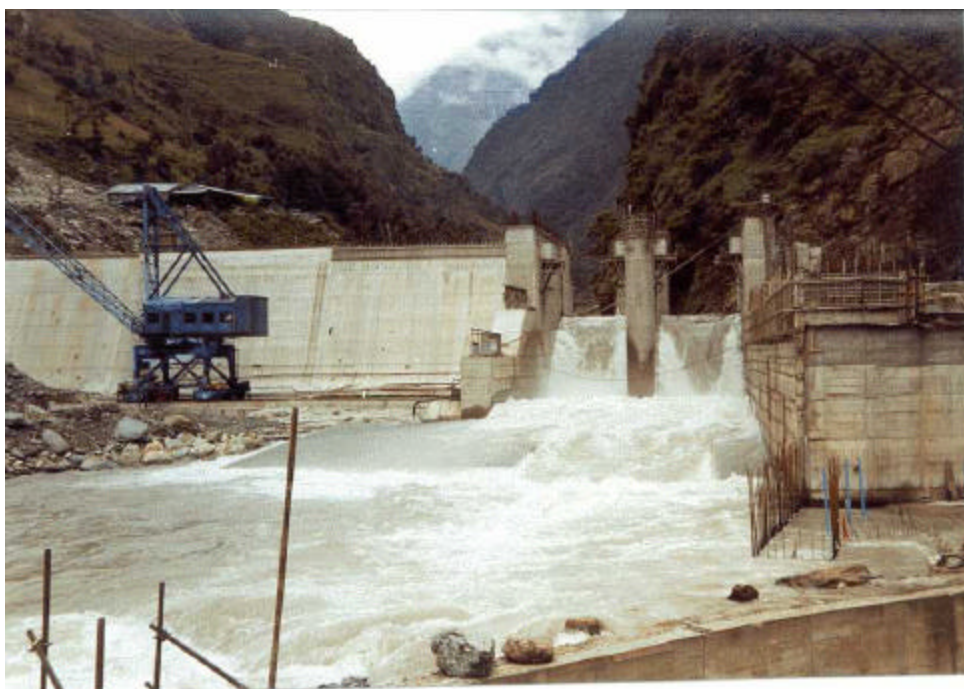


Private Sector Hydropower Development Project

**Manual for Preparing Terms of Reference
(TOR) for Environmental Impact Assessment
(EIA) of Hydropower Projects, with Notes
on EIA Report Preparation**



**Department of Electricity Development, HMG Nepal, in Collaboration with
United States Agency for International Development
and International Resources Group**



This is a publication of the Department of Electricity Development, HMG Nepal. Its function is to help the proponent prepare EIA documents within the framework of the existing Acts and Rules. It is recommended but not mandated. If any provision(s) and/or content(s) contradict(s) the provisions of the prevailing Acts and Rules, the provisions of the prevailing Acts and Rules shall be governing.

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2001

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with United States Agency for International Development and
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Manuals in this series:

Manual for Preparing Scoping Document for Environmental Impact Assessment (EIA) of Hydropower Projects.

Manual for Preparing Terms of Reference (TOR) for Environmental Impact Assessment (EIA) of Hydropower Projects, with Notes on EIA Report Preparation.

Manual for Preparing Environmental Management Plan (EMP) for Hydropower Projects.

Manual for Reviewing Scoping Document, Terms of Reference (TOR) and Environmental Impact Assessment (EIA) Reports for Hydropower Projects.

Manual for Preparing Initial Environmental Examination (IEE) Report for Hydropower Projects.

Manual for Public Involvement in the Environmental Impact Assessment (EIA) Process of Hydropower Projects.

Manual for Developing and Reviewing Water Quality Monitoring Plans and Results for Hydropower Projects.

Manual for Prediction, Rating, Ranking and Determination of Significant Impacts in Enviro**FOREWORD**

Environmental Impact Assessment (EIA) is one of the proven tools of facilitation to achieve the goal of environmentally and socially sound and sustainable development.

The incorporation of EIA in hydropower projects in Nepal was initiated in the early eighties. However, with the enforcement of the Environment Protection Act (EPA) and the Environment Protection Rules (EPR) in 1997, the integration of EIA in hydropower projects has now become compulsory. Large-scale hydropower projects were gaining attention for the integration of EIA prior to the enforcement of EPR. But, they were all initiatives from the donor agencies. At present, we have our own national system of EIA. A large number of proposed and on-going hydropower projects have already completed an EIA study. Some of them have been approved by the government agencies and are in the process of implementation. However, in the course of gaining experience about the processes and procedures of EIA implementation, we have become aware that the process needs to be improved.

In March 2000, the Department of Electricity Development (DOED), the National Environmental Impact Assessment Association of Nepal, International Resources Group (IRG), and the US Agency for International Development organized a one-day interagency workshop. The objective of this event was to carry out a SWOT analysis of the EIA process for hydropower projects in Nepal. A major conclusion of the participants was that the EIA process could be improved and streamlined by producing a series of manuals that would clarify the requirements at each stage in the process. Thus, the DOED, in collaboration with IRG, has developed sectoral manuals for improving the EIA process for hydropower projects. The draft manuals produced under this program are then being refined through a series of interagency workshops.

A workshop to finalize the *Manual for Preparing Scoping Document for Environmental Impact Assessment (EIA) Study of Hydropower Projects* and the *Manual for Preparing Terms of Reference (TOR) for Environmental Impact Assessment (EIA) Study of Hydropower Projects, with Notes on EIA Report Preparation* was conducted at Godavari the from 25 to 26 May 2000. A total of 29 participants consisted of senior representatives from the DOED, The Ministry of Water Resources (MOWR), the Water and Energy Commission Secretariat, the Department of Soil Conservation and Watershed Management, the Department of Forests, the Department of Water Induced Disaster Prevention, Nepal Electricity Authority, the National Environmental Impact Assessment Association of Nepal (NEIAAN), Butwal Power Company, Himal Power Limited, Lamjung Electricity Development Company, IRG, METCON Consultants, and the US Agency for International Development. This publication is the result of the dedicated effort of the participants.

