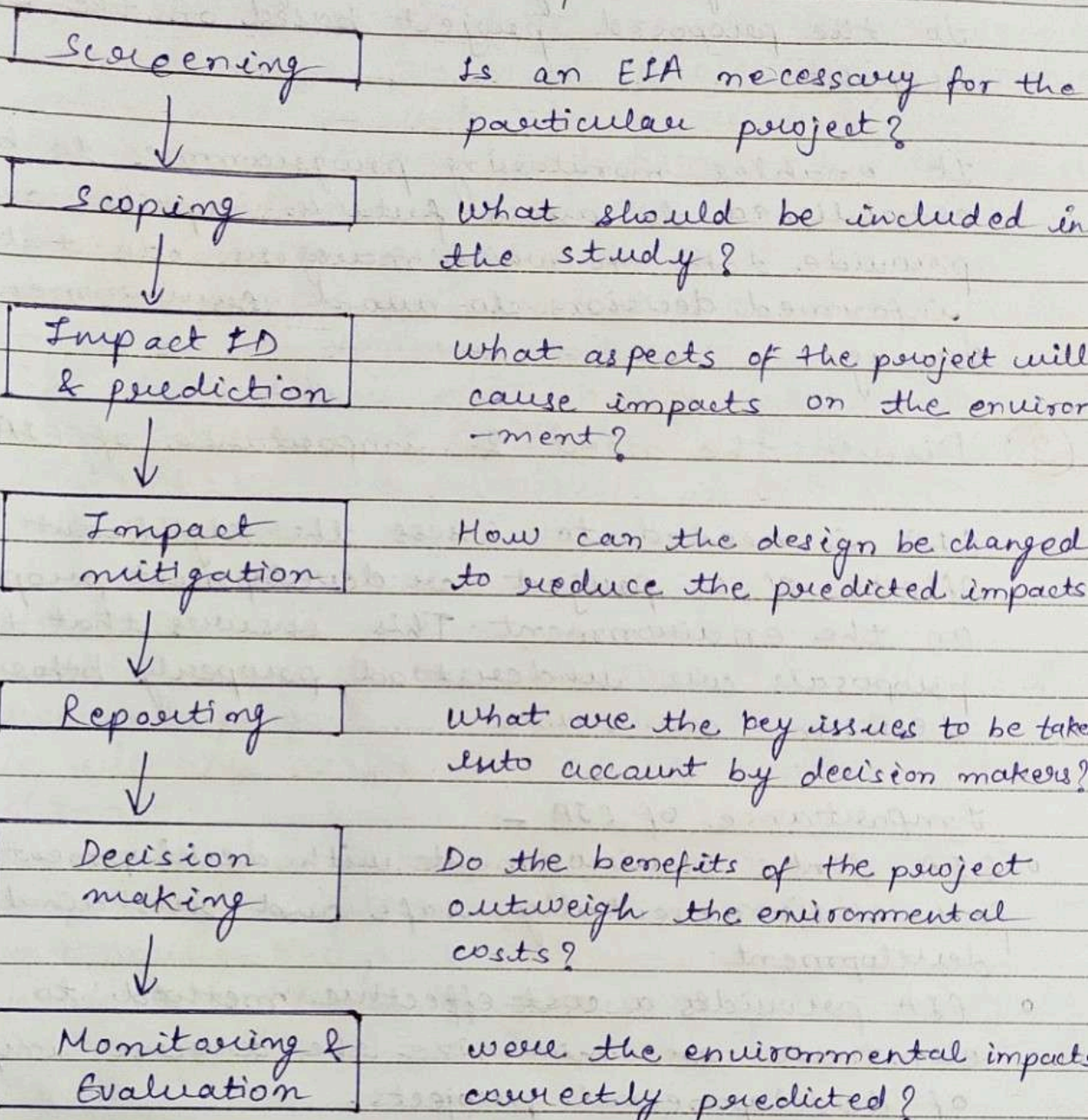
OE Assignment-2

Unit-4

(1) Describe the various steps in EIA process with the help of a flow chart.



(2) Explain the need for conducting EIA.

EIA make sure that project decision makers think about the likely effects on the environment at the earliest possible time to avoid, reduce or offset those effects. This ensures that proposals are understood properly before decisions are made.

The environmental ministry or other specific regulatory bodies grants approval to the proposed project based on the EIA report.

It enables monitoring programmes to be established to assess future impacts and provide data on which managers can take informed decisions to avoid environmental damage.

(3.) Discuss the need & importance of EIA.

EIA is needed to assess the significant effects of a project or development proposal on the environment. This ensures that the proposals are understood properly before decisions are made.

