UNIT 2 ENVIRONMENTAL APPRAISAL

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2.0 INTRODUCTION

This unit discusses on the environmental impact statement, the environmental impact factors and area of consideration, pertinent institutional information, existing visual quality and the public participation technique. An Environmental Impact Statement (EIS) is a document required by the National Environmental Policy Act (NEPA) for certain actions "significantly affecting the quality of the human environment".

2.1 OBJECTIVES

After reading this unit, you should be able to:

- understand the basic concept of Environmental Impact Statement;
- explain the procedure of Public Participation in Environmental Impact Assessment; and
- describe the elements of community and environment likely to be affected by the proposed developments and/or likely to cause adverse impacts to the proposed project, including natural and man-made environment.

2.2 ENVIRONMENTAL IMPACT STATEMENT

The final EIA report is referred to as an Environmental Impact Statement (EIS). Most of the national environmental laws have specified the content of EIS. Multilateral and bilateral financial institutions have also defined an EIS. Ideally, EIS must include the following contents:

- Executive Summary
- Policy, Legal and Administrative Framework
- Description of the environment
- Description of the Proposed Project in detail
- Significant Environmental Impacts
- Socio-economic analysis of Project Impacts
- Identification and Analysis of Alternatives
- Mitigation Action/Mitigation Management Plan
- Environmental Management Plan
- Monitoring Program
- Knowledge gaps
- Public Involvement
- List of References
- Appendices including
  - ✓ Reference documents, photographs, unpublished data
  - ✓ Terms of Reference
  - ✓ Consulting team composition
  - ✓ Notes of Public Consultation sessions

An Environmental Impact Statement (EIS), under United States Environmental Law, is a document required by the National Environmental Policy Act (NEPA) for certain actions "significantly affecting the quality of the human environment". It is a tool for decision making. It may help in describing the positive and negative environmental effects of a proposed action and it usually also lists one or more alternative actions that may be chosen instead of the action described in the EIS. Several U.S. State Governments require that a document similar to an EIS be submitted to the state for certain actions. Environmental Impact Statement has the purpose to serve as an action-forcing device to ensure that the policies and goals defined in the act are infused into the ongoing programs and actions of the federal Government. It is a supplementary disclosure document. It shall be used by Federal officials in combination with other pertinent material to plan actions and make decisions.

An EIS typically includes following sections:

1. An Introduction including a statement of the purpose and requirement of the proposed action.

2. A description of the exaggerated environment.
3. A range of changes to the proposed action. Alternatives are considered the "heart" of the EIS.
4. An analysis of the environmental impacts of each of the possible alternatives. This section covers topics such as:
    - Impacts to threatened or endangered species
    - Air and water quality impacts
    - Impacts to Historic and Cultural sites, particularly sites of significant importance to Indigenous peoples.
    - Social and economic impacts to local communities, often including consideration of attributes such as impacts to available housing stock, economic impacts to businesses, property values, aesthetics and noise within the affected area
    - Cost and schedule analyses for each alternative, including costs and timeline to mitigate expected impacts, to determine if the proposed action can be completed at a acceptable cost and within reasonable amount of time

Environmental Impact Assessment (EIA) is a costing procedure that helps decision-makers and planners to understand the environmental impacts of a proposed project or activity in a systematic, holistic and multidisciplinary way. An EIA study should assist the planning authority in describing some of the trade-offs linked with a proposed development action, it leads to more rational and structured decision-making. EIA aims at identifying, predicting and assessing the environmental impacts related to a development project. The measures under EIA process are different for different countries, being regulated by the legislation in force at the location of the proposed development. Nevertheless, it tends to have a similar structure that, according to Beinat *et al.* (1999), can be broken down into following eight stages as described below:

- Screening: It represents the first logical activity of EIA, being aimed at determining whether the EIA procedure itself is necessary for the proposed development.
- Scoping: It is the process of identifying the most significant issues (environmental components, impacts) that need to be addressed during the EIA.
- Baseline study: It represents the result of the collection of all the relevant data concerning the status of the environment likely to be affected by the developments.
- Impact prediction: It involves the description of the forecasted changes in the environment caused by the presence of the development.
- Impact evaluation: It provides an interpretation of the forecasted impacts in terms of their significance and their relative importance, so that indications can be drawn on the acceptability of the development and on the most suitable alternative to be selected.
- Mitigation and compensation: It requires the analysis of possible measures that can reduce or remove environmental impacts, alleviating the overall damage of the development on the environment.

