty's Government.
- (3) The reporting structure of environmental impact assessment monitoring depends upon the nature of the project and analysis undertaken by the agencies concerned. The information should be organised in a well-developed format and presented in regular reports allowing for easy presentation for decision-making and review meetings.
- (4) The concerned agencies should oversee enforcement of the decisions taken at the review meeting. If decisions are not implemented by the responsible agencies, legal measures should also be adopted to guarantee proper implementation.

Chapter XI

Evaluation of Environmental Impact Studies

39. **Introduction:** (1) Environmental impact assessment evaluation is a continuous process through which project impact can be assessed objectively. Environmental impact assessment evaluation is primarily employed to assess the performance of environmental protection programmes undertaken by responsible public or private sector agencies. Environmental impact assessment evaluation determines if mitigation measures adopted by implementing agencies have been implemented according to the requirements of the environmental impact assessment report.
- (2) Monitoring and evaluation are two complementary processes of the environmental impact assessment study. Information generated from environmental impact assessment monitoring can provide a reliable source of information for the evaluation process. Similarly, evaluation results can serve as a basis to improve the environmental impact assessment monitoring system. Evaluation can indicate whether environmental impact assessment monitoring was properly implemented.
- (3) Environmental impact assessment evaluation is intrinsic to the environmental planning and management process. Special attention should be paid to monitoring as unless evaluation results are available on a regular basis, necessary information on the status of programme implementation cannot be generated for the regular review meetings held at key decision-making points in the environmental impact assessment process.
- (4) Environmental impact assessment evaluation and results are necessary if mitigation measures are to be effectively maintained and revised when necessary. Environmental impact assessment evaluation is essential to strengthen environmental impact assessment implementation on a nationwide level, and thus special attention must be paid to it.
40. **Determinants of Effective Evaluation:** The data obtained from monitoring must be analysed in order to determine the actual impact of project implementation against impact predictions made at the time of environmental impact assessment

preparation. These analyses indicate whether new or revised remedial measures are necessary. The success of evaluation depends, besides others, upon the following:

- (a) Methodology adopted for the environmental impact assessment evaluation work.
- (b) Completeness and goal-orientation of the environmental impact assessment evaluation work.
- (c) Tools used for analysis.
- (d) Commitment of the responsible agencies (environmental impact assessment evaluation group).
- (e) Authority given to the environment divisions of different ministries of His Majesty's Government in order to influence the implementing agencies.
- (f) Willingness and ability of implementing agencies to mitigate adverse impacts.

41. **Evaluation Parameters:** (1) In the process of evaluation, indicators derived from important project parameters should be checked on a regular basis. These parameters include the following:

- (a) Environmental issues raised in the environmental impact assessment report.
- (b) Areas of actual environmental impact.
- (c) Areas of unanticipated environmental impact.
- (d) Adequacy of suggested mitigation measures.
- (e) Adequacy of resource allocation for implementing mitigation measures.
- (f) Involvement of appropriate authorities.
- (g) Cost-benefit of environmental mitigations.
- (h) Adequacy of project implementation monitoring.
- (i) Adequacy of monitoring data for evaluating predictions made in the environmental impact assessment report.
- (j) Recommendations made to improve mitigation including new remedial measures, if necessary.

(2) Environmental impact assessment evaluation must be conducted immediately after the implementation of the project. Generally, it is appropriate to initiate such evaluation after the data obtained from monitoring have been analysed. The responsibility of conducting overall evaluation shall be held by the Evaluation Division of the relevant ministry of His Majesty's Government.

Chapter XII

Environmental Impact Auditing

42. **Environment Impact Auditing:** (1) The environmental impact auditing must be undertaken after the project has been operational for some time.

(2) In the context of an environmental impact assessment, the environmental impact auditing assesses actual environmental impact, accuracy of prediction, effectiveness of environmental impact mitigation and enhancement measures and functioning of monitoring mechanisms.

(3) Generally, the environmental impact auditing is performed only once for each project.

Explanation: In general terms, 'auditing' refers to the field of finance and accounting. However, in this chapter, 'auditing' refers to the examination and assessment of a certain type of performance, particularly as mentioned in sub-section (2).

