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Week - 08
Lecture - 47
Environmental Impact Assessment (EIA)
Part 07

In continuation to environmental impact assessment topic, this lecture, we will actually get into Part 7 of Environmental Impact Assessment.

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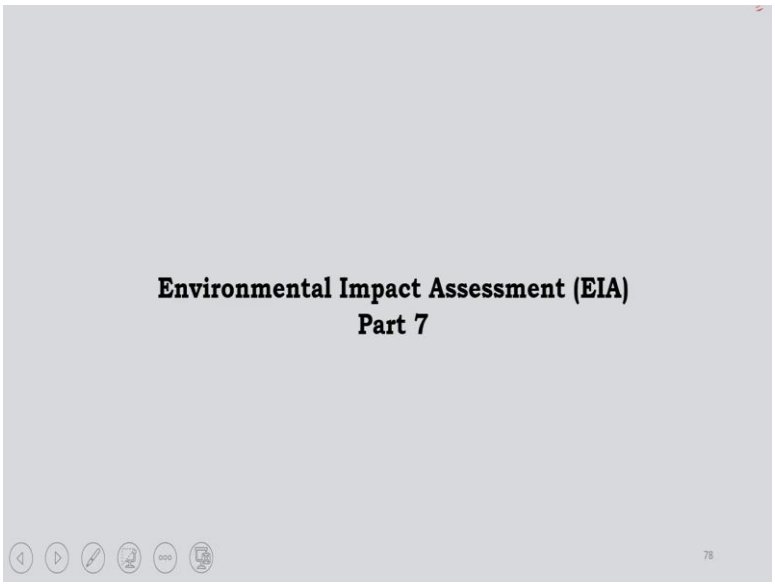

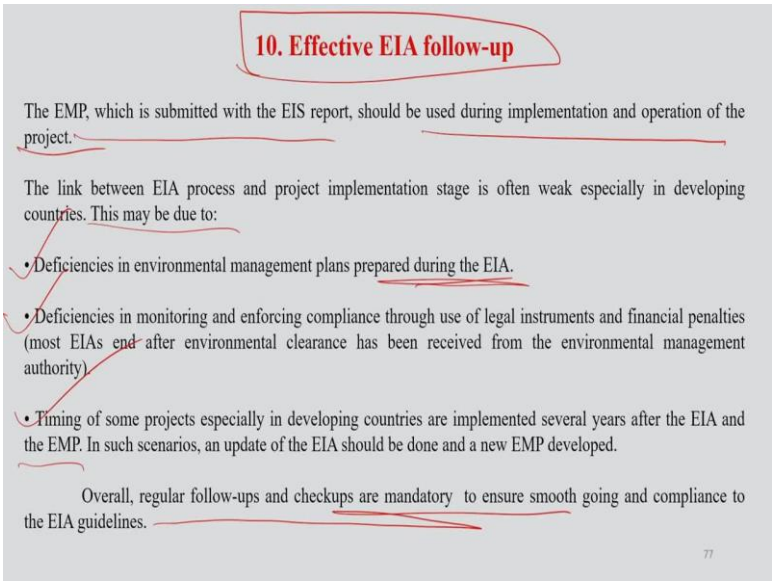

9. Decision making

At each stage of EIA, interim decisions are made. These decisions influence final decisions made about the EIA.

The EIS is submitted to the designated authority for scrutiny before the final decision. The authority, together with technical review panel determines the quality of EIS and gives the public further opportunity to comment.

Based on the outcome of the review, the designated authority or lending institution will accept, reject or make further modifications to avoid future confrontation.

If the EIS is accepted, an EIA license is issued and if otherwise, additional studies or recommendations are made before issuance of a license.

The decision making process should be autonomous so that the outcome of the review is seen as fair enough.

Unbiased

7. Environmental Management Plan (EMP) & environmental monitoring

7.2 Environmental monitoring

What to avoid in monitoring:

- *Overestimation of data needed as this can lead to drowning in data without information.*
- *Under-estimation of time and cost for data analysis*
- *Weak coordination between the data collection with project time table and seasonal factors*
- *Ignoring requirements for baselines*

7. Environmental Management Plan (EMP) & environmental monitoring

7.1 Environmental Management Plan (EMP)

EMP is a detailed plan and schedule of measures necessary to minimize, mitigate, etc. any potential environmental impacts identified by the EIA. Once in the EIA the significant impacts have been identified, it is necessary to prepare an Environmental Management Plan.

The EMP includes the actions needed to implement these measures, including the following features:

- Mitigation based on the environmental impacts reported in the EIA, the EMP should describe with technical details each mitigation measure.

- The EMP should then include monitoring objectives that specifies the type of monitoring activities that will be linked to the mitigation measures. Specifically, the monitoring section of the EMP provides:

A specific description, and technical details, of monitoring measures that includes the parameters to be measured, the methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions;

Monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and to furnish information on the progress and results of mitigation.

6. Mitigation and impact management

Approach	Examples
Avoid	Change of route or site details, to avoid important ecological or archaeological features
Replace	Regenerate similar habitat of equivalent ecological value in different location
Reduce	Filters, precipitators, noise barriers, dust, enclosures, visual screening, wildlife corridors, and changed time of activities
Restore	Site restoration after construction
Compensate	Relocation of displaced communities, facilities for the affected communities, financial compensation for the affected individuals etc

6. Mitigation and impact management

- Mitigation is done to avoid, minimize or offset predicted adverse impacts and, where appropriate, to incorporate these into an environmental management plan or system.
- For each potential adverse impact the plan for its mitigation at each stage of the project should be documented and costed, as this is very important in the selection of the preferred alternative.

The objectives of mitigation therefore are to:

- *find better alternatives and ways of doing things*
- *enhance the environmental and social benefits of a project*
- *avoid, minimize or remedy adverse impacts; and*
- *ensure that residual adverse impacts are kept within acceptable levels*

5. Analysis of alternatives

- Analysis of alternative is done to establish the preferred or most environmentally sound, financially feasible and benign option for achieving project objectives.
- The World Bank directives requires systematic comparison of proposed investment design in terms of site, technology, processes etc in terms of their impacts and feasibility of their mitigation, capital, recurrent costs, suitability under local conditions and institutional, training and monitoring requirements (World bank 1999).
- For each alternative, the environmental cost should be quantified to the extent possible and economic values attached where feasible, and the basic for selected alternative stated.
- The analysis of alternative also includes a NO PROJECT alternative when the project not being sanctioned is a better alternative than it being sanctioned.

4. Impact analysis and prediction

Impact prediction methodologies

- Professional judgment with adequate reasoning and supporting data. This technique requires high professional experience.
- Experiments or tests. These can be expensive.
- Past experience.
- Numerical calculations & mathematical models. These can require a lot of data and competency in mathematical modeling without which hidden errors can arise
- Physical or visual analysis. Detailed description is needed to present the impact.
- Geographical information systems
- Risk assessment, and
- Economic valuation of environmental impacts.