- Review: It is performed by the competent authority to review whether the submitted environmental impact statement (EIS) is adequate and in confirmation to the current regulations.

- Monitoring: It takes place during and after the creation of the development, to check whether the impact predictions were accurate.

EIA certainly has a crucial role to play in addressing environmental issues nearby project development and particularly power projects. The integration of environment into development planning is the most significant tool in achieving sustainable development. Environmental protection and financial development must thus be dealt with in an integrated manner. EIA process is necessary in providing an anticipatory and preventive mechanism for environmental management and protection in any development. Several developing countries are still at the infancy stage of operationalization of their EIA processes.

Check Your Progress 1

Note: a) Write your answer in about 50 words.
b) Check your progress with possible answers given at the end of the unit.

1. What is EIS?

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2.3 ENVIRONMENTAL IMPACT FACTORS AND AREA OF CONSIDERATION

Environmental factors are those parts of the environment that may be impacted by an aspect of a proposal. EIAs also are meant to help notify development decisions by mandating a consideration of alternatives (including alternative project locations, scales, processes, layouts, operating conditions, or in some cases, the option of desisting from implementing a project) and ways to prevent, mitigate and control potential negative environmental and social impacts. Environmental factors are those parts of the environment that may be impacted by an aspect of a proposal. Priority should be given to the avoidance of adverse impacts on the environment or society. Impacts on environment are

- Pollution (e.g., impacts on air, water, and soil and impacts caused by waste)

- Impacts on biota and ecosystems

- Trans-boundary or global impacts including climate change and loss of biological diversity.

They provide a systematic approach to organising environmental information for the purpose of environmental impact assessment and a structure for the assessment report. The EPA has 14 environmental factors, organised into five themes: Sea, Land, Water, Air and People. Some impacts on society are given below.

- Involuntary resettlement, migration, and urbanization
- Unfair distribution of benefits, local conflicts of interest, and impacts on local economy
- Impacts on vulnerable populations such as indigenous peoples and the poor, gender equality, and children's rights
- Impacts on community health and safety
- Impacts on, or caused by, the labour environment
- Impacts on social structures, social infrastructures and social services
- Impacts on cultural heritage

2.4 PERTINENT INSTITUTIONAL INFORMATION

Institutional information refers to multitude environmental laws, regulations and/or or executive orders related to the chemical, physical, cultural, biological, and socio-economic environments. To completely list all pertinent legislation for any country would be difficult, however, some of the status that are more relevant to planning and conduction of impact studies, which is compiled by the ministry of environment and forests government of India, under the head of the legal instruments. In addition to the list given laws, status exist at state, district, mandal and local level government that may have relevance for specific projects may be considered. One of the approaches that can be used to aid the PII activity is scoping, where scoping refers to an early and open process to identify significant environmental issues and impacts relative to proposed projects. As a part of the scoping process, which would include contacts with regulatory agencies and other interested members, the identification of PII primarily serves two functions: it is an aid in the interpretation of existing conditions and it provides a basis for interpreting the anticipated impacts or effects of the proposed project.

Review and Analysis of Pertinent Institutional Information: If health impacts are to be reviewed, legislation specifically dealing with health which is relevant to the project should be included. In the Vegetation Management EIS, no review or analysis of pertinent institutional information was explicitly identified, even though some OSHA (Occupational Safety and Health Administration) standards were used in assessing some health impacts. The WIPP SEIS, on the contrary, explicitly identified pertinent articles of legislation addressing human health.

Check Your Progress 2

Note: a) Write your answer in about 50 words.
b) Check your progress with possible answers given at the end of the unit.

1. What is Pertinent institutional information?

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2. Write the functions of pertinent institutional information?

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2.5 EXISTING VISUAL QUALITY

Dear Learners, let us now read about existing visual quality in the following sentences:

2.5.1 Visual Features

The term visual features refer to the components of the natural, built, or project environments that are capable of being seen.

- Water, vegetation and animals are the naturally present visual features which are composed of natural environment. As these features can be change and can also import through people, Naturally present features are those which have biological and geological in origin.
- Artifacts, structures and buildings, are built visual features and are composed of surrounding built environment. These visual features are constructed by people.
- Project Visual Features include the geometrics, structures, and fixtures that are composed of project environment. These are the constructed features which were or will be placed in the environment as part of the proposed project. For this project, the features include both the transit way and other infrastructure modified by the project.