43. **Types of Auditing:** (1) The following types of environmental impact auditing must be done for different aspects of the environmental impact assessment process:
- Decision Point Auditing:** Examines the effectiveness of environmental impact assessment as a decision-making tool.
 - Implementation Auditing:** Ensures that conditions of consent have been met.
 - Performance Auditing:** Studies the work of agencies associated with project management.
 - Project Impact Auditing:** Examines environmental changes arising from project implementation.
 - Predictive Technique Auditing:** Examines the accuracy and utility of predictive techniques by comparing actual against predicted environmental impact.
 - Environmental Impact Assessment Procedure Auditing:** Examines critically the methods and approach adopted during the environmental impact assessment study.
- (2) Environmental impact auditing is not required in all cases. However, at the project approval stage, both project proponent and approving agency should consider whether any new information or improvement in management practices may be anticipated through the application of a particular auditing technique. Special attention should be paid to the projected cost-effectiveness of any proposed auditing and to the technical difficulties likely to be confronted in the course of environmental impact auditing.
- (3) Since environmental impact assessment is a new concept in Nepal, the use of environmental auditing plays a significant role in developing of a systematic approach to the use of environmental impact assessment.
- (4) In the course of environmental auditing, monitoring and evaluation results should be compared with data generated during the pre-project period. Such comparisons should be made on the basis of similar projects or standard norms. Comparisons made between predicted impacts and actual impacts help to evaluate the accuracy and adequacy of environmental impact assessment predictions.
44. **Impact Auditing Agency and Timing:** (1) The environmental impact auditing must be carried out by the government agency approving the project with the assistance of relevant government agencies and non-government organisations, as necessary.
- (2) Environmental impact auditing should be carried out immediately after completion of the project or whenever necessary.
- (3) The result obtained from environmental impact auditing should be made available to the project proponent and concerned agencies.

(4) Since environmental impact auditing reveals whether it is necessary to remove or lessen adverse environmental impacts, it is considered to be an important stage of project implementation.

Chapter XIII Community Participation

45. **Community Participation:** Community participation (public involvement) is one of the main foundation stones of planning and implementation of a project. The effectiveness of an environmental impact assessment is determined largely by how successfully the community has been involved. Therefore, community participation must be mobilised during the environmental impact assessment process.
46. **Benefits of Community Participation:** Community participation facilitates the following:
- Encourages individual involvement in development projects from the early planning stage.
 - Develops a sense of responsibility for making development projects environmentally sound and cost-effective.
 - Grants due recognition to traditional practices and technology.
 - Arouses public awareness.
 - Makes the project a success.
47. **Time for Community Participation:** Community participation is necessary during the following phases of project planning:
- Project identification, feasibility and scoping.
 - Initial environmental examination.
 - Detailed environmental impact assessment study.
 - Monitoring, evaluation and auditing.
48. **Individuals, Groups and Agencies to be Involved:** The following individuals, groups and agencies must be involved in the environmental impact assessment process:
- Local beneficiaries, target groups, users groups, affected groups, special interest groups (such as women).
 - Relevant government and private sector agencies.
 - Local leaders and academic groups.
 - Relevant non-government organisations.
 - Recognised experts.
49. **Methods to Involve the Public:** The following methods may be used to involve the public during various stages of the project:
- Community meetings and exchange of information.
 - Inter-personal contact.
 - Dialogue with users groups and local leaders.
 - Questionnaires, interviews, surveys.

- (e) Review of the draft environmental impact assessment report and monitoring/evaluation results by local community.
- (f) Panels comprising representatives of concerned organisations and local people.

50. **Responsibility in Involving the Public:** (1) The project proponents, implementors and authorising agencies should be responsible for encouraging community participation from the very initial stage of planning of all economic development projects that are likely to cause adverse impacts on the environment.

(2) The general public, project proponent and implementors should jointly collect and assess the relevant information before making decisions to implement the project and during the course of project implementation.