4. Impact analysis and prediction

Considerations in impact prediction

4. Significance of the impact: This refers to the value or amount of the impact. Once an impact has been predicted, its significance must be evaluated using an appropriate choice of criteria. The most important forms of criterion are:

- *Specific legal requirements e.g. national laws, standards, international agreements and conventions, relevant policies etc.*
- *Public views and complaints*
- *Threat to sensitive ecosystems and resources e.g. can lead to extinction of species and depletion of resources, which can result, into conflicts.*
- *Geographical extent of the impact e.g. has trans- boundary implications.*
- *Cost of mitigation and Cumulative impacts e.g. adding more impacts to existing ones.*
- *Duration (time period over which they will occur) and Likelihood or probability of occurrence (very likely, unlikely, etc.)*
- *Reversibility of impact (natural recovery or aided by human intervention)*
- *Number (and characteristics) of people likely to be affected and their locations*
- *Uncertainty in prediction due to lack of accurate data or complex systems. Precautionary principle is advocated in this scenario.*

4. Impact analysis and prediction

It is the core parameter of an EIA process.

Predicting the magnitude of a development likely impacts and evaluating their significance is based on the available environmental baseline of the project area.

These predictions and impact analysis are described in quantitative or qualitative terms.

Considerations in impact prediction

1. Magnitude of impact: This is defined by the severity of each potential impact and indicates whether the impact is irreversible or, reversible and estimated potential rate of recovery.

2. Extent of impact: The spatial extent or the zone of influence of the impact should always be determined. An impact can be site-specific or limited to the project area; a locally occurring impact within the locality of the proposed project; a regional impact that may extend beyond the local area and a national impact affecting resources on a national scale and sometimes trans-boundary impacts, which might be international.

3. Duration of impact: Environmental impacts have a temporal dimension and needs to be considered in an EIA. An impact that generally lasts for only three to nine years after project completion may be classified as short term. An impact, which continues for 10 to 20 years, may be defined as medium-term, and impacts that last beyond 20 years are considered as long-term.

Terms of Reference (ToR)

ToR for Environmental impact assessment of irrigation and drainage projects:

- The TOR should commence with a brief description of the project that should include a plan of the areas affected either indirectly or directly. Basic data should be given on existing and proposed irrigation and drainage in the area and the catchment characteristics. The institutions that are involved in the proposal should also be given.

- An overview of the local environment should follow the general description. This will include socioeconomic information, land use, land tenure, water use in the area and any particular aspect of the flora and fauna. If other studies have been completed a list of available reports should be given.

- A brief description should be given of the most important institutions, including those responsible for the EIA, the project executing agency and future managers. This should be presented in the form of an organogram.

- A description of the work to be undertaken should give a general set of requirements for determining the potential impacts of, and impacts on, the proposed project.

The TOR should give an indication of the team considered necessary for the study. Depending on the scope of the study this may include one or several of the following: an irrigation specialist, drainage specialist, rural sociologist, terrestrial ecologist (of various specializations), aquatic ecologist/fisheries expert, hydrologist, agronomist, soil chemist or physicist, economist and epidemiologist.

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Terms of Reference (ToR)

- ***The impact on any rare species of plant or animal in the area;***
- ***The impact on human health;***
- ***The control and management aspects of the project to determine if they will be effective;***
- ***The need for further baseline data collection or other specialist studies;***
- ***The present policy, institutional and legislative situation and future needs;***
- ***The mitigating measures needed and how they should be incorporated into the project design;***
- ***The monitoring and evaluation activities that are required to ensure that mitigating measures are implemented and future problems are avoided.***

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2. Scoping

Tools used in the scoping exercise:

Checklists

They comprise list questions on features the project and environments impacts. They are generic in nature and are used as aids in assessment.

Matrices

It identifies interactions between various project actions and environmental parameters and components. They incorporate a list of project activities with a checklist of environmental components that might be affected by these activities. They should preferably cover both the construction and the operation phases of the project, because sometimes, the former causes greater impacts than the latter.

Networks

They are cause effect flow diagrams used to help in tracing the web relationships that exist between different activities associated with action and environmental system with which they interact.

Consultations

– with decision-makers, affected communities, environmental interest groups to ensure that all potential impacts are detected. However there can be danger in this when excessive consultation is done and some unjustifiable impacts included in the terms of reference (ToR).

2. Scoping

Scoping is used to identify the key issues of concern at an early stage in the planning process. The results of scoping will determine the scope, depth and terms of reference to be addressed within the Environmental statement.

Scoping is done to:

- Identify concerns and issues for consideration in an EIA
- Ensure a relevant EIA
- Enable those responsible for an EIA study to properly brief the study team on the alternatives and on impacts to be considered at different levels of analysis
- Determine the assessment methods to be used
- Identify all affected interests
- Provide an opportunity for public involvement in determining the factors to be assessed, and facilitate early agreement on contentious issues
- Save time and money
- Establish terms of reference (TOR) for EIA study

1. Screening

- The screening process determines whether a particular project warrants preparation of an EIA.

- The threshold requirements for an EIA vary from country to country – some laws provide a list of the types of activities or projects that will require an EIA, others require an EIA for any project that may have a significant impact on the environment or for projects that exceed a certain monetary value.

- In some cases, particularly if the possible impacts of a project are not known, a preliminary environmental assessment will be prepared to determine whether the project warrants an EIA.

- Development banks also screen projects presented for financing to decide whether an EIA is required using their set criteria.

- The output of the screening process is often a document called an Initial Environmental Examination or Evaluation (IEE).

- The main conclusion will be a classification of the project according to its likely environmental sensitivity. This will determine whether an EIA is needed and if so, to what detail.

If you recall in the last lecture, we discussed about all the different steps in EIA, if you recall that we talked about EMP, mitigation plan, analysis of alternative, impact analysis, predictions, baseline collections and ToR. So these are the aspects, scoping and screening. So, from screening till our discussions on follow up of EIA exercises has already taken place in the previous lecture.

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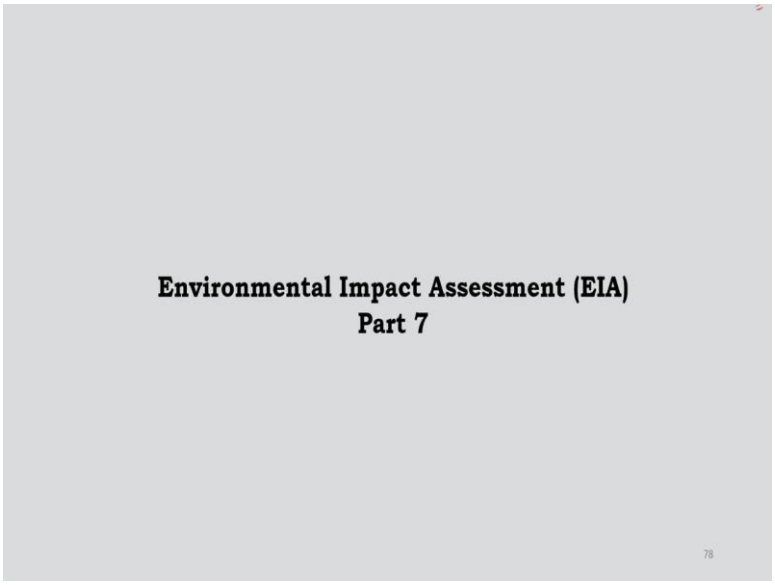