2.5.2 Visual Quality

The term visual quality refers to what viewers like and dislike about the visual features that compose a particular scene. Visual quality is inherently subjective - different viewers may evaluate visual features differently. In general, people respond favorably to scenes that create a sense of perceived harmony, order, and coherence.

The objective of visual quality is resource management that reflects the desired level of visual quality based on the physical characteristics and social concern for the area. Objectives required are set by the District manager. This section explains how visual impact assessment fits into the Ministry of Forests visual resource management process.

The process of visual resource management was developed by the Forest Service to set up a framework for taking visual values into account in resource management planning, forest operations, and timber supply analyses. This process has evolved and changed over time.

There are currently five recognized steps to this process (Figure 2.1):

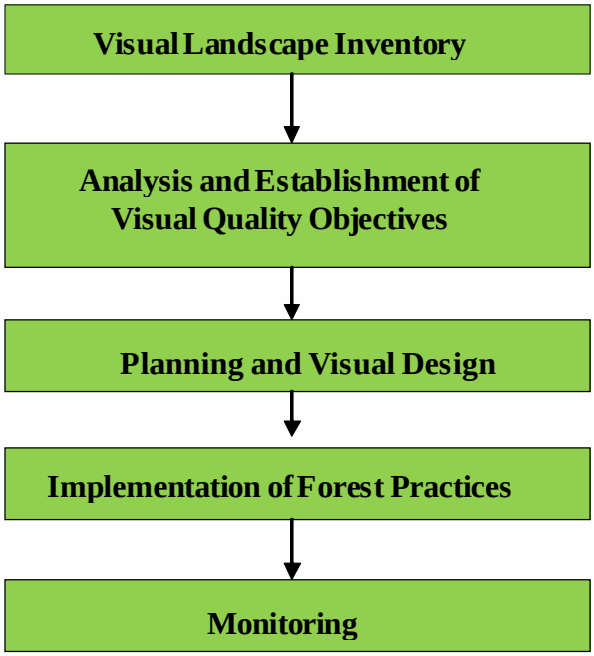

Table 2.1: Visual Quality Objectives: five levels of landscape alteration

Preservation(P)	No visible activities
Retention(R)	Activities are not visually evident
Partial Retention (PR)	Activities are visible, but remain subordinate
Modification(M)	Activities are visually dominant, but havecharacteristics that appear natural
Maximum Modification (MM)	Activities are dominant and out of scale, but appearnatural in the background

2.5.3 Visual Impact Assessment Procedures

Visual Impact Assessments (VIA) estimate, in perspective view, the potential visual effect of proposed operations on the scenic landscape. These assessments are used to confirm whether visual quality objectives for these sites will be achieved. This section describes a five-step process for completing a visual impact assessment and identifies the various products that are required as part of the VIA report.

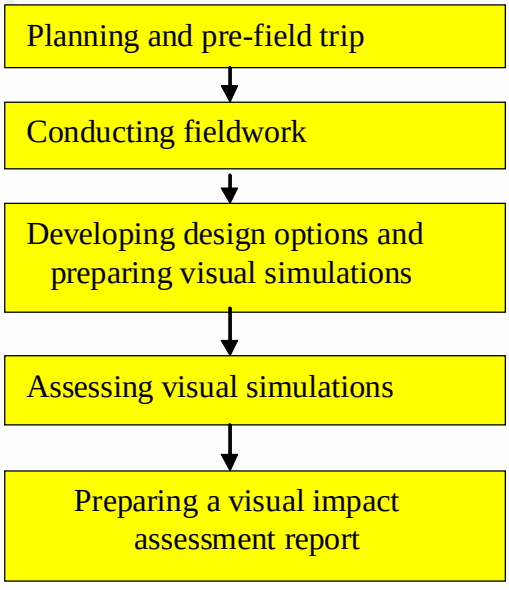

Fig. 2.2: Procedures for Visual Impact Assessments

2.5.4 Visual Resource Management: Legal and Planning Context

This section summarizes the legal and planning context for managing visual resources in three key operational plans: forest development plan, road layout and design, and silviculture prescription

2.5.5 Recommended Timing for Visual Impact Assessments

It is undertaken after a road is approved in the forest development plan and before a road layout and design is submitted for approval. It should be conducted as early as possible in the planning process prior to too much fieldwork is completed. All proposals within the same general planning area and any existing changes that have not yet achieved a visually efficient green-up (VEG) condition should be part of the same VIA package.