Schedule 1

(Relating to Sub-section (2) of Section 8)

Projects Requiring Initial Environmental Examination Report

IEE

1. Projects using more than 1 t but less than 10 t of pesticides
2. Livestock development schemes
3. Agricultural development schemes
4. Fisheries
5. Water supply schemes supplying potable water for a population of 2,000 to 10,000
6. Housing development schemes
7. Rural electrification schemes
8. River training works
9. Afforestation and deforestation schemes
10. Watershed management schemes
11. Protected area management plans
12. Population control schemes
13. Subsidy, incentive and credit schemes
14. Introduction of exotic species
15. Construction of district and municipal roads
16. Small scale irrigation schemes
17. Electricity generating schemes of less than 5 MW
18. Solid waste and sewerage system management intended to serve a population of 2,000 to 10,000
19. Chemical industries with production capacity not exceeding 10 t/day
20. Non-ferrous metal industries and primary smelting with production capacity of less than 10 t/day, with the exception of aluminum and copper industries
21. Non-metallic industries
 - a. Cement factories with production capacity not exceeding 30 tons/hour
 - b. Lime factories with production capacity not exceeding 100 tons/day (rotary kiln)
 - c. Lime factories with production capacity of less than 50 tons/day (vertical kiln)
 - d. Brick and tile industries with production capacity of between 3 million to 10 million pieces/year
 - e. Extraction of minerals covering an area of up to 2 ha
 - f. Extraction of aggregates or marble or boulders with a capacity of upto 100 cu. m/day
22. Iron and Steel Industries
 - a. Iron ore as raw material with production capacity of upto 100 t/day
 - b. Scrap iron as raw material with production capacity of upto 10 t/day
23. Pulp and Paper Industries with production capacity of upto 5 t/day
24. Leather and Textile Industries
 - a. Leather tanning with production capacity of upto 100 pieces of hides/day
 - b. Textile industries with dyeing facilities having a production capacity of upto 10 million m/annum
 - c. Carpet industry having production capacity of upto 500 sq. m/day
25. Food Industries

- a. Abattoirs including knackereries with a slaughtering capacity of upto 100 animal heads/day
- b. Canning and bottling industries extending to an area of upto 200 sq. m
- c. Brewery and distillery works which include infusion, boiling and fermentation having a production capacity not exceeding 2,500 l/day

Schedule 2

(Relating to Sub-section (3) of Section 8)

Projects Requiring Environmental Impact Assessment

{EIA}

1. Use of fertilisers, more than 100 t
2. Use of pesticides, more than 10 t
3. Construction of highways and feeder roads
4. Construction of multipurpose reservoirs
5. Electricity generating schemes with a capacity of more than 5 MW
6. Medium and large scale irrigation schemes
7. Airport construction
8. Solid waste and sewerage system management to serve a population of more than 10,000
9. Resettlement programmes
10. Drinking water supply schemes supplying potable water for a population of more than 10,000
11. Chemical industries where the production capacity of each product or combined product is greater than 100 t/day
12. Petrochemical works including storage and processing works (of all sizes)
13. Non-ferrous metal industries (primary smelting)
 - a. Aluminum - all sizes
 - b. Copper - all sizes
 - c. Others - producing 50 t/day or more
14. Non-metallic industries
 - a. Cement - with production capacity of more than 40 t/hour
 - b. Lime - with production capacity of more than 100 t/day (rotary kiln) or 50 t/day and more (vertical kiln)
 - c. Brick and tile manufacturing with production capacity of more than 10 million pieces/year
 - d. Extraction of minerals and mining covering an area of more than 5 ha
 - e. Extraction of aggregates or marbles or boulders with a production capacity of more than 100 cu m/day
 - f. Asbestos industries of all sizes
 - g. Radioactive related industries of all sizes
15. Iron and Steel Industries
 - a. Iron ore as raw material - having a production capacity of more than 100 t/day
 - b. Scrap iron as raw material - having a production capacity of more than 200 t/day
16. Pulp and Paper Industries
 - a. Wood-based raw material - having a production capacity of more than 50 t/day
 - b. Raw material other than wood - having a production capacity of more than 100 t/day
17. Establishment of industrial estates for medium and large scale industries covering an area of 50 ha or more
18. Leather and Textile Industries
 - a. Leather tanning with a capacity of more than 100 pieces/day

- b. Textile industries with dyeing facilities having a production capacity of more than 10 million m/year
 - c. Carpet manufacturing with a production capacity of over 500 sq. m/day
19. Food Industries
- a. Abattoirs including knackereries with a slaughtering capacity of 100 animal heads/day
 - b. Canning and bottling works having work space of 200 sq. m
 - c. Brewery and distillery works which include boiling and fermentation with a production capacity of over 25,000 l/day
20. Coal industries and allied works of all sizes
21. Hazardous waste industries of all sizes and any capacity of the following nature:
- a. Construction of recovery plant (off site)
 - b. Construction of secure land fill facility
 - c. Construction of storage facility (off site)
 - d. Construction of treatment facilities