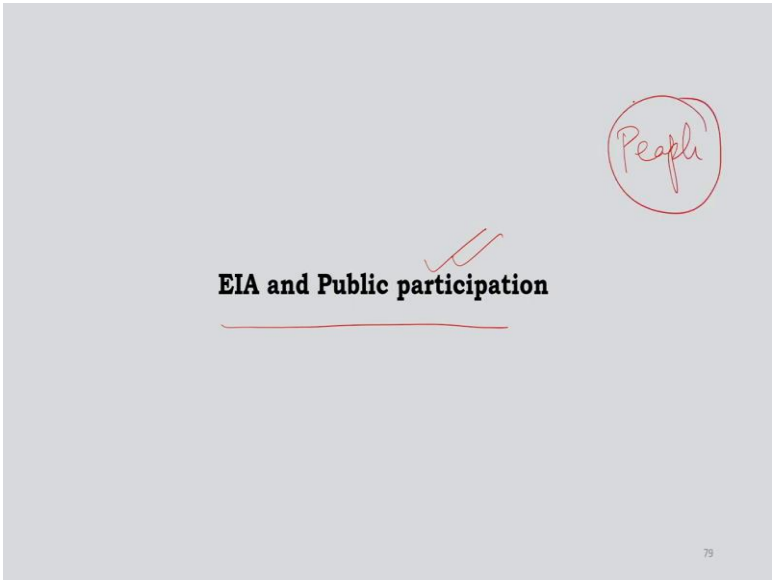

Now, in this part 7, we will talk about environmental impact assessment and public participation. It is very, very critical that the people, the community, public should actually take participation in this activity because anything that is being done within this EIA exercise, in the center of everything is people. So, their participation is very important. We

will discuss about people participation, how they can participate, what are the different aspects that will elaborate.

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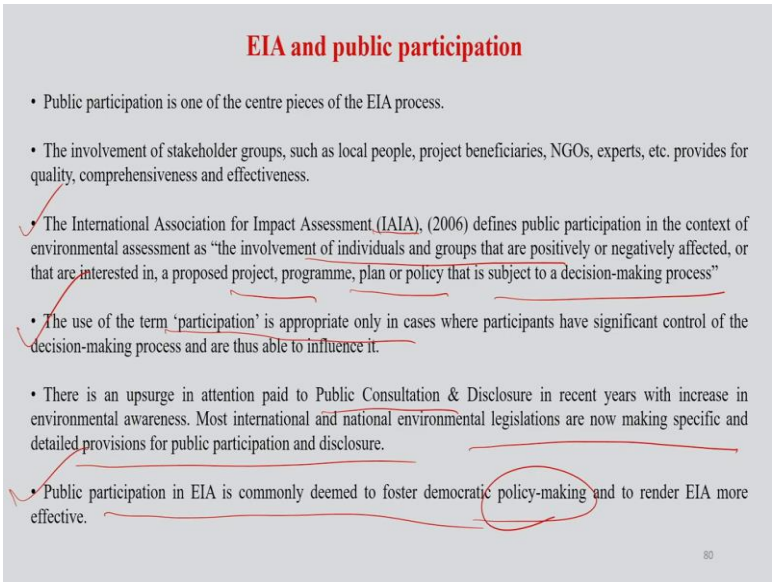

Now, public participation is one of the centerpieces of EIA process. And if you see that the involvement of various stakeholder groups such as local people, project beneficiaries, nongovernmental organizations, various experts, they provide a lot of knowledge, information for this exercise, and public participation in this activity, strengthen this entire exercise.

Next, the International Association for Impact Assessment IAIA in 2006 defines the public participation in the context of environmental assessment. And they say that the involvement of individuals or groups that are positively or negatively affected by any kind of project or activity in their area or that are interested in a proposed project or program, plan on policy, that is subject to a decision-making process. So, you see that including United Nations, they also feel the importance of people participation in EIA activity.

The use of term participation, you will find it is appropriate only in cases where participants have significant control of the decision-making process and where they can also influence the decision-making process. So, in a sense, public has to be empowered. And how they can become empowered? They need to participate in the activity; they should own also the activities because ultimately everything is being done for them.

So, there participation, there role in decision-making process is also critical. Recently, there is an upsurge in attention paid to public consultation, various discourses, especially with the

increase of environmental related awareness, various program, competition, quiz, drama, in various form. Now, the level of awareness, or the effort for increasing the awareness has really gone up.

Most of the international and national environmental legislations are now making specific and detailed provisions for public participation and discourse. So, public participation is also legally made kind of a compulsory aspect. Public Participation in EIA is commonly known to foster democratic policymaking process. And if people participation is there in the policymaking certainly that policy will be more effective. So, public participation in EIA is important.

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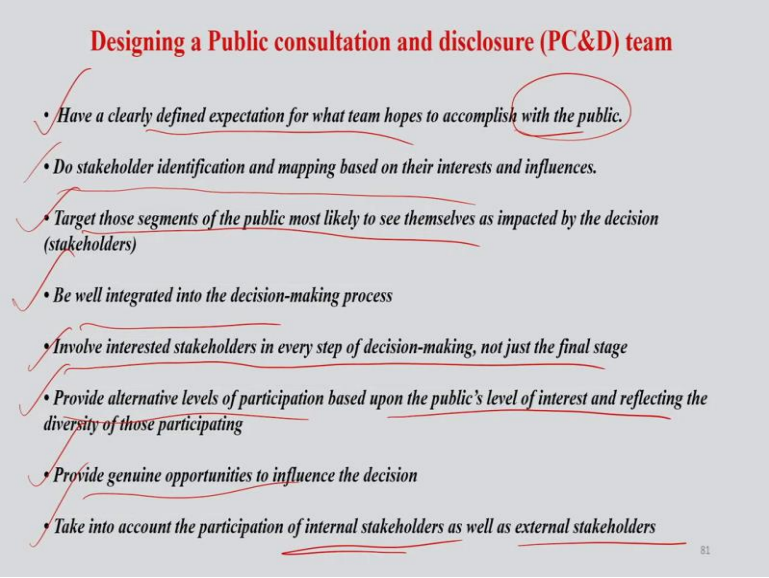

Now, next point is designing a public consultation and discourse. We call it PC and D. Now, this kind of team, you need to prepare, who will work with the people with the community. Now, this team will have a clearly defined expectation for what this team hopes to accomplish along with the public with the people participation. Stakeholder identification and mapping based on their interests and influences is also important.

While designing public consultation and discourse, try to target those segments of the public, which are most likely to see themselves as impacted by a decision. It is obvious, suppose, if I am one of the community person, where a new project is coming, and if you find that I am one of the potential public, who can get impacted by the proposed project, then you should actually take me into your team, you understand, because having me into your team actually will help your cause, because I potentially can be affected by the proposed project.

So, if you take me into confidence, then lot of issues are resolved. Not only that, you can avoid certain activities which may cause some kind of damage, but also you can avoid any kind of complaints or any kind of negative activity, once the project starts without taking me into confidence.