2.5.6 Visual Resource Management in known scenic areas with established visual quality objectives

It helps in identifying the precise visual resource management requirements in forest development plans for proposed new cut blocks and roads. It may suggest an approach that ensures that visual resources are adequately managed and conserved. This section also specifies the licensee's obligations regarding visual resources for approved cut blocks or roads.

Check your Progress 3

Note: a) Write your answer in about 50 words.
b) Check your progress with possible answers given at the end of the unit.

1. What do you mean by visual quality?

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2. What are the steps involves in the process of visual impact assessment?

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2.6 PUBLIC PARTICIPATION TECHNIQUE

Sound public participation is well established in both practice and the literature as foundational to effective, efficient and fair environmental assessment (EA) (O'Faircheallaigh, 2010; Morgan, 2012; Lawrence, 2013; Sinclair and Diduck, 2016).Public participation in EIA will surely prove to be important for assessment of environmental impact of development projects and actually support the decision-making processes that will be so crucial to the protection of both the environment and human health. Public participation involves the following steps:

- Communicating
- Planning
- Implementing
- Monitoring and assessing
- Adapting
- Understanding

Public participation is vital for resolving or reducing environmental disputes as they are more aware towards their surrounding environment. Besides consulting the public, it also helps in smoothening the process especially in decision-making. There are a number of basic principles that can be followed to help ensure a successful outcome when using public involvement techniques (Prem Kumar Dara, 2016):

1) Sufficient relevant information must be provided in a form that is easily understood by non-experts (without being simplistic or insulting);

2) Sufficient time must be allowed to stakeholders to read, discuss and consider the information and its implications.

3) Adequate time ought to be allowed to enable stakeholders to present their views;

4) Responses should be provided to issues/problems raised or comments made by stakeholders. This enables public confidence in the public involvement and the EIA process to be maintained; and

5) The selection of venues and the timing of events should encourage maximum attendance and a free exchange of views by all stakeholders (including those that may feel less confident about expressing their views).

2.6.1 Process of Public Hearing

Whoever apply for environmental clearance of projects, shall submit to the concerned State Pollution Control Board twenty sets of the following documents namely

- An executive summary containing the salient features of the project both in English as well as the local language along with Environmental Impact Assessment (EIA). However, for pipeline project, Environmental Impact Assessment report will not be required. But Environmental Management Plan including risk mitigation measures is required.

- Form XIII prescribed under Water (Prevention and Control of Pollution) Rules, 1975 where discharge of sewage, trade effluents, treatment of water in any form, is required.

- Form I prescribed under Air (Prevention and Control of Pollution) Union Territory Rules, 1983 where discharge of emissions are involved in any process, operation or industry.

- Any other information or document which is necessary in the opinion of the Board for their final disposal of the application.

2.6.2 Notice of Publics Hearing

(i) The State Pollution Control Board shall cause a notice for environmental public hearing which shall be published in at least two newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned. State Pollution Control Board shall mention the date, time and place of public hearing. Suggestions, views, comments and objections of the public shall be invited within thirty days from the date of publication of the notification.

(ii) All persons including bona fide residents, environmental groups and others located at the project site/sites of displacement/sites likely to be affected can participate in the public hearing. They can also make oral/written suggestions to the State Pollution Control Board.

(3) **Composition of public hearing panel**

The composition of Public Hearing Panel may consist of the following, namely: -

(i) Representative of State Pollution Control Board;

(ii) District Collector or his nominee;

(iii) Representative of State Government dealing with the subject;

(iv) Representative of Department of the State Government dealing with Environment;

(v) Not more than three representatives of the local bodies such as Municipalities or panchayats;

(vi) Not more than three senior citizens of the area nominated by the District Collector.

(4) **Access to the Executive Summary and Environmental Impact Assessment report**

The concerned persons shall be provided access to the Executive Summary and Environmental Impact Assessment report of the project at the following places, namely:-

(i) District Collector Office;

(ii) District Industry Centre;

(iii) In the Office of the Chief Executive Officers of ZilaPraishad or Commissioner of the Municipal Corporation/Local body as the case may be;

(iv) In the head office of the concerned State Pollution Control Board and its concerned Regional Office;

(v) In the concerned Department of the State Government dealing with the subject of environment.

Time period for completion of public hearing

The public hearing shall be completed within a period of 60 days from the date of receipt of complete documents as required under paragraph.