Schedule 3

(Relating to Sub-section (4) of Section 8)

Environmental Impact Assessment Based on Project Sites

1. Unique areas of historic, cultural, archaeological, scientific and geographical significance
2. Wetlands
3. Ecologically fragile areas
4. National parks, wildlife sanctuaries and protected areas
5. Wilderness areas containing rare or endangered species of animals or plants and their habitat
6. Semi-arid, alpine or snowy areas
7. Flood or other hazardous zones
8. Residential, school, and hospital areas
9. Major sources of drinking water supply for the public
10. Water bodies (stagnant or running)

[archaeological = Ancient history]
[The study of human history and prehistory through the excavation of sites and the analysis of physical remains.]

Wetlands = swamps and other damp areas of land.

[Fragile = easily broken, weak]
not strong

[Sanctuaries = a holy place.
= a place where birds, wild animals are bred and protected.
= a place for₂₅ refuge

Schedule 4

(Relating to Section 18)

Format of Terms of Reference

1. Introduction

- a. Purpose of terms of reference.
- b. Agency or individual responsible for preparing the environmental impact assessment report.

2. Environmental Impact Assessment Guidelines

While preparing the environmental impact assessment report, general guidelines as well as procedures to be followed should be provided.

3. Background Information

- a. General background information about the project and indication about relevant reports.
- b. Particulars related to specific project background, and reports with coverage of the project and project area.
- c. Project-related policy, legislation and rules.
- d. Relevance of the project to local planning formats (such as land use, physical development project).

4. Specific Environmental Impact Assessment Guidelines

- a. The environmental components which need detailed or further study should be listed. The indicators of each listed component to be measured or assessed should be specified.
- b. Action required to minimise possible adverse impacts (relocation, increased taxes, compensation, etc.) should be mentioned.
- c. Cost-benefit of project in terms of its environmental implications should be analysed.
- d. Environmental impact assessment reports should propose a monitoring programme for assessing the actual impact during the project operation and thereafter.
- e. The following tasks should be mentioned in the environmental impact assessment study proposal:
 - i. *Tasks*: Each specific task to be performed should be sufficiently described.
 - ii. *Study*: The proposed plan for carrying out the environmental impact assessment study should be indicated.
 - iii. *Review sessions*: Periodic reviews of the work as needed during the study should be conducted.
 - iv. *Study team*: Expertise and specialists needed for the proposed project study team should be described.

f. Conclusion should be made about whether or not the project should be implemented, or whether or not it poses an acceptable risk.

5. Time constraints

- a. The time required for completing the environmental impact assessment report should be specified (for example 3 to 12 months).
- b. The list of tasks under environmental impact assessment with respective dates of completion should be mentioned.

6. Budget

The estimated budget allocation for the environmental impact assessment study and report should be mentioned.

7. Environmental Impact Assessment Report Format

8. Other Relevant Information

9. Reference List

10. Annexes, Maps, Photographs, Figures, Tables, Charts, Questionnaires, Checklists.

Schedule 5

(Relating to Section 20)

Environmental Impact Assessment Report Format

The environmental impact assessment report should be classified under the following categories and must incorporate the following components:

1. Executive Summary

The environmental impact assessment report should contain a precise and non-technical description not exceeding five pages about significant results and recommended actions.

2. Project Description

Under this section the activities of the proposed project, including its technical, geographic, ecological, economic, social and physical aspects should be outlined. The objectives, strategy and work schedule for each phase of the project should also be mentioned.

3. Baseline Information

Depending upon the nature of the project, the environmental impact assessment report should also present the baseline information pertaining to the geophysical, biological and socioeconomic situation of the area under study, including any changes anticipated prior to project implementation. Data gaps and limitations should also be mentioned.

4. Identification of Environmental Impact

The environmental impact assessment report should identify possible impacts, adverse as well as beneficial, anticipated as a consequence of the proposed project activities at different stages of the project cycle. Impacts should be predicted and quantified as far as possible, in terms of spatial and temporal contexts.

5. Alternative Analysis

Design, site technology and operational alternatives should be compared systematically in terms of their potential environmental impact; capital and recurring costs; suitability to local conditions; and institutional training and monitoring requirements. The environmental costs and benefits should be quantified and economic values mentioned for each of the alternatives as far as possible.