Then next is be well integrated into the decision-making process. Wwhen the decision-making process takes place, already we have understood in the previous lectures, that is a pain taking process, it goes through several steps and if in this process, if you integrate the people, the public, the community into that, then definitely your decision-making process will be much more robust.

Try to involve interest in stakeholders in every step of decision-making, not just at the final stage that is the mistake often we do. Try to provide alternative levels of participation, which should be based upon the public's level of interest, and reflecting the diversity of those who are going to participate.

Try to provide also genuine opportunities to the public to influence the decision. Remember any decision that will be taken it is for those people. So, why not take them into the process? Take into account the participation of internal stakeholders as well as external stakeholders, very important.

If you recall that in one of the previous lectures, I mentioned about the internal criteria external criteria. Sometimes you will find that in the project area, the community the people, they might have agreed they found when you convince them after good consultation, they may say yes to the project, but you will find some time some people who are outside that area, they may create some issue for you and you may not be able to start the project. So, take into account participation of those external entities as well.

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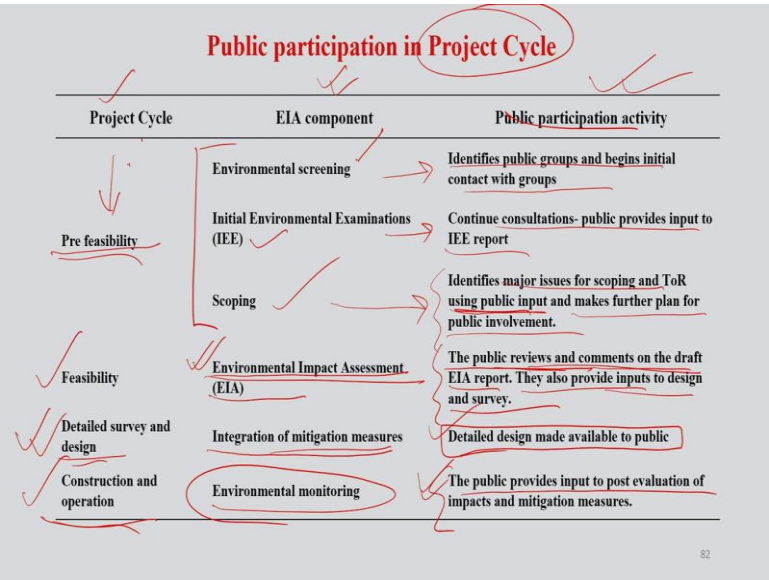

How public participation can be integrated into a project cycle? Now, say these are the projects cycle, these are the EIA component and what are the different public participation activity. This is a very wonderful table try to understand, it is very easy to remember also. Project cycle; first, pre-feasibility, when you actually look for whether the project is feasible or not. In that, what are the EIA components are involved, environmental screening, environmental examination and scoping.

Now, for each one of them, you have different public participation activity. For environmental screening, you identify groups and begin initial contact with different groups within the community. When you start examinations, you continue consultation and the public will provide also some input into your IEE.

Next is scoping. In scoping, you identify major issues for scoping and terms of reference using public input and this will make further plan for your public involvement.

Next, feasibility. Now feasibility, which one of the EIA components is involved in that assessment. Now, what you have to do for public participation, public reviews, comments on the EIA report that we discussed in previous lecture. That once the EIA report is ready, you have to upload it, share it with public, give some time to review and give comment that is a more democratic way of doing it. So, the public reviews and comments on the draft EIA report is one of the participation activities in case of visibility, they also provide inputs to design and survey.

Then next is your detailed survey and design, which one is the EIA component, integration of mitigation measures. How you involve participation? Detailed design made available to public, you give it to the people. There is some time we have this tendency of working something and not sharing with anyone, keep it within us, even though we are doing it for the people, we are not ready to share with the people for whom actually we are working, we think always insecure, if I give it to him or her my importance is gone. But remember, if you are working for the society, then society has the right to know what you are working on. So, the detailed design needs to be given to them.

Construction and operation part of your project cycle, which EIA component, environmental monitoring. We discussed in great detail in previous lectures. How public participation is ensured? Public will provide you input to post evaluation of impact and mitigation measures during the monitoring process, when you talk with the people, people will provide you. Now, those points are also very important for a successful EIA.

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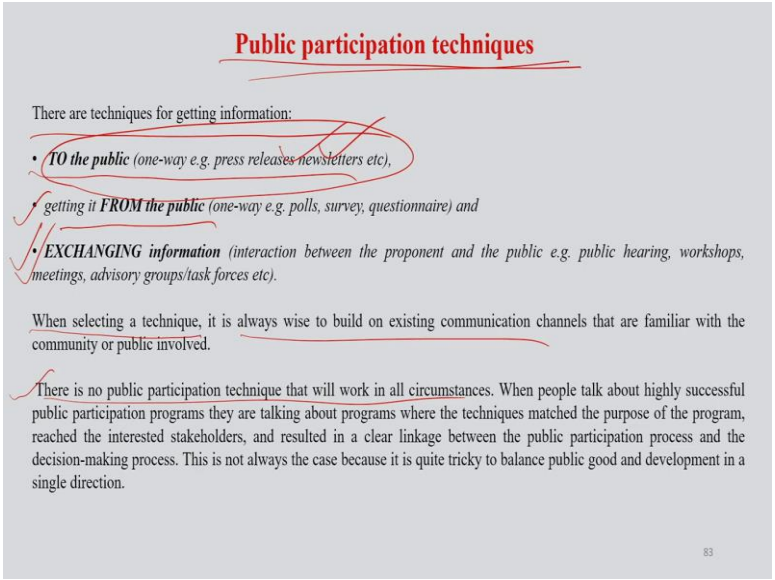

Now, what are the Public Participation Techniques? We already discussed that people participation is important, people role in decision-making is important, but how you involve them, how you ensure the participation should take place, because when we work in the field, many times we have found even though suppose, we are willing to take people with us, but they do not come for various reasons.

Now, what is the participation technique that you can use to engage them in this activity? So, there are a few techniques for getting people involvement, one is that you give to the public

some information whatever you get during the evaluation process, you give it to the people through press releases, newsletters, without expecting their feedback. But if you give it to them, at least few will actually look through or study those things.

The other one is getting from the public; that can be also one way. Suppose we did not want any input at that point of time, but people are sending inputs. Or sometimes we go for a questionnaire survey, where also it will be one-way, people will give feedback into the questionnaire you bring it back and you will analyze.

The third way could be exchanging information, you give and they also give and there are a lot of interactions between the project proponents, the public, everybody gets involved.

So, certainly this is the better option to go for participations. Exchanging information, when you go to select any technique, it is always wise to build on existing communication channel, the channels which you already have in that area. Suppose some people might have worked and some kind of networks have been developed, some groups have been formed, try to utilize those with the existing one, because they are familiar with the community they know how government works.So, the existing network should be also involved.