Check your progress 4

Note: a) Write your answer in about 50 words.
b) Check your progress with possible answers given at the end of the unit.

1. What is public participation?

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2. In how much time period, public hearing should be completed?

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2.7 LET SUM UP

By studying the EIA and its basic concepts, makes people aware about the impacts and effects of the proposed project. Various environmental impact factors should be considered while preparing Environmental Impact Statements. Broad components of EIA such as Pertinent Institutional Information can sum up the overall basic planning and conduction of impact studies. Visual impact assessment procedures and public participation techniques are incorporated in EIA process for effective impact assessment.

2.8 KEY WORDS

Environmental Impact Assessment (EIA)	**:**	It is a process, a systematic process that examines the environmental consequences of development actions, in advance.
Environmental Impact Statement (EIS)	**:**	It is documentation of the information and estimates of impacts derived from the various steps in the EIA process.
Environmental Management Plan (EMP)	**:**	A structured management plan that outlines the mitigation, monitoring and management requirements arising from an environmental impact assessment.
Environmental Baseline	**:**	It includes both the present and likely future of the environment, assuming that a proposed project is not undertaken taking in account changes resulting from natural events and from other human activities.
Visual Impact	**:**	It is refers to the changes that arise in the composition of available views as a result of changes to the landscape, to people's responses to the changes, and to the overall effects with respect to visual amenity.

Resource	:	Any physical, chemical, biological, social and/or visual entity of limited availability and that needs to be consumed to support and benefit life or its activity is a resource.
Impact	:	Change that is caused by an action; for example, land clearing (action) during construction which results in habitat loss (impact).
Project	:	One, or more, aspect of a programme or plan that has been identified by the Overseeing Organisation and which usually involves a direct physical intervention.

2.9 REFERENCES AND SUGGESTED FURTHER READINGS

Ahmad, Y. J. and Swamy G. K., (1985), Guidelines to Environmental Impact Assessment in Developing Countries, Hodder & Stoughton, London.

British Columbia. Ministry of Forests. (2001). Visual impact assessment guidebook. University of British Columbia Press.

Kulkarni V and Ramachandra TV, 2009. Environmental Management, TERI Press, New Delhi

UNCED, (1992), Rio Declaration, United Nations Conference on Environment and Development Rio de Janeiro.

2.10 ANSWERS TO CHECK YOUR PROGRESS

Your answers should include the following points:

Check Your Progress 1

1. An EIS is a tool for decision making. It describes the positive and negative environmental effects of a proposed action and it usually also lists one or more alternative actions that may be chosen instead of the action described in the EIS.

Check Your Progress 2

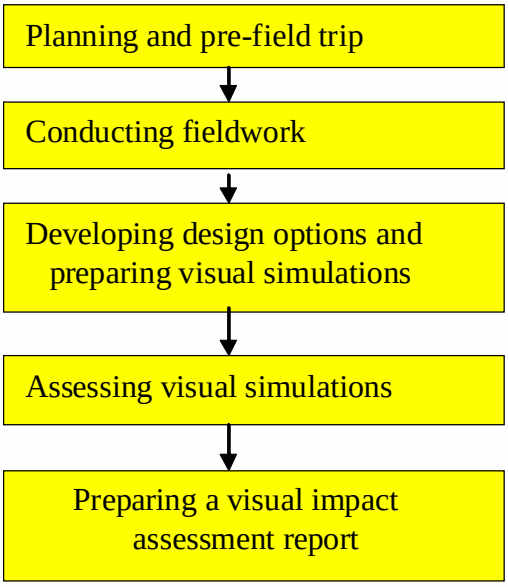
2. Pertinent institutional information refers to multitude environmental laws, regulations and/or or executive orders related to the physical, chemical, biological, cultural and socio-economic environments.

3. It is an aid in the interpretation of existing conditions and it provides a basis for interpreting the anticipated impacts or effects of the proposed project.

Check Your Progress 3

1. The term visual quality refers to what viewers like and dislike about the visual features that compose a particular scene. Visual quality is inherently subjective - different viewers may evaluate visual features differently. In general, people respond favorably to scenes that create a sense of perceived harmony, order, and coherence

2. The steps involved in the process include:



Check Your Progress 4

1. Public participation in EIA will surely prove to be important for assessment of environmental impact of development projects and actually support the decision-making processes that will be so crucial to the protection of both the environment and human health.

2. The public hearing shall be completed within a period of 60 days from the date of receipt of complete documents as required under paragraph.