6. Mitigation Measures

The environmental impact assessment report should propose pragmatic mitigation measures for all activities likely to have an adverse impact on the environment. As mitigation measures cannot be expected to totally eliminate the adverse impacts, it is recommended that compensatory measures be proposed as well. It is essential that the cost effectiveness of mitigation measures be analysed against viable alternatives.

7. Review of Policy and Legal Framework

Based on the nature and magnitude of the project, a review should be undertaken of the policy and legislative framework relating to the project, with an examination of the weaknesses and strengths of their legal aspects. The report should suggest necessary amendments of such policies and legislation if these are likely to hinder environmental conservation and development.

8. Monitoring

The environmental impact assessment report should clearly specify the nature of monitoring required, stipulating who should undertake this activity, how much it would cost and what other inputs are necessary. Time schedules for monitoring should also be specified.

9. Auditing

The environmental impact assessment report should include the design for environmental auditing with its justification.

10. References

The report should list the references cited in the text, in the following order:

- a. Author or authors
- b. Date of publication
- c. Title of cited reference
- d. Names of publications or journals
- e. Volume numbers or series, issues (if any)
- f. Page or pages

Schedule 6

(Relating to Section 21)

Format of Environmental Impact Assessment Report Annexes

The annexes should include the following materials:

- a. Study-related maps such as topographical, geological, land-use, land capability, district maps.
- b. Aerial photographs of the project and surrounding areas (as far as possible).
- c. Questionnaire or checklist employed for field investigations.
- d. Figures or drawings related to the environmental impact assessment, such as flow charts, diagrams.
- e. Climatological, meteorological and hydrological data, if any, in the form of a time series table.
- f. Data about the existing flora and fauna in the project area.
- g. Geological and risk assessment data, if any.
- h. Information on air and water quality and noise level, before and after the project, if available.
- i. Relevant matrix or flow diagram for environmental impact assessment.
- j. Audio-visual aids, such as photographs, slides, transparencies, recordings, video films (if used).
- k. Agricultural data, such as cropping patterns, livestock, soil, recommended doses of chemical fertiliser.
- l. Reference listing the written materials used during the preparation of study reports.
- m. Record of inter-agency interactions/forums/meetings including lists of invitees and actual participants, with a brief summary of the discussions and observations.
- n. List of individuals and organisations involved in environmental impact assessment preparation.
- o. Individuals and organisations contacted during the study, including their full names, addresses and telephone numbers.

By order,

Khem Raj Nepal
Acting Secretary, HMG

Annex

Participants of the EIA workshop

The Environmental Core Group

Mr Amir Man Rajbhandari	Department of Tourism
Dr Ananda Raj Joshi	National Planning Commission
Mr Basanta Kumar Rai	Department of Building, Housing and Urban Development
Mr Batu Krishna Upreti	Department of Soil Conservation and Watershed Management
Mr Bharat Sharma	Department of Building, Housing and Urban Development
Dr Bidur Upadhaya	Water and Energy Commission Secretariat
Mr Bijaya Bahadur Shrestha	Department of Mines and Geology
Mr Buddha Krishna Manandhar	Nepal Electricity Authority
Mr Devi Das Koirala	National Planning Commission
Mr Dhruva Bahadur Thapa	Department of Livestock Services
Ms Hasina Shrestha	National Planning Commission
Mr Jagannath Koirala	Department of Forests
Mr Jaya Keshar Maskey	Ministry of Water Resources
Mr Kiran Prasad Dhungel	National Planning Commission
Mr Lal Shankar Ghimire	Ministry of Finance
Mr Manohar Lal Shrestha	Department of Forests
Mr Mohan Krishna Adhikari	National Planning Commission
Ms Moti Shova Shrestha	Ministry of Industry
Mr Prajwal Prasad Pradhan	Department of Irrigation
Mr Prem Lal Chitrakar	Department of Agriculture
Mr Purushottam Kunwar	National Planning Commission
Dr Purushottam Mainali	Central Animal Health Centre
Mr Ramesh Kumar Maskey	Nepal Electricity Authority
Mr Ravi Raj Kafle	National Planning Commission
Mr Rudra Sapkota	Department of Soil Conservation and Watershed Management
Mr Surendra Kumar Subedi	Department of Agriculture
Mr Surya Raj Acharya	Department of Building, Housing and Urban Development
Dr Tirtha Man Maskey	Department of National Parks and Wildlife Conservation