There is a no public participation technique which will work in all circumstances. So, you do not have a kind of a magic stick. Sometimes we will find that people will talk very good about a successful public participation program, they will talk about different program how people have involved; a very next moment you might find that in a nearby place, people are not coming.

So, similar methodology, silmilar kind of technique may work in one place and may not work in other place. So, it is a very dynamic process. Working with people is not easy. So, when you work with people, you need to think yourself as one of them and try to see what are their expectations, if we can get that particular chord of the people, your success is almost ensured.

And another important thing is that if we continuously give information from us to them, means one-way; that also not good. People might find that you have a agenda. So, in these kinds of cases, after your little initial effort, you should actually wait for the people to come back to you. So, these kinds of processes, actually, we learned through a lot of experience on the ground.

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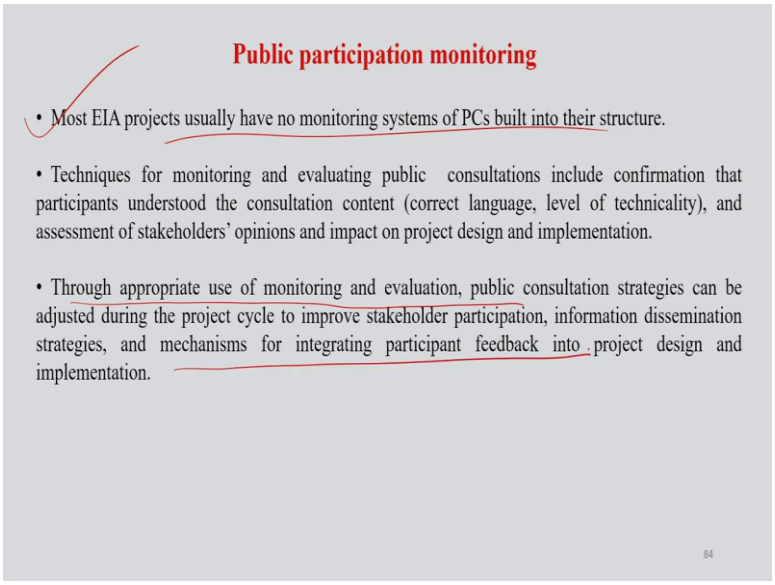

Most of the EIA projects usually have no monitoring systems of PCs built into their structure. Now, techniques for monitoring or evaluating public consultation, they may include different kinds of understanding of the consultations by the people. And consultations content, their language, their level of technicality, these are important aspects that how you can actually get the participation of the people into project design and implementation.

You will also find that through appropriate use of monitoring, evaluation, public consultation strategies can be adjusted during the project cycle to improve the stakeholder participation. Information dissemination strategies and mechanisms for integrating the participant's feedback into a project design and implementation is very important.

Now, from out of my own experience, I would like to share one thing with you in such kind of people participation aspect. Suppose if you are an engineer, civil, mechanical, whatever, and you go to the public to develop a proposal project there and then you talk with them in the very first time that you are meeting you are talking with them in a very technical term; without feeling that your those things have no meaning to them. They have come there to listen to you what you are going to deliver to them.

So, focus on that instead of too much of technicalities, because anyway, they will not understand your engineering terminologies concept for them, what good you are going to do for them. So, focus on that and that will actually encourage the participation of the people from the very beginning in any project. Once they are interested and they find that this project is going to do some good for them, they will automatically will come and participate. This is my personal experience from the ground.

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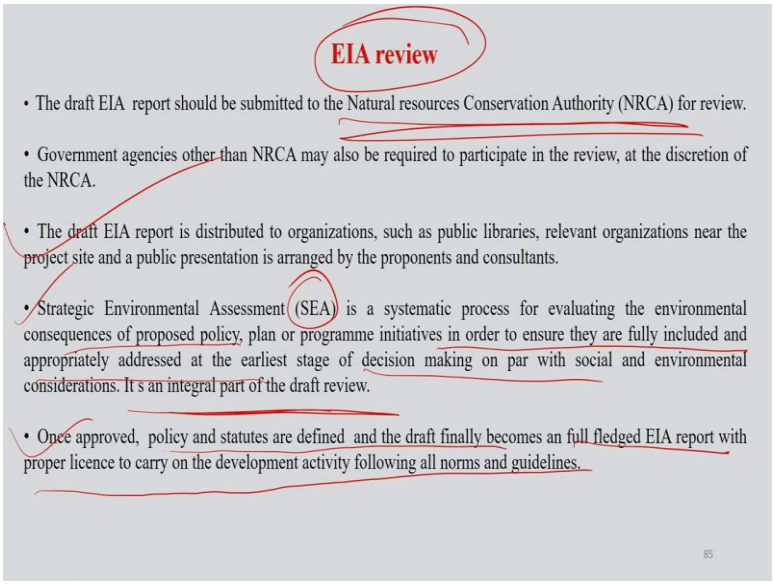

Now, let us discuss about EIA review. We already discussed that after EIA report is ready, we must share with people public, put it in website anywhere and keep it for some time to invite some comments and reviews. The draft EIA report should be submitted to the Natural Resources Conservation Authority or NRCA for technical review. Government agencies other than NRCA may also be required to participate in the review depending upon what kind of project you are taking.

Suppose you are going to take irrigation projects; you should consult with agricultural institutions ICAR, Indian Council of Agricultural Research. The draft EIA report is established or distributed to various organizations such as public libraries, relevant organizations near the project sites; you could also arrange a public presentation outreach talking about different aspects of the project.

Strategic Environmental Assessment or SEA is a systematic process for evaluating the environmental consequences of the proposed policy. And this is done to ensure that they are fully included in and appropriately addressed at the very beginning of your decision-making process. And this should be an integral part of the draft review, people's perceptions; people opinion also should be integrated.

Once approved, policy and statutes are defined and the draft finally becomes a full phase EIA report with proper license to carry out the development activity following all the norms and guidelines as mentioned in the report.

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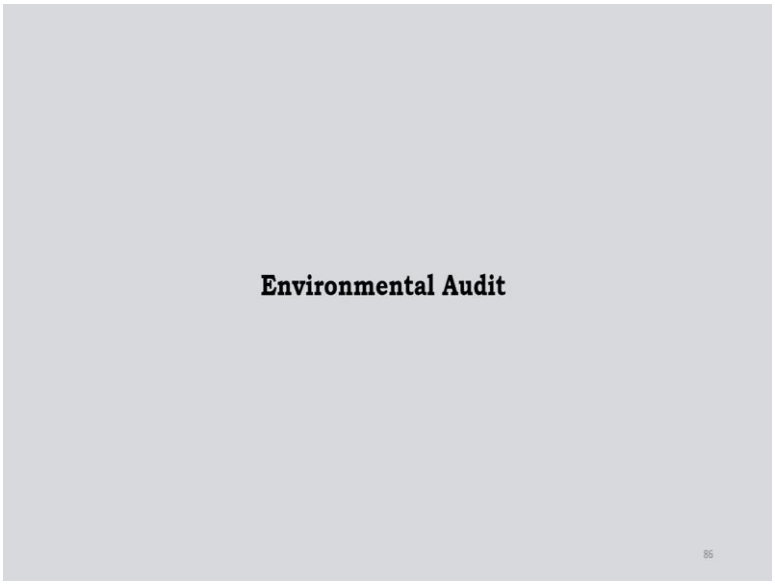

Next is environmental audit. Auditing of environmental aspect is a major thing in today's world. Without environmental auditing, no project will be sanctioned.

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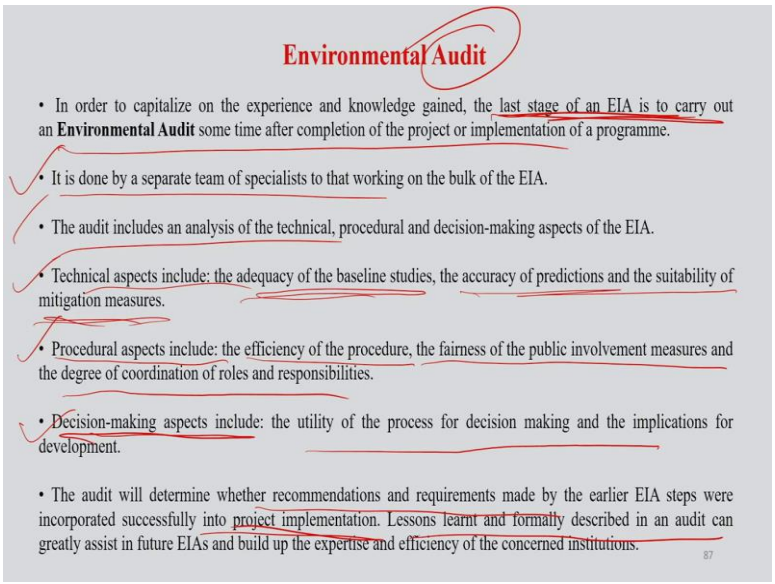

Now, environmental audit it is done in order to capitalize on the experience and knowledge that is gained during the EIA. The last stage of EIA is to carry out the environmental audit sometime after the completion of the project or implementation of a program. So, environmental audit comes at the almost last stage of EIA.

Environmental audit, it is done by a separate team of specialists, not by the people who are involved with the EIA. Totally different group of people will work on the environment auditing. The audit includes an analysis of the technical, procedural and decision-making aspects of the EIA.

Technical aspects like the adequacy of the baseline studies, the accuracy predictions of the suitability of mitigation measures, these aspects are included in the environment auditing. Procedural aspects in environmental auditing, what kind of procedures will follow the efficiency of the procedures, the fairness of the public involvement measures and the degree of coordination of roles and responsibilities of every individuals or system.

Decision-making aspects include the utility of the process for decision-making, and the implications for development. And you will see that in environmental audit, generally, it tries to determine whether recommendation and requirements made by the earlier EIA steps were incorporated successfully in the project implementation or not.

So, audit, actually, like financial audit, in environmental audit also, they will look into those things whether the recommendations, which are made in EIA has been successfully followed up in the project implementation or not. Various lessons which are learned and formally described in an audit can actually assist in future EIAs and also build up the expertise and efficiency of the concerned institutions who are involved for such kind of project development.

So, audit gives us an idea that where the points in previous EIA people are actually face issues, where there are some loopholes. So, those things can be avoided in the next EIA exercise. So, audit is something kind of quality check.

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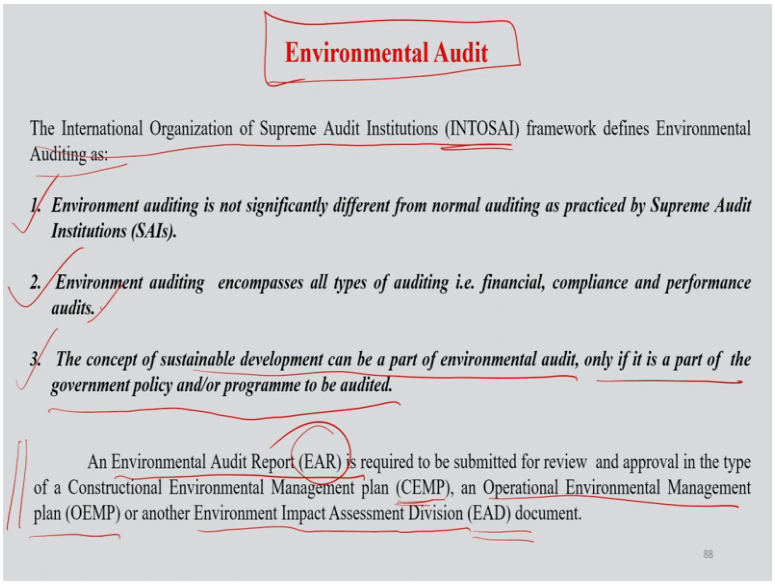

The International Organization of Supreme Audit Institution INTOSAI, its frameworks defines environmental auditing as number one; environment auditing is not significantly different from normal auditing as practiced by Supreme audit institutions or SAIs. Environment auditing encompasses all types of auditing that is financial, compliance and performance audit.

Number 3, the concept of sustainable development can be part of the environmental audit only if it is a part of the government policy or program which is to be audited.

Now, an environment audit report or we call it EAR is required to be submitted for review and also for approval in the type of a Constructional Environmental Management Plan, which we call CEMP, an Operational Environmental Management Plan we call it OEMP or Environmental Impact Assessment Division or EAD document.

So, this slide on environment audit has lots of information, you must concentrate focus on at least observing these informations. I repeat, environment audit report is required to be submitted for review and also approval from CEMP or OEMP or EAD Environmental Impact Assessment Division. So, you see that over almost seven lectures, we are discussing about one aspect that is EIA, and I told in the beginning, that this is one of the important aspects that we must actually learn to the best of our capacity.

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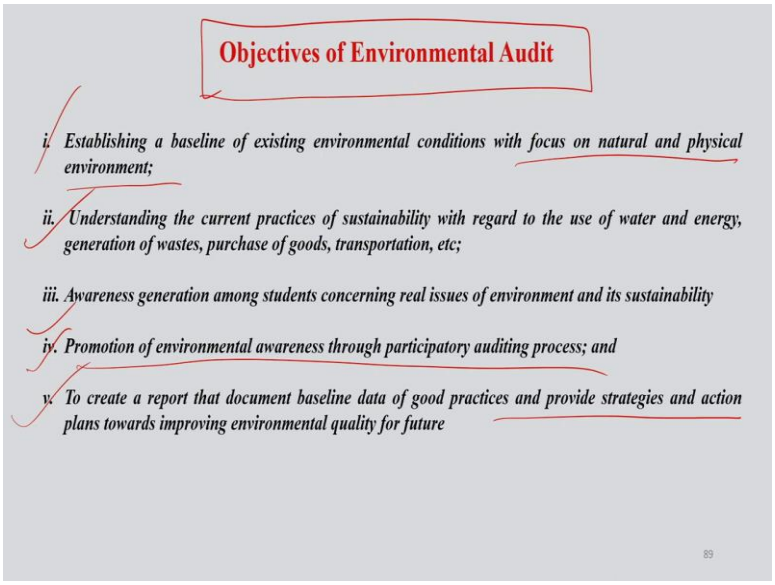

Objective of Environment Audit, why do we do audit for environmental assessment. Now, you all know why financial audit done, similar way to reduce any mistakes, irregularity in the systems of environment auditing, environment impact assessment, environmental auditing is done. Establish a baseline of existing environmental conditions with a focus on natural and physical environment that is one of the objectives, to establish a baseline.

Second, understanding the current practices of sustainability in that area with regard to the use of water, energy, generation of wastes, purchase of goods transportation, so because all these things utilize environment resources in one or other way.

Third, awareness generation among students concerning real issues of environment and its sustainability. Next, promotion of environmental awareness through participatory auditing process means you also involve community into the auditing process. So, that they should also know that what are the places that something some mistakes are done, knowingly or unknowingly.

Another objective is to create a report that document baseline data of good practices and provide strategies and actions plans towards improving the environment quality of that area in future. So, these are the basic objectives of environmental audit.

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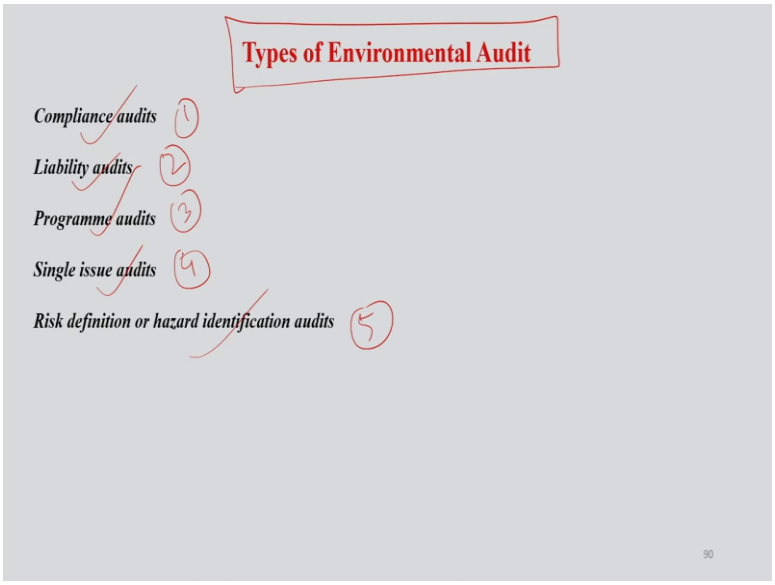

What are the different types of environmental audit? Number 1, compliance audit. Number 2, liability audits. 3, program audits. 4, single issue audits. And 5, risk definition or hazard identification audits. Now, these are 5 very important types of environmental audit, which are often carried out in case of EIA exercise at the very last stage of your EIA exercise.

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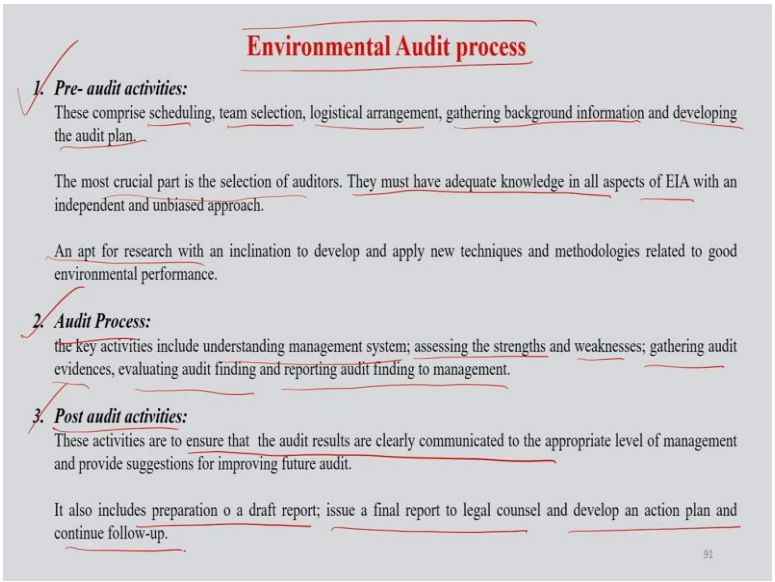

So, now let us see the environmental audit process how actually takes place. The first process is pre-auditing activities. These pre-auditing activities it comprise of scheduling team selection. Team selection means the people who actually will be carrying out the auditing exercise, logistical arrangement, gathering background information, and developing the audit plan.

The most crucial part of this particular process is the selection of auditors. And the auditors that you will be selecting they must have adequate knowledge in all aspects of EIA, with an very independent and unbiased approach, because you can understand in EIA report if you give a positive report a project actually will be implemented and if you give negative it will be rejected.

So, you understand rest of the things how sensitive important this could be and the people involved in this auditing process need to be very honest and unbiased ideally. An appropriate for research with a kind of inclination to develop and apply new techniques and methodologies related to good environmental performances. So, these are some of the essence or some of the criteria that you will be looking in the auditors that you will be selecting.

So, these auditors not only that they should have a very good kind of grasp of knowledge on environmental related aspect, also all the methodologies of EIA they should be well aware of, and of course, they should understand the amount of importance associated with the audit, the environmental audit they are going to carry out.

Second is the audit process, the key activities which are included within this audit process are understanding management system of that proposed project, assessing the strength and weakness of that management system, gathering audit evidences, evaluating audit finding and reporting audit finding to the management. So, in every step, unbiased approach is the key of the success of environmental auditing.

Third one, post audit activities, once the auditing has been carried out, then what, post audit activities are actually to ensure that audit results are clearly communicated to the appropriate level of management and provide suggestions for improving the future audit. Suppose it is a 10 years project, so after 2 years, you want to have another audit or maybe annual audit.

So, if you have a good auditing systems, results documented in appropriate manner, then the future auditing activities become much more easier. Post audit activities also includes preparation of a draft report, issue a final report to the legal counsel and develop an action plan and continue the follow up.

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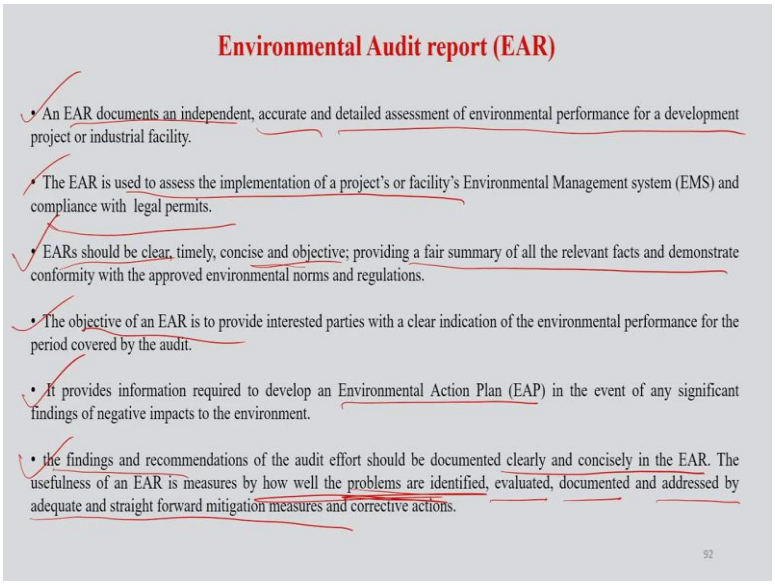

Now, next comes EAR Environment Audit Report. Your auditing is done, now, on the basis of auditing, you need to prepare the auditing report which you finally give it to the management level. An EAR document ideally is an independent, accurate and detailed assessment of environmental performance for a development project or any industrial facility. Also, the EAR is used to assess the implementation of projects or the facilities Environment Management System EMS.

If you can recall, at the very beginning of this MOOC course, we discussed about EMS environment management system and its compliance with the various legal permits. EAR should be clear, timely, conscious and objective oriented. It should provide a fair summary of all the relevant facts and demonstrate conformity with the approved environmental norms and regulation of that particular country or state or location where the project is going to take place.

The objective of an EAR is to provide the interested parties with a clear indication of the environmental performances for the period that is covered by the auditing team or the audit exercise. Say 2021-22 or 21 to 25, you have to actually mention the time period. The audit report also provides information required to develop an Environmental Action Plan, which is we call EAP, in the event of any significant findings of negative impacts to the environment.

If you find during the audit process or EIA exercise that there is a negative impact, then you need to go for an EAP and also help the project proponent to take necessary steps. EAR also tries to compile the findings and recommendations of the audit effort, clearly and concisely.

The usefulness of environmental audit report is the major by how well the problems are identified, evaluated, documented, and finally addressed in adequate and straightforward mitigation measures or collective actions.

So, there should be a very much clear indication that for the activity one, this is the negative impact, for the process one, this is the negative impact, and for these, this is the mitigation measure that you should follow. So, there should not be any kind of ambiguity in the entire process.

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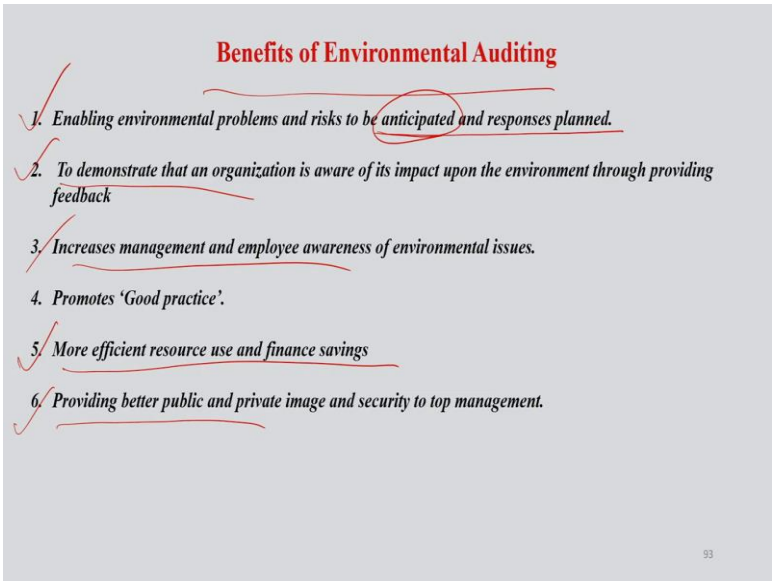

Next, benefits of environmental auditing. What are the benefits? Number 1, it enables environmental problems and risks to be anticipated and responses planned accordingly. This is important; that it actually enables to anticipate that what is the problem might be there in future and accordingly you prepare, you accordingly you find out your responses, of course, that are going to help the project to sustain.

It also demonstrates that an organization is aware of its impact on the environment through providing feedback. It also helps in increasing the management and employee awareness on environmental issues, because that report will have everything in detail telling how much, where and how the impact has taken place. And EAR environment auditing also, it is an efficient resource use and finance savings kind of facilitating tool.

If you are auditing is done in a very appropriate manner, this is going to help an efficient resource management and also you can save money. It provides better public and private image and of course security to the top management. If your audit is good, and if the audit

has been done with a much unbiased approach that will definitely will have a good impact about your company or about your project in the society as well as in the ecosystem where actually your project is located.

So, public perceptions about your project or initiative also will be good. So, see, that a good audit report is not only just few numbers and facts, but it also influence your credibility, your acceptance or perception in public.

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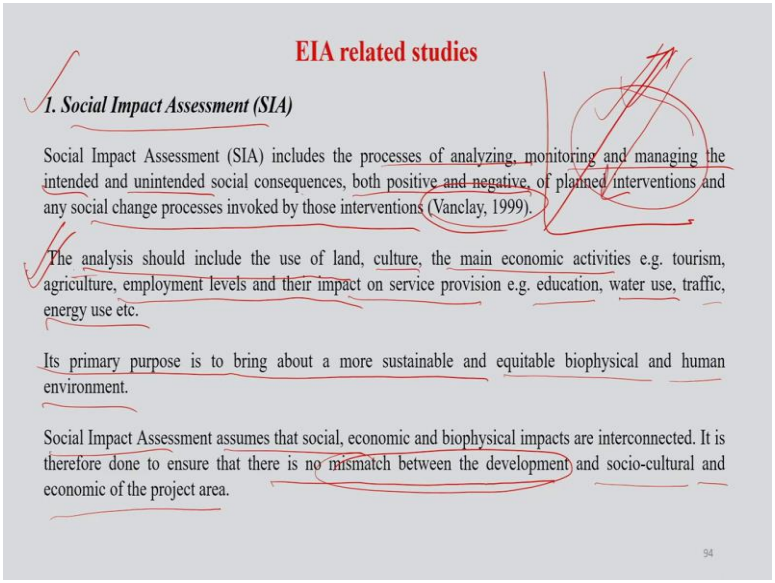

Now, I will talk about few EIA related studies. What are the different kinds of studies which actually under EIA, that can be carried out? One of such study is social impact assessment SIA. SIA includes the process of analyzing monitoring and managing the intended and both unintended social consequences, it could be both positive and negative of planned interventions and any other social changes invoked by those interventions.

Vanclay has talked about in his paper in great detail about this aspect about the social impact assessment study. SIA, when you carry out the analysis, SIA should include the use of land, culture, main economic activities, like tourism, agriculture, different other employment opportunities, their impact on the service provision, or livelihood like education, water use, traffic energy use, so this thing also should be there in the social impact assessment study.

The primary purpose of SIA is to bring about a more sustainable and equitable physical and human environment. Social Impact Assessment also assumes that social, economic and biophysical impacts are interconnected. We discussed about this interconnectivity of these 3 aspects social, economic, biophysical in earlier lecture.

So, therefore, this social impact assessment also ensures there is no mismatch between the development and sociocultural or economic aspect of the project area. There is no mismatch, means; you cannot have just development like straightaway increasing. And on the other side, you see that there is a decline of environment or other social aspect. So, there has to be a balance between the developments that you wish to see, and also the society, the culture, the economic condition of that area must be also maintained.

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