Quadrant II – Transcript and Related Materials

Programme: Bachelor of Science (Third Year)

Subject: Zoology

Course Title: Environmental Biology and Toxicology

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Unit: Unit 8- Introduction to Toxicants

Module Name: Environmental Impact Assessment

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NOTES

Environmental Impact Assessment (EIA)

Introduction and Definitions:

The term Environmental Impact Assessment 'EIA' originated from the U.S. National Environmental Policy Act (NEPA) of 1969, which emphasized on the inclusion of environmental impact considerations in every project planning or developmental activity along with technical and socio-economic evaluations.

EIA is the prior assessment of the future impact of consequences of any major developmental activity on the quality and dynamism of total human environment. It is a systematic process that examines the environmental consequences of development actions, in advance. EIA is an effective management tool, which aims at integrating environmental factors into project planning and decision making so as to achieve ecologically sustainable development by taking into consideration not only technical and economic considerations but also, traditional aspects like impact on local people, biodiversity etc.More than 100 countries of the world have adopted EIA.

EIA was introduced in India in 1978, with respect to river valley projects. Government of India brought "The Environmental Impact Assessment Notification", 1994, under the provisions of Environment (Protection) Act, 1986, and the Environmental (Protection) Rules, 1986. The Ministry of Environment, Forests and Climate Change notified new EIA legislation in September 2006. The EIA process looks into the following components of the environment- Air environment, Water environment, Biological environment, Biological stress and Impact on historical monuments and heritage sites. Environmental clearance is granted by the Impact Assessment Agency (IAA)in the Ministry of Environment and Forests, GOI.

Objectives of EIA

- To provide negative & positive aspects of any developmental project.
- To identify, predict and evaluate the economic, environmental and social impact of development activities and to provide information on the environmental consequences for decision making.
- To promote environmentally sound and sustainable development through the identification of appropriate alternatives and mitigation measures.
- To forestall and avoid, reduce or offset the adverse significant biophysical, social and other relevant effects of development proposals.

Importance of EIA

- EIA links environment with development for environmentally safe and sustainable development and provides a cost effective method to eliminate or minimize the adverse impact of developmental projects.
- EIA makes sure that the developmental plan is environmentally sound and within the limits of the capacity of assimilation and regeneration of the ecosystem.
- EIA enables the decision makers to analyse the effect of developmental activities on the environment well before the developmental project is implemented and encourages the adaptation of mitigation strategies in the developmental plan.

Stakeholders in the EIA Process:-

1) Proponent- Those who propose the project,
2) The environmental consultant who prepare EIA on behalf of project proponent,
3) Pollution Control Board (State or National),
4) The Impact Assessment Agency,
5) Regional centre of the MoEFCC
6) Public has the right to express their opinion.

The steps Involved in the Environmental Impact Assessment

1. Project Proposal:

The first step is to define a project and study all the likely activities involved in its process so as to understand the range and reach of the project. This helps in deciding the possible zones of environmental impacts. The proponent of development project conducts feasibility studies, define the usefulness of the study, considers alternatives and files a notice of intension to IAA (Impact

Assessment Agency) in writing to seek EIA clearance. The submission of a project proposal signifies the commencement of the EIA process.

2. Screening

The project plan is screened for scale of investment, location and type of development . At this stage, the project proponent decides the type of project and also about requirement of Environmental Clearance. If required, the proponent may consult IAA. A project will have several ramifications biophysical or environmental, economic and social. If screening shows that a project necessitates EIA, it moves to the next stage. Screening results in a categorization of the project and from this a decision is made on whether or not a full EIA is to be carried out.

3. Scoping

Scoping –a 'narrowing' process usually undertaken by an 'assessment team'-

- To identify the key issues of major concern and key impacts at an early stage in the planning process,
- To decide assessment methods and guide the development of terms of reference for the EIA.
- It aids site selection, identifies possible alternatives, and avoids delays. It identifies issues and concerns, decides the assessment methods and identifies affected parties.
- The results determine the scope, depth and terms of reference to be addressed within an Environmental Impact Statement .
- In this stage there is an option for cancelling or revising the project.

4. Base Line Data Collection:

It is the study of the original status of the environment in the area before the development work of the project is started. This study serves the purpose of a base reference against which the changes due to execution of the project are measured. Baseline studies are based on the experience with respect to environmental aspects and cover everything important about the environmental impacts of the project.