I sincerely hope that these manuals will be useful to streamline the present practice of EIA relevant to hydropower projects in Nepal. I am confident that these manuals will considerably improve the current practices of EIA in Nepal, making the system more beneficial, meaningful, and efficient for achieving environmentally and socially sound and sustainable hydropower development in Nepal.

Keshab Bahadur Chand

Director-General

Department of Electricity Development

ABBREVIATIONS

DOED	Department of Electricity Development
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environmental Protection Act
EPR	Environmental Protection Regulation
HMG	His Majesty's Government
IRG	International Resources Group Ltd.
MOPE	Ministry of Population and Environment
MOWR	Ministry of Water Resources
TOR	Terms of Reference

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1. INTRODUCTION

In the EIA process of Nepal *Terms of Reference* (TOR) is a document to be prepared by the project proponent, and submitted to the authorizing agency for approval. The basic objectives of the TOR are to:

- define what types of information are to be presented in the *Environmental Impact Assessment* (EIA),
- delineate the relevant issues to be discussed,
- define what studies will be performed,
- explain who will conduct the studies,
- state when the studies will be conducted, and
- outline the basic structure of the EIA.

The contents of the TOR should include the critical environmental issues identified in the Scoping process. According to the *Environmental Protection Regulation, 2054* (EPR54, as amended in 2055), the project proponent shall prepare and submit both the Scoping document and the TOR document at the same time for approval. The format for the TOR is given in Schedule 4 of EPR54. In such cases, the project proponent first should prepare a Scoping document and, based upon the Scoping document, the TOR shall be prepared. The project proponent then submits both documents to the Ministry of Population and Environment (MOPE), through the Department of Electricity Development (DOED) of the Ministry of Water Resources (MOWR). MOPE can give approval with or without comments on both, one, or neither of the documents. However, if the proponent wishes, the Scoping document may be submitted first, followed by a TOR document based on the approved Scoping document. The TOR provides the necessary guidance for undertaking an EIA for a proposed hydropower project in Nepal. At present, an EIA is required on all hydropower projects with an installed capacity of more than 5 MW, all transmission lines with a voltage of more than 66 kV, and rural electrification projects of more than 6 MVA capacity.

Scoping identifies the issues to be addressed, whereas the TOR provides a complete guidance on how to address these issues in the process of the EIA. EPR54 provides for developing the TOR based on the results of Scoping. In EPR54 only the format for the TOR is given. There is no explanation about how this is to be expanded. At present in Nepal, different types of TORs for undertaking EIAs of hydropower projects are being developed and approved. No uniformity exists in TORs and, consequently, the quality of EIA report formats is uneven. In some cases the issues identified in Scoping have not been included in the TOR, resulting in discrepancies between the TOR and the results of Scoping. There are also some discrepancies between TORs and the subsequent EIA reports based on them. These factors have led to different styles of TOR being produced. These differences and discrepancies have made it difficult for the review agencies, the DOED, MOWR and MOPE, to deal with them..

Therefore, there is a need for good practice criteria to guide the preparation of TORs for carrying out EIAs on hydropower projects in Nepal. It is necessary to make the process uniform and consistent. There is also a need to create more uniformity between the requirements of the EIA report and the matters discussed in the TOR.

Thus, the goal of this manual is to regularize the process and help achieve the objectives of creating TORs, as detailed in Section 1.1.

1.1. The Objectives of TOR

The purpose of preparing the TOR for undertaking an EIA of a proposed project is to ensure that the resulting EIA will be suitable for review and evaluation by the concerned Nepal government agencies. The TOR provides specific guidelines, including:

- identification and description of the issues to be investigated,
- systematization of the working procedures,
- delineation of the specific activities to be undertaken,
- fitting the EIA study into the context of existing policies, rules and administrative procedures,
- clarification of the responsibilities of the different institutional actors involved in the project cycle,
- setting out a time frame, with the required expert manpower for carrying out the EIA study, together with the estimated budget required,
- accomplishment of the works within the specified time,
- special emphasis to the most significant aspects of the study, and
- technical guidance relating to the main aspects of the environment which will require delineation during the course of the EIA study.

1.2. Appropriate Time for Developing TOR

Following the completion of Scoping, a TOR should be developed based entirely on the results of Scoping. The most appropriate time for preparation of TOR is at the feasibility stage of the project cycle.

1.3. Responsibility for Developing TOR

The TOR evolves from the Scoping process in EIA. The critical issues identified during the Scoping exercise, to be carried out in EIA study, should be included in the TOR. The project proponent should prepare a TOR that both delineates the scope of the EIA and provides complete guidance for undertaking the EIA study. After approval from the authorizing agencies the TOR becomes an official document. In the EIA report review process the TOR serves as a standard document against which the subject matter covered by the EIA report will be evaluated.

2. GOOD PRACTICE CRITERIA FOR THE PREPARATION OF TERMS OF REFERENCE (TOR)

The TOR must follow the TOR format given in EPR54 Schedule-4 (pertaining to Rule 5) in order to produce an EIA which follows the EIA format given in EPR54 Schedule-6 (pertaining to Rule 7). See Annex 1 and Annex 2, respectively. The proponent should always bear in mind that the purpose of the TOR is to answer the following questions:

- *What* will be done?
- *Why* will it be done?
- *How* will it be done?
- *When* will it be done?
- *Who* will do it?
- *How much* will it cost?

The criteria set out below follow the order of the paragraphs of the TOR format (Annex 1), with additional references to the EIA format (Annex 2).