Importance of EIA -

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

(4) Define EIA and list out the need of EIA.

Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.

It shape the projects to suit the local environment and present the predictions & options to decision makers.

EIA in India is statutorily backed by the Environment Protection act, 1986 which contains various provisions on EIA methodology and process.

Need of EIA

- To disclose significant environmental effects of proposed projects to decision-makers & public.
- To identify ways to reduce environmental damage.
- To prevent adverse environmental impacts by requiring implementation of feasible alternatives or mitigation measures.
- To disclose reason of approvals for the projects with significant environmental impacts to the public.
- To foster interagency coordination.
- To enhance public participation.

(5) Write note on screening & scoping as elements of EIA.

Screening - The process by which a decision is taken on whether or not EIA is required for a particular project.

It should normally take place at an early stage in the design of the project. However, it can also occur after a planning application has been made or even after an appeal has been made.

Scoping - It is the process of determining the content and extent of the matters which should be covered in the environmental information to be submitted to a competent authority for projects which are subject to EIA.

(6.) Explain briefly the evolution of EIA.
The EIA has been done one of the most successful policies for the 20th century that focuses on environmental conservation. It involves a formal process of conduct that has been accepted and practiced in more than 100 countries around the globe.
The EIA is a mandatory regulatory procedure that originated in the 1970s with the implementation of the National Environmental Policy Act or NEPA in 1969, where countries such as Australia, Canada & New Zealand took part in its initial development.

The EIA process became popular after the mid 1980s, around which the World Bank had adopted the policy for its major development projects. This resulted in the process of a borrower country going through an EIA process under the Bank's supervision.

(7.) Explain in brief baseline information in EIA.

Baseline information is the information of the original status of the environment in the area before the development work of the project is started.

This information serves the purpose of a base reference against which the changes due to implementation of the project are measured.

This information is important because:

- A good baseline survey is the foundation of an EIA, resembling piling of a building.
- It establishes identity of a project; identifies affected communities and their status, and provides yardsticks for impact prediction.

(8.) Define environmental settings. List the major components to be considered during EIA and explain them.

The environmental setting describes the conditions that exist prior to implementation of the project. This setting establishes the baseline against which the proposed projects and project alternatives are compared for the purposes of assessing the significance of environmental impacts.

Environmental components to be considered during EIA:

(i.) Air environment

Quality of ambient air, wind speed, direction, humidity etc., quantity of emission, impact of emission on area.

(iii) Noise
levels of noise present & predicted, strategy for reducing noise pollution.

(iii) Water Environment
- Existing ground & surface water resources, their quality & quantity within the zone.
- Impact of proposed project on water resources.

(iv) Biological Environment
- Flora & fauna in impact zone.
- Potential damage due to project, effluents, emissions & landscaping.

(v) Land Environment
- study of soil characteristics, land use, & drainage pattern, & the likely adverse impact of the project.
- Impact on historical monuments & heritage sites.

9. What are the key elements in EIA as per Government of India notification?
The key elements in EIA as per government of India notification are: (i) Air Environment
- Quality of Ambient air present & predicted.
- Meteorological data like wind speed, humidity direction, etc.
- Quantity of emission likely from project.
- Impact of the emission on area.
- Pollution control devices / air quality standards.

key elements are:
(i) legal & institutional framework:
The provision for EIA can be made through legislation, administrative orders, clear & legal

facility is universally accepted as the most suitable basis for EIA.
It comprises of basic duties, scope of application consideration of alternatives, people's participation Quality control & assurance.

(ii) EIA Process:
The particular components, stages and activities of an EIA process varies. Usually EIA process begins with screening & must end with some form of follow up on the execution of the decisions & actions taken as a result of an EIA report.

(iii) EIA practice & outcomes:
Depending on nature, location & scale of the project EIA report should contain all or some of the following components:
Air Environment, Noise Environment, Water Environment, Biological Environment, Land Environment, socio-economic & health environment Risk assessment.

10. Explain in detail, different types of impact assessment methodologies.
Key types of impact assessments include global assessments, policy impacts assessment, strategic environmental assessment, and environmental impact assessment.

Impact assessment methodologies are:
(i) scoping or checklists:
Scoping was undertaken to provide detail of potential environmental & social effects of the project using additional engineering & baseline data.
(ii) Qualitative analysis: developing focus groups.
(iii) Quantitative analysis:
(iv) Identifying & describing alternatives for eg: cost analysis.

(v.) Data gathering by questionnaires, consultations and surveys:
study the original status of the environment in the area before the development work of the project is started.

(vi.) Data presentation:

(vii) Monitoring & evaluation:
Monitoring includes the continuous assessment of programmes based on early detailed information on the progress or delay of the ongoing assessment activities.

11. Explain the checklist method of impact assessment.
Checklist is used to represent relationship between the activity and all the aspects it will impact. It is inexpensive & does not take a lot of time.
Checklist formats for common developmental projects & the aspects it can impact are already available with government bodies & EIA teams.
In preparing a checklist, first, a list of activities is drawn up. Then, the team looks at the possible areas within the project area that will be affected by the activity. This is followed by characterizing the environmental aspects within that area that will be impacted. Then, the scope is broadened to include indirect impacts of the activity outside the specific area. finally, temporal aspect and cumulative aspects of the activity are taken into the picture.
The checklist is prepared in the form of a table.

(12.) Explain the impact of development on vegetation & wildlife.

- Development activities has caused reduction in the areas of vegetation & wildlife.
- Due to urbanisation the forest areas are shrinking and thus less space is left for the wildlife.
- cutting of trees and deforestation has led to reduction in rainfall.
- Due to industrial development, the temperature of the Earth has increased, resulting in global warming.
- Urban runoff often contains sediments & toxic combination which pollute the rivers & its fauna.
- Burning excess of fossil fuels, using chemical pesticides and insecticides has led to bio-magnification.
- Many of the wildlife species are at edge of getting extinct due to climatic changes which are the result of industrialisation.

(13.) Explain the role of public participation in EIA & write short note on network & matrix method of impact assessment.

The public & non-governmental Organisations (NGOs) have a vital role to play in the development, implementation & support of the convention on EIA. This will help to:

- Improve relations b/w peoples & countries, & prevent transboundary environmental conflicts.
- Promote the timely disclosure of relevant information to participants in the environmental decision-making process.
- Give an insight into environmental protection & long-term environmental problems.

Network method

A network diagram is a technique for illustrating how impacts are related and what the consequences of impacts are. for eg: it may be possible to fairly accurately predict the impact of increased diversions or higher irrigation efficiencies on the low flow regime of a river.

Matrix method:

The leopard matrix method is best known matrix methodology available for predicting the impact of a project on the environment. It is 2-D matrix cross-referencing: the activities linked to the project that are supposed to have an impact on man & the environment.

(14.) Explain briefly the preparation of Environm-ntal management plan for a hydroelectric power project.

The Environment management plan (EMP) is required to ensure sustainable development in the area surrounding the proposed project.

Hydroelectric projects cause displacement of people, damage to its land use system, local ecology, surface & groundwater resources. Hence, studies on monitoring & determining the impact of hydroelectric power projects on people & other resource existing are necessary for developing plans & policies to rejuvenate the degraded resources.

Key environmental concerns that should be addressed in the EMP:

(i) Description of each issue
(ii) Source of impacts – Baseline supporting information.
(iii) Impacts and management
(iv) Adequacy of the information.
(v) Proposed strategy for mitigation – plantation, Resettlement & Rehabitation Plan, Public health Plan, solid waste management Plant, etc.
(vi) Implementation schedule.
(vii) Budget & source of Funding.
(viii) Responsibility for monitoring

15. Discuss in detail the impact assessment methodologies.

(i) Organizing the Job: In this, an interdisciplinary team is constituted to conduct analysis of the various impacts of the proposed programme on the environment.
In this a format is prepared containing all the particulars about the projects, sponsors, participants of team, time schedule etc.

(ii) Performing the assessment:
- Site visit
- Identification & evaluation of adverse & beneficial effects of the proposed project.
- Preparation of checklist to ensure complete coverage of all the possible consequences.
- Measurement of Environment impact due to project.

(iii) Writing the Environmental Impact Statement (EIS). it serves as a device to ensure that policies and goals are infused in ongoing programmes.

(iv) Review of the EIS: After the completion of EIS report, the public is exposed to the project to comment. As, The public must be informed & consulted on the proposed project.
Atleast 1 month period is given for public inspection.

(16.) List the various EIA methods. What are the criteria used for selecting best EIA method in each situation?

(i) Ad-Hoc - depends on the expertise, background & experience of experts.
- This method gives a rough estimate assessment of ~~total~~ total impact while giving broad areas & general nature of possible impacts.

(ii) Checklist method: In this, environmental factors are listed in a structured format by giving importance weightings for factors and application of scaling techniques for impacts of each alternative.
Checklists are strong indicators of impact information.

(iii) Matrix method: It provides a framework of interaction of different activities of a project with potential environmental impacts caused by them.
A simple interaction matrix is formed when project actions are listed on one axis & environmental impacts on other axis.

(iv) Network method: uses the matrix approach & extends it to include both primary as well as the secondary impacts.

It is shown in the form of impact tree; it identifies cause-effect linkages.

(v) Overlays: This method depends on a set of Maps of a project area's environmental characteristics covering physical, social & ecological aspects.
It enables separate mapping of critical environment features at the same scale as Project's site plan.

17. Discuss about methodologies for identification of potential environment impacts of typical engineering projects.
The methodologies can be broadly divided into 5 types on the basis of impact identification strength:

- Adhoc methods
- Matrix methods
- Network methods
- Overlays methods
- Checklist methods

Other methodologies are:

- Environmental index using factor analysis
- cost / benefit analysis.

18. Define the term Environmental Audit. What are the major queries that the EA sets to address?
An environmental audit provides an assessment of the environmental performance of a business or organization. The audit reveals the activities of a company & its compliance with environmental regulations.

Queries that the EA sets:

(i) What are we doing?
In particular, are we in compliance with government regulations & guidelines.

(ii) Can we do it better?
Are there non-regulated areas where operations can be improved to minimize the impact on the environment.

(iii) Can we do it more cheaply?

(iv) What more should we do?

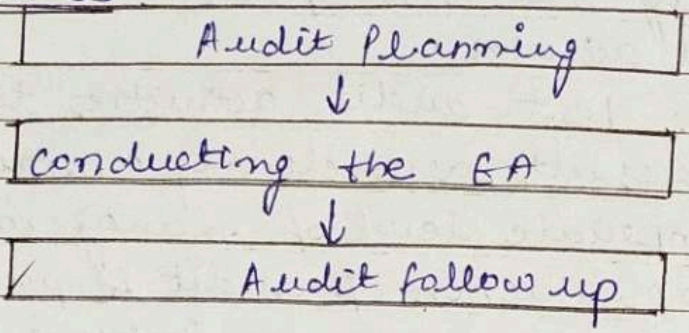
19. Explain the different components of Environmental Audit.

(i) Assessment
It provides expert judgement or opinion on hazards, associated risks and management and control measures.
The process assesses current practices & capabilities & provide the bases for recommendations to improve the organization's management system.

(ii) Verification
Verification determines & documents performance, by evaluating the application of, and adherence to, policies & procedures.
It certifies the validity of data & reports and evaluates the effectiveness of management systems. It also ensures that regulations and policies are being adhered to & assists in identifying gaps in organizational policies and standards.

20. With a neat flowchart explain, the entire EA process?

EA Process:



① Audit Planning:

Obtain commitment → Define Audit Scope → Assemble an audit team

② Conducting the EA

(a) Preaudit activities:

Develop audit plan → send out Preaudit Questionnaire → Review Background information → Review Operational information → Conduct site visit → Develop onsite Questionnaire & audit protocols → Review audit plan → On site audit

(b) On site Audit activities:

opening meeting → Document Review → Detail site inspection → staff interview → Review audit evidence → closing meeting → Post audit

(c) Post Audit:

collect information → Prepare audit report → circulate draft audit report for comments → Final reporting

③ Audit follow-up

Develop action plan → Implement action Plan → checking and monitoring → Review action Plan

21) Enumerate the basic steps involved in EA.

(1) Pre audit activities - comprise scheduling, team selection, logistic arrangement, gathering inform^n

and developing the audit plan.

(ii) On site audit activies.

(iii) Post audit : Post audit activities to ensure the audit results are clearly communicated to the appropriate level of management & to evaluate effectiveness of audit & provide suggestions for improving future audit.

(iv) Audit follow:- to finalize action Plan.

(22) Discuss the benefits of conducting an EA process.

- EA are designed to identify environmental problems.
- Ensuring compliance
- Planning for environmental problems & risks.
- To aware the organization of its impacts upon the environment through providing feedback.
- Increases environmental issues awareness to management & employees.
- More efficient use of resources & finance savings.

(23) Highlight how the implementation of ISO 14000 helps business in controlling environmental responsibility

International Environmental standards provides organizations with the elements of an effective environmental management system, which can be integrated with other management requirements to assist organizations to achieve environmental and financial goals.

ISO 14000 does not only relate entirely to massive global companies, it is applicable to all types & sizes of organizations.

It is an initiative to bring about uniformity in environmental compliance standard to reduce impediment to trade among countries.

It covers environmental auditing, environmental Labeling, Environmental Performance evaluation & life cycle assessment & terms of definition.