5.Impact prediction and evaluation:

- Impact prediction is a way of mapping the environmental consequences of the significant aspects of the project and its alternatives. For every project, possible alternatives should be identified and environmental attributes compared.
- Predication of impacts is both qualitative and quantitative. The scale and severity of an impact is determined by whether it is reversible or irreversible. If the impact is reversible, then it may be taken as low impact. If the adverse impact cannot be reversed then the impact is said to be high.
- Duration of the impact is equally important to understand. The chronological aspects of impacts, arising at different stages must be taken into account.

The Following Impacts of the Project should be Assessed:

Air: Changes in ambient levels and ground level concentrations due to total emissions from point, line and area sources effects on soils, materials, vegetation, and human health.

Water: Availability to competing users, Changes in quality, Sediment transport, Ingress of saline water, etc.

Noise: Changes in ambient levels due to noise generated from equipment and movement of vehicles effect fauna and human health.

Land: Changes in land quality, land use and drainage pattern, Effects of waste disposal, Changes in shoreline/river-bank and their stability.

Biological: Impact due to deforestation and shrinkage of animal habitat, Impact on fauna and flora due to contaminants/pollutants, Impact on rare and endangered species, endemic species, and migratory path/route of animals, Impact on breeding and nesting grounds, etc.

Socio-Economic: Impact on the local community including demographic changes (age, race, ethnicity, gender, education and employment), Impact on economic status, Impact of increased traffic, Impact on human health, etc.

Impact Evaluation is so called because it evaluates the predicated adverse impacts to determine whether they are significant enough to warrant mitigation

6. Mitigation:

This stage includes recommended actions that can offset the adverse impacts of the project. This is done with the idea of lessening the negative effects and improving the scope for project benefits.

Mitigating measures may be: Preventive, Compensatory and Corrective.

7. EIA Report: An EIA report should provide clear information to the decision-maker on the different environmental scenarios without the project, with the project and with project alternatives.

The project report consists of the following: Proposed development, Impacts on the environment, Major environmental issues involved, Prediction, Mitigation measures and options, Gaps and uncertainties in the prepared information and Summary of the EIA process for the general public. Any one likely to be affected by the proposed project is entitled to have access to the executive summary of the EIA.

8. Public Hearing:

After the completion of EIA report and on receiving the required documents from the project proponents it is the responsibility of the SPCB to conduct the public hearing.

- The public must be informed and consulted on a proposed development. The affected person may include: (i) Bonafide local residents; (ii) Local associations; (iii) Environmental groups active in the area; (iv) Any other person located at the project site/ sites of displacement are to be given an opportunity to make oral/written suggestions to the State Pollution Control Board.

- The SPCB must issue notice mentioning date, time and place, for environmental public hearing 30 days prior to the public hearing by publishing it in at least two newspapers (One of the publications must be in the vernacular language of the locality concerned) circulated in the region around the project.
- The following persons may include in the panel for the public hearing: District collector/ nominee, SPCB representative, State government representative dealing with the project, Representative of concerned department of the state government, senior citizens of the area nominated by the district collector , representative of the local bodies like panchayat/ municipality, etc.

9. Review (EIA Report): Once the final report is prepared, it may be reviewed based on the comments and inputs of stakeholders.

10. Final Project submission: The project proponents of new projects must submit an application to the secretary, ministry of Environment and Forests, New Delhi in the standard Performa.

The application should be accompanied by a feasibility/ project report, including:

1 Environmental Appraisal questionnaire developed by MOEF.

2 Environment Impact Assessment Report.

3 Environment Management Plan and disaster Management plan

4 Details of Public Hearing (wherever necessary)

5 Rehabilitation plans (wherever necessary)

6 Forest clearance certificate (wherever necessary)

7 NOC from the state pollution control board (SPCB)

The main output report is called an Environmental Impact Statement, and contains a detailed plan for managing and monitoring environmental impacts both during and after implementation

11. Decision-making:

Decision-making process involve consultation between the project proponent assisted by a consultant and the impact assessment authority assisted by an expert group if necessary . The final decision is to approve with or without conditions or reject the project.

12. Post Project Monitoring & Environment Clearance Condition:

Once a project is approved, then it should function as per the conditions stipulated based on environmental clearance. These conditions have to be strictly monitored and implemented. Monitoring should be done during both construction and operation phases of a project.