2.1. Name and Address of the Person/Institution Preparing the Report

This section of the TOR should provide a concise description (corporate overview) of the organization that will be responsible for carrying out the EIA. The information given will be used by the concerned agencies to evaluate the institutional capabilities for carrying out the EIA. The information should at least include:

- the name of organization, address and contact numbers (telephone, fax, e-mail, web site);
- the year the organization was established; and,
- the approximate number of full-time professional staff.

A similar format should be used to list any other organizations to be subcontracted by the lead organization.

2.2. General Introduction of the Proposal

This section must clearly state the objectives of the EIA, and the relationship of its results to project planning, design and implementation. It should highlight critical points in the decision making process linking environmental and social assessment and project execution.

The concerned agencies will require descriptions of the construction and operational phases of the proposed project. Based on the information already provided in the Scoping document, these should include the project's:

- location and accessibility,
- design and layout,
- size and capacity,
- land requirements,
- raw materials,
- construction activities,
- energy and power source for construction,
- schedule,
- staffing,
- support facility services,
- labor requirements, and

- operation and maintenance activities.

A map with the salient features of project design should show the proposed project's construction facilities at a glance.

2.3. Data Required for Preparation of EIA Report and Methodology of Data Collection

The evaluation of the effects of hydropower on the environment and socio-economy requires adequate knowledge of the ecosystems, including the human communities, which exist within the area under influence of the project. Keep the data collection well focussed. Based upon the issues identified in the Scoping document, this section should summarize what baseline data and information are needed, describe how they will be gathered, and explain how they will be used. The study goals must be clearly defined.

The methodologies to be used for data collection should be briefly described, together with an explanation of how precise the information needs to be for decision-making. Predictive, quantitative models and standards should be proposed wherever possible to avoid vague and subjective predictions. In addition, public involvement to focus the analysis on locally important concerns and issues, and to ensure peoples' participation, should be employed.

2.4. Policies, Laws, Rules and Directives

The purpose of this section is to establish that the organization responsible for carrying out the EIA is familiar with all of the relevant legislation of the Kingdom of Nepal. A summary should be made of the guidelines, procedural aspects, acts, rules, regulations and policies e.g., national and sectoral guidelines, EPA53, EPR54, hydropower policies, forestry regulations, etc, to be followed in the preparation of EIA report for the proposed project and those that are issued by the concerned government agencies. A list of the major guidelines, rules, acts, regulations and policies are given in Annex 3 of the Manual for Preparing Scoping Document. Particular emphasis should be given to the policies and legal framework for sensitive issues such as pollution standards, protected areas, endangered species, criteria for impact evaluation, and the relocation of, and compensation for, project affected peoples.

2.5. Report Preparation Requirements

a) Time

By means of appropriate bar graph and simple critical path chart, the proposed plan for carrying out the EIA study should be indicated so that the project will be completed within a realistic time period. The graph or chart should indicate which studies are seasonally dependent, and the time frame must match the activities to be carried out.

b) Estimated Budget

The total cost of the proposed EIA study should be given, together with estimates of the probable costs for any resulting Resettlement Action Plan, Mitigation Plan, Monitoring Plan, Auditing Plan, and Environmental Management Plan. Roughly, the total cost for environmental integration in the project implementation can be expected to be in the range of 1% to 5% of the total cost of project construction which should be borne by the project proponent.

Also to be included in the budget are the costs required for public involvement during EIA at sites, public hearings at project site and in Kathmandu, notices in newspapers, and logistic support required for conducting public hearings.

c) Specialist/Experts

Starting with the team leader, a list of the EIA project staff should be given, together with their key qualifications and affiliations.

A description of proposed team staff should be presented including bio-data for all key personnel. A single individual should be designated as the EIA Team Leader, to be assigned full time for the duration of the project. It is most important that the expertise of the project staff is shown to cover all of the major issues identified in the Scoping document. A hydropower engineer should be involved in the EIA study, as should a social scientist and/or socio-economist familiar with Nepal.

2.6. Approved Scope for the Preparation of the Report

In this section, all impacts/issues determined and approved in the Scoping document shall be incorporated.

2.7. Likely Environmental Consequences

This section should consist of impacts identified in the Scoping document and as mentioned in 2.6 above.

The impacts should be grouped into three basic categories as follows:

- a) Physical.
- b) Biological.
- c) Socio-Economic and Cultural.

Note that between EPR54 Schedule-4 and Schedule-6 there is a slight difference in the listing of these categories of impacts, though they cover the same topics.

The potential impacts to be investigated by the EIA should be classified in terms of whether they are direct or indirect, and the methods by which the evaluations of their effects will be made should consider the extent, duration and magnitude of each impact, including cumulative and residual impacts.

2.8. Alternatives for Executing the Proposal

This section should outline how the 'No Action Option' will be compared with the option of implementing variations in the design of the proposed project. The proposed methods will be expected to be capable of evaluating the advantages and disadvantages of both options in term of economy and environment. The 'No Action Option' is the existing scenario and describes status quo condition; whereas, under the condition with proposed project implementation, some changes are bound to take place.

It is very important to explain here how different stakeholder groups will be incorporated into the consideration of alternatives such as:

- a) design;
- b) project site;
- c) technology and operational methods, schedule, required raw materials;
- d) acceptability or otherwise of the risks likely to emerge while implementing the proposal; and
- e) other relevant points.

2.9. Mitigation Measures, Environmental Management Plan and Auditing

At this point, two additional chapters (Chapters 2.9.2 and 2.9.3) are being added. In order to keep the sequence in accordance with EPR54 Schedule-4 of, they are treated here as subsections of Schedule -4, Part 9.

2.9.1. Mitigation Measures

Based upon the issues identified in the Scoping document, the probable mitigation measures should be summarized, and their budgetary requirements should be estimated. The roles and responsibilities of concerned agencies at the central and local levels of administration in the implementation of mitigation measures proposed must also be included.

2.9.2. Environmental Management Plan

Following the format of an EIA report (Schedule-6) the *Environmental Management Plan* (EMP) should be described separately and not included in the analysis of alternatives as per EPR54 Schedule-4 (TOR format). Hence, it is suggested the development of the EMP should be dealt with here.

2.9.3. Auditing Plan

It should also be pointed out that in EPR54 Schedule-4 there is no mention of auditing. However, in EPR54 Schedule-6 it is mentioned that the EIA report should contain an auditing plan. Therefore, this should also be included in the TOR document.

2.10. Costs and Benefits

This section must summarize the basic development issues or the problems that will be addressed by the proposed activities. If possible, it should characterize the issues or the problems in a broader national context. The way in which the proposed project is expected to address and resolve issues, or solve or alleviate problems, should be explained, with emphasis on sustainability. The critical requirements for the proposed activity to be successful in the long term should be described, with emphasis on the major risks and benefits involved.

2.11. Monitoring Plan

This section of the TOR must outline how the monitoring plan of project construction and operation will be elaborated. Using the results from Scoping, the list of indicators for each of the potential parameters to be monitored, together with the probable roles and responsibilities of the concerned agencies, should be listed. This information can be presented in a chart. A monitoring schedule should also be included. The cost required for conducting monitoring activities should also be indicated.

2.12. Relevant Information

This section is related to the Appendices of the EIA report (see §3.14). It should provide a preliminary list, but *not* annexes, of the supporting information that it is expected will be used in the preparation of the EIA report. The list should include all relevant documents, appendices, maps, photographs, tables, charts, graphs and any questionnaires to be used for preparing the report.

3. NOTES FOR PREPARATION OF THE EIA REPORT

The EIA process up to the issuance of a construction license is summarized in Annex 3. The format of the EIA report should follow that of EPR54 Schedule-6 pertaining to Rule 7. The following notes are intended to facilitate the preparation of an EIA design that will pass smoothly through the review process.

3.1. Name and Address of the Person/Institution Preparing the Report

The list of the personnel involved in the EIA study and report preparation, the duration of their involvement, and the address of the institution undertaking EIA report preparation can follow a general format combining the information outlined in §2.1 and §2.5.c.

It is very important here to explain the reasons why any member of the EIA team listed in the TOR was substituted and/or if new team members were added.

3.2. Summary of the Proposal

This section of the EIA report should be as concise as possible. It should give the reviewers non-technical overviews of:

- the objective of the project proposal in a national, regional and local context;
- the effects of the project on land use; and

- the adverse effects of the project on the environment.

3.3. Executive Summary

The EIA report should contain a precise summary about the significant results and recommended actions; it should be written in non-technical terms and should not exceed ten pages. The target audiences of the summary will range from government decision-makers (who are not necessarily EIA specialists) to the general public. The summary should be written in Nepali and in English, and should also include a summary of the project proposal in Nepali. All translations from English to Nepali (and *vice versa*) should be double checked for accuracy, to be sure that they say the same thing.

Great care should be taken with choice of vocabulary. Many terms should be explained as 'equivalents'. For example, one could say that a project with an installed capacity of 30 mw would generate sufficient power to supply electricity to 60,000 households in the Kathmandu Valley. Units of measure should also be clarified with their national and regional equivalents.

3.4. Description of the Proposal

The description of the project can follow the general format of that given in Annexes 2 and 5 of the *Manual for Preparing Scoping Document*. However, the information should be more detailed for those parts of the project where significant environmental and social impacts have been identified.

3.5. Description of the Existing Environment

The Environmental Impact Assessment report must present relevant baseline information pertaining to the geo-physical, biological, socio-economic and cultural situation of the area under study, including any changes anticipated prior to project implementation.

The types of baseline data to be presented must be correlated to the environmental and social issues that have been identified during Scoping as being significant. For example, if the project affected area is mainly farmland and grazing land then presenting the results of an intensive bird census might make little sense. On the other hand, if the project affected area consists of relatively undisturbed natural habitats then a bird census might be the most effective tool for evaluating the conservation value of those habitats. Similarly, if certain cultural or religious artifacts or historical sites have been identified in Scoping, then a cultural inventory is a useful tool.

Different levels of detail for certain types of baseline data will be project specific. For example, for a small run-of-the-river project on a small river a simple species list of the fishes might be sufficient for impact evaluation. On the other hand, a large-scale storage project might require a detailed study of fisheries and fish migrations, as well as the socio-economic impacts of change of lifestyle among persons dependent on fishing.

The section on baseline data should describe the methodologies and tools used for information collection. It should differentiate between secondary and primary source of information, and it should state clearly where there were data gaps and any other limitations.

3.6. Identification of Environmental Impacts

Issues that were not detected or not considered to be significant during Scoping may arise during the course of the EIA study. Such issues must be included in the EIA report. This is because approval of the Scoping document and TOR does not confer any exemptions from the laws of the Kingdom of Nepal.

The EIA report should contain a list of both the adverse and the beneficial impacts anticipated as consequences of the proposed project activities at different stages of project cycle. The impacts should be predicted and quantified as far as possible in terms of their magnitudes, location and duration contexts. Matrices, networks, checklists and questionnaires used in the process of identifying impacts should be appended in the annexes. Any environmental quality standards or socio-economic measures that were applied in the assessment must be stated.

3.7. Analysis of Alternatives

Design, site, technology and operational alternatives should be compared systematically in terms of potential environmental impacts, capital and recurring costs, suitability to local conditions, institutional training and monitoring requirements. The environmental costs and benefits may be quantified and economic values for each of the alternatives should be given.

The next step is to evaluate the policy under which the proposed project is being considered. Evaluate the existing policy and examine whether implementation of proposed project under the policy bring social benefits, protects the environment and achieves sustainability. However, if these are not attainable, then there is a need for policy intervention in order to identify a policy alternative that is socially acceptable and environmentally sound.

3.8. Mitigation Measures

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

Present the mitigation plan in sufficient detail as far as possible so that it can be incorporated into the criteria for the project design. Explain specific aspects about the mitigation plan to be included in tender documents for the project construction contractor.

Appraise the plan for involuntary resettlement and describe any measures taken to minimize the number of relocates. Examine the success of previous resettlement

programs and recommend changes in the current plan accordingly. Evaluate the incremental contribution to the long-term degradation of local natural and social and economic system. In doing so, compare the severity of cumulative impacts with those from other previous development activities.

Mitigation plans and resettlement action plans often require additional studies that are touched upon, but not in detail, in the EIA report. Such studies should be incorporated into the mitigation plan's implementation schedule.

3.9. Environmental Management Plan (EMP)

The EIA report should provide a comprehensive EMP. An *Environmental Management Plan* (EMP) describes activities in support of the following:

- project monitoring,
- project management;
- the verification of predicted environmental impacts with the impacts actually arising, and
- the agencies responsible for these measures, costs and schedule.

3.10. Review of Policy and Legal Provisions

Considering the nature and magnitude of the project, a review should be undertaken of the policy and legislative framework relating to the project. The report should suggest the necessary amendments of policy and legislation if they are likely to hinder environmental conservation and/or social development. Identify if the above acts, rules, regulations, guidelines and policies need to be revised in order to achieve good environmental and social standards.

This section should also include the institutional framework of the concerned agencies, at both central and local levels, and assess the capabilities and past experience of these agencies in managing projects. Identify capacity-building needs.

3.11. Monitoring

The EIA report should clearly specify the nature of the monitoring required, stipulating who should undertake these activities, the cost and any other necessary inputs. The time schedule for monitoring should also be specified.

Provide a comprehensive plan covering the environmental and social variables to be monitored, and provide the location and timing of sampling and measurement of the variables. Include baseline, compliance and impact monitoring and indicators to be measured for each of them. Name the institutions responsible for monitoring the different variables and show how the management plan is expected to influence the operation of the project. Provide sufficient guidance and prepare a 'training needs assessment' on sampling protocol and analytical standards to ensure the generation of reliable data.

3.12. Environmental Auditing

The purpose of auditing is to assess the actual environmental impact, the accuracy of prediction, the effectiveness of environmental impact mitigation and enhancement measures, and the functioning of monitoring mechanisms. The EIA should include the design for auditing and its justification.

Provide enough information to serve as a basis for carrying out an environmental audit, with appropriate indicators to be used in the process of the audit study after the completion of project construction and during the project's operational stage.

3.13. References

Provide a list of references cited in the text of the main report. Arrange the cited works alphabetically by surname of author or senior author and in chronological order by date for each author. The publication information should be listed in the following order:

- author(s);
- date of publication;
- name of publication and journal;
- volume, number, series if any; and
- page numbers.

Any unpublished reports should use the following format:

- author(s) or acronym of the institution;
- year when written;
- title of the report;
- name(s) of institution(s) for which the report was prepared;
- name of the institution preparing the report;
- number of pages; and
- number of annexes.

3.14. Appendices

The following should be included in appendices:

- maps related to the study;
- aerial photographs if possible;
- sample questionnaires, checklists, matrices, charts and photographs;
- information on the hydrology, meteorology and geology of the project area;
- information on vegetation, forest and fauna of the project area;
- location and brief description of sensitive sites;
- information on water quality, noise intensity and air quality of the project area;
- audio-visual records of the area if any;
- information pertaining to agriculture, livestock, soil and use of fertilizers in the area;
- information on socio-economic and cultural impacts;

- name and addresses of personnel and the institution(s) involved in the EIA study;
- list of invited and consulted people in the project affected area, their opinions, records of public involvement (e.g., meeting, workshop, consultation);
- persons and institutions contacted outside of the project affected area in the process of EIA study, with their addresses and telephone numbers; and
- letters of recommendation from concerned VDCs, as per regulations.

3.15. Conclusions and Recommendations

In addition to the chapters mentioned in EPR54 Schedule-6 of, it is suggested that this chapter should be added.

Based on the findings of the EIA study, conclusions should be drawn and recommendations should be made regarding project implementation.

ANNEX 2

Official translation

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

Schedule -6

(Pertaining to Rule 7)

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

- 1) Name and Address of the Person/Institution Preparing the Report.
- 2) Summary of the Proposal (To mention the following matters in regard to the possible impact of the implementation of the proposal on the environment):
 - a) Objectives of the proposal.
 - b) Impact on land-use.
 - c) Adverse impact on the environment, impact on human life, 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-schedules 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 data 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 impact 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 proposal, and their time-schedule.
 - b) Impact of waste 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, and operation procedure, time-schedule, and raw materials to be used.
- b) Comparison is 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 the 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.

8) Measures to Reduce Environmental Impact:

- a) To mention practical preventative measures to be adopted for all activities which could have a negative impact on the environment.
- b) In case the environmental impact cannot be fully avoided through preventative 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 agency, time-schedule, monitoring and evaluation indicators, etc.

12) To mention the format and relevancy of environmental examinations.

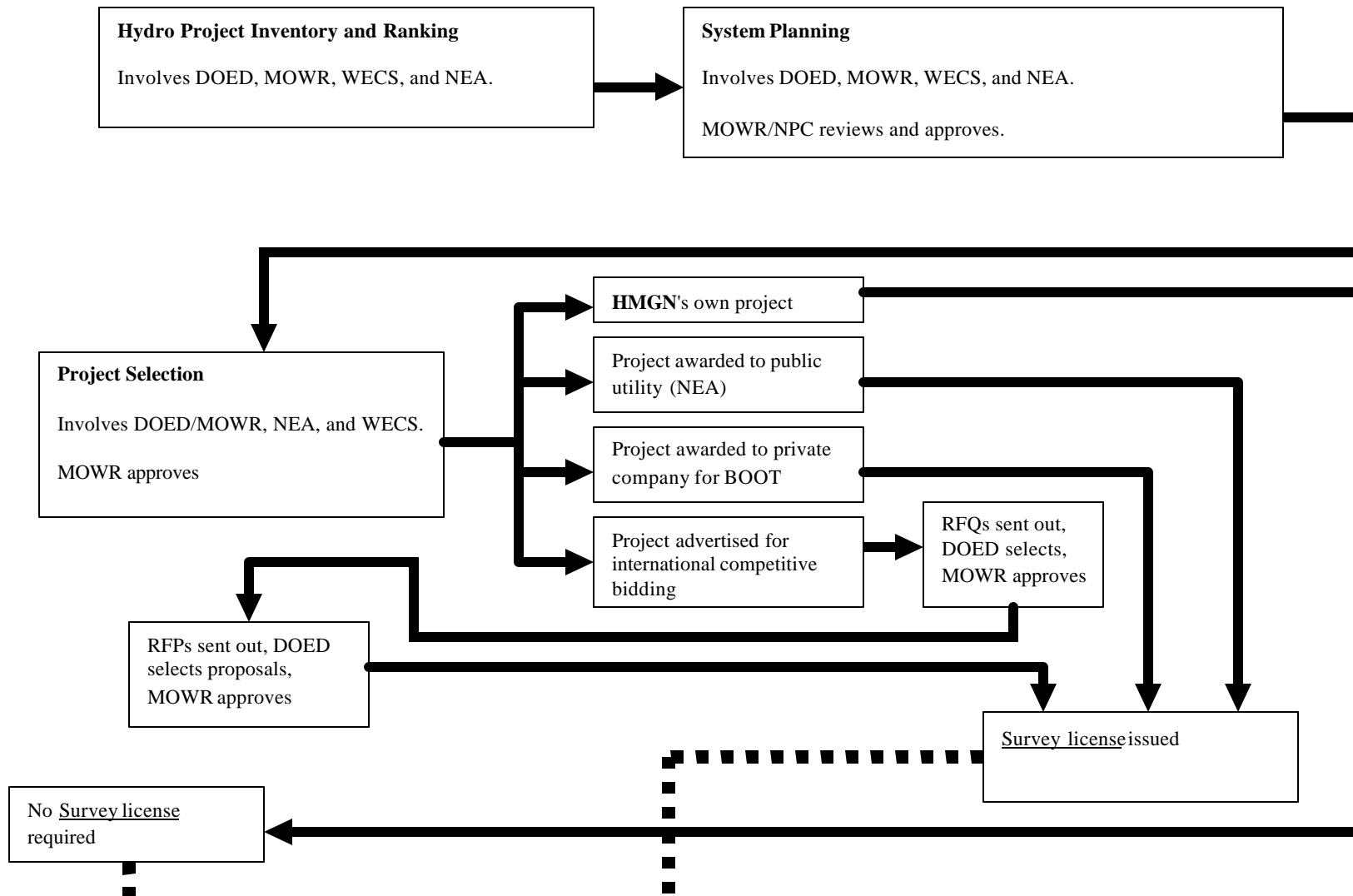
13) Reference Materials: To make a list of publications quoted as references while preparing the report in the following manner:

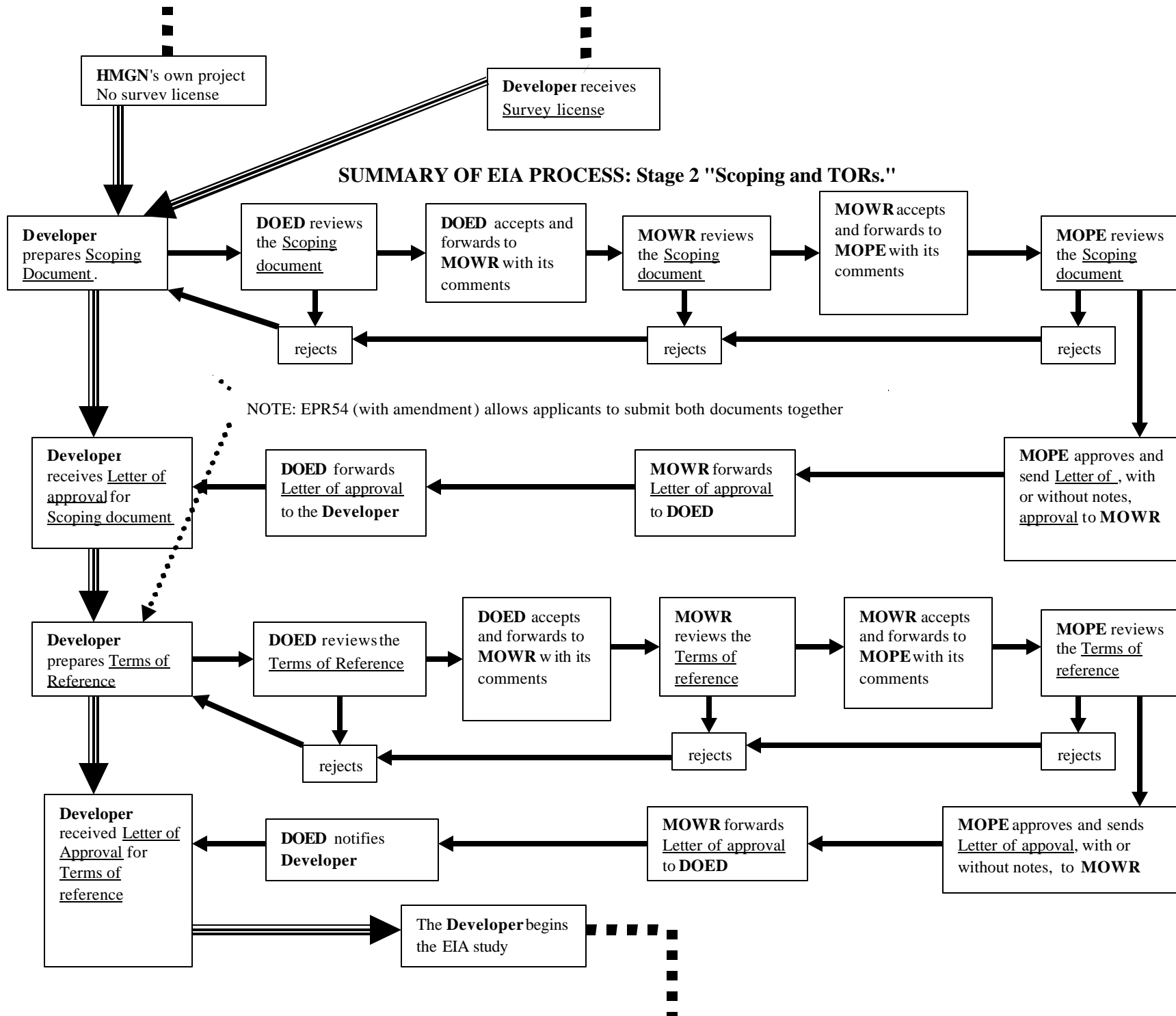
- a) Author,
- b) Date of publication,
- c) Title of the material quoted,
- d) Name of publication or journal which is quoted,
- e) Year, volume, number, etc. (if any),
- f) Page number.

14) To include the following particulars in the Annexes:

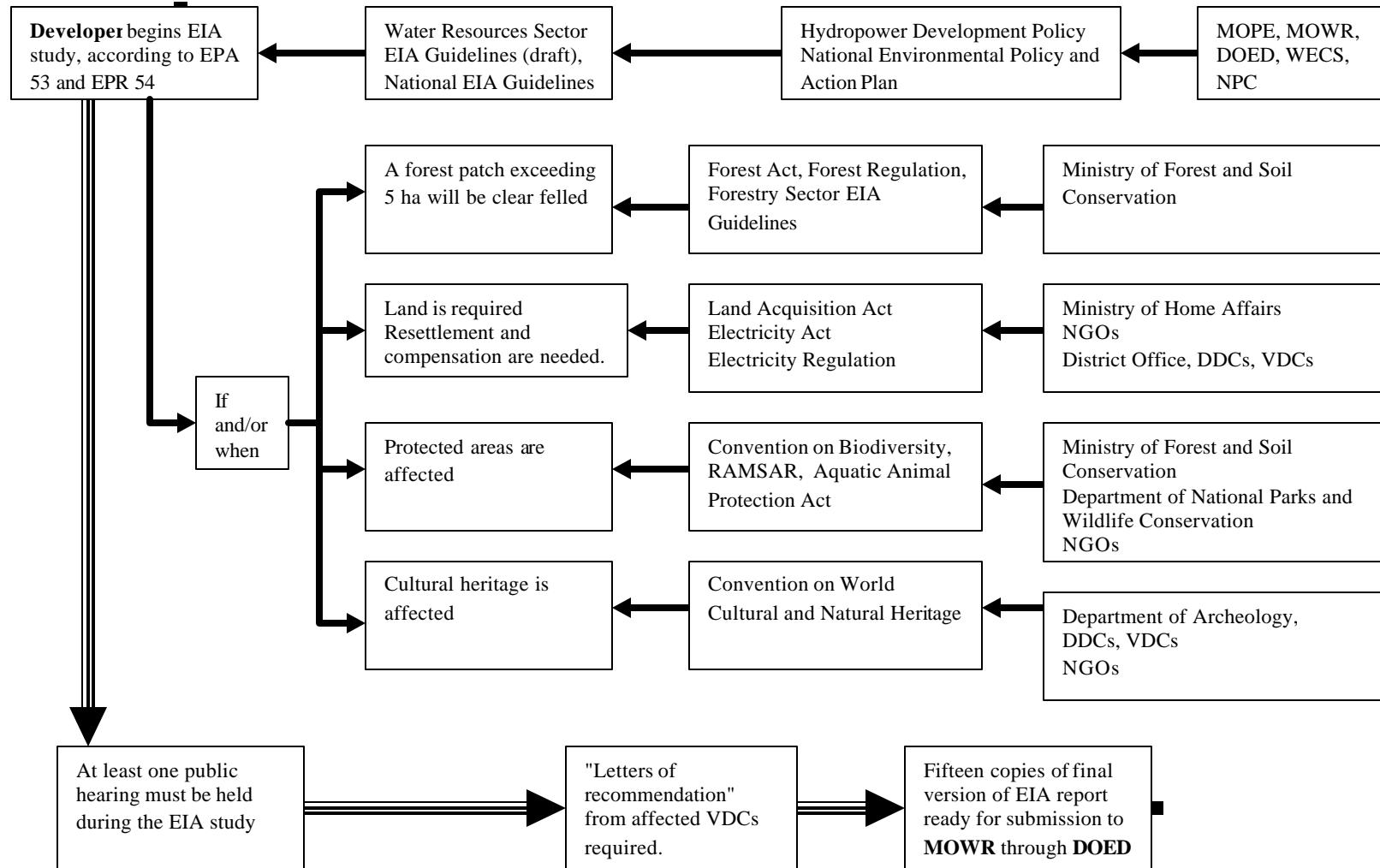
- a) Maps relating to the composition of land, geographical location, land-use and land capacity, and other maps related to the study,
- b) Aerial photographs, as far as possible, of the proposal implementation site and the surrounding areas,
- c) Questionnaires or lists of subject matters used for field research,
- d) Such matters connected with the evaluation of the environmental impact as charts 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 the noise level before and after the implementation 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 written 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 numbers of individuals and institutions contacted in the course of the study.

Annex 3: LOGIC DIAGRAM OF THE EIA PROCESS: Stage 1 "Process for Selection of Developer."

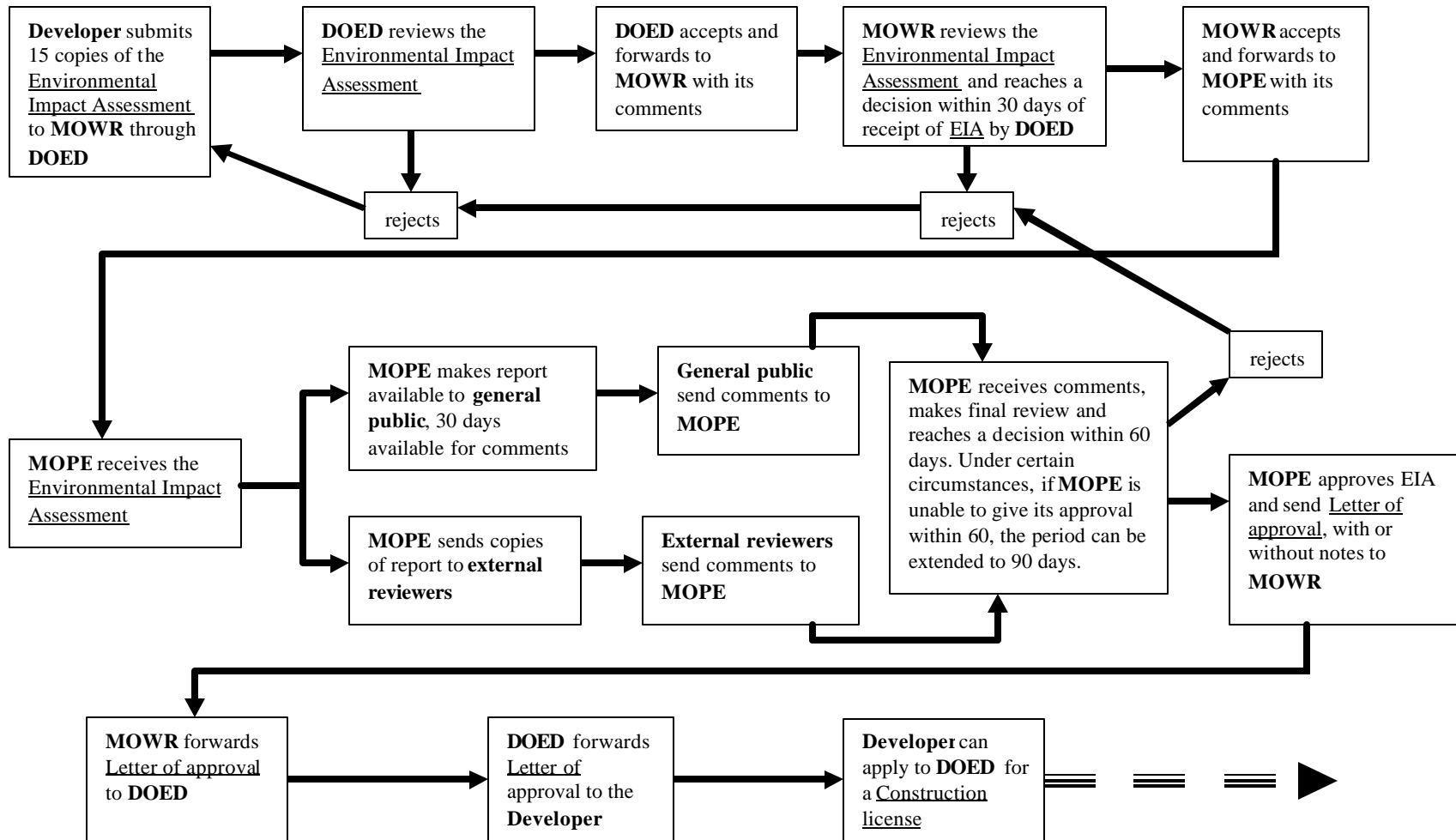




SUMMARY OF EIA PROCESS: Stage 3 "EIA study."



SUMMARY OF EIA PROCESS: Stage 4 "Submission of EIA"



Annex 4: List of Participants of the Scoping and TOR Workshop.

Dr. Kishor Babu Aryal	Department of Electricity Development
Mr. B.B. Thapa	Department of Electricity Development
Mr. Mahendra P. Dhungel	Department of Electricity Development
Mr. R.K. Shilpakar	Department of Electricity Development
Mr. Sudesh K. Malla	Department of Electricity Development
Mr. Buddi Man Gauchan	Department of Electricity Development
Mr. Dilip Kumar Sadaula	Department of Electricity Development
Mr. J. Mandal	Department of Electricity Development
Mr. Amitabh Rajouria	Department of Electricity Development
Mr. Gokarna Panth	Department of Electricity Development
Mr. P. Acharya	Department of Electricity Development
Mr. Madhu Prasad Bhetwal	Department of Electricity Development
Mr. D.B. Singh	Ministry of Water Resources
Mr. Raju Maharjan	Ministry of Water Resources
Mr. Dow Nichol	International Resources Group
Dr. S. Gorzula	International Resources Group
Mr. Bharat Sharma	International Resources Group and METCON
Dr. Govind Ghimire	International Resources Group and METCON
Dr. R.B. Khadka	International Resources Group and National Environmental Impact Association of Nepal
Mr. R.C. Arya	Water and Energy Commission Secretariat
Mr. U.D. Bhatta	Nepal Electricity Authority
Mr. Ajay Mathema	National Environmental Impact Association of Nepal
Ms. Hasina Shrestha	National Environmental Impact Association of Nepal
Mr. Tony Carvalho	United States Agency for International Development
Mr. B.N. Pradhan	United States Agency for International Development
Mr. Rudra Sapkota	Department of Soil Conservation and Watershed Management
Mr. Arjun Kumar Karki	Department of Water Induced Disaster Prevention
Mr. Ramesh Shakya	Department of Forests
Mr. Shubha Nath Pandit	Butwal Power Company
Dr. H.O. Skar	Himal Power Limited
Mr. Kumar Pandey	Lamjung Electricity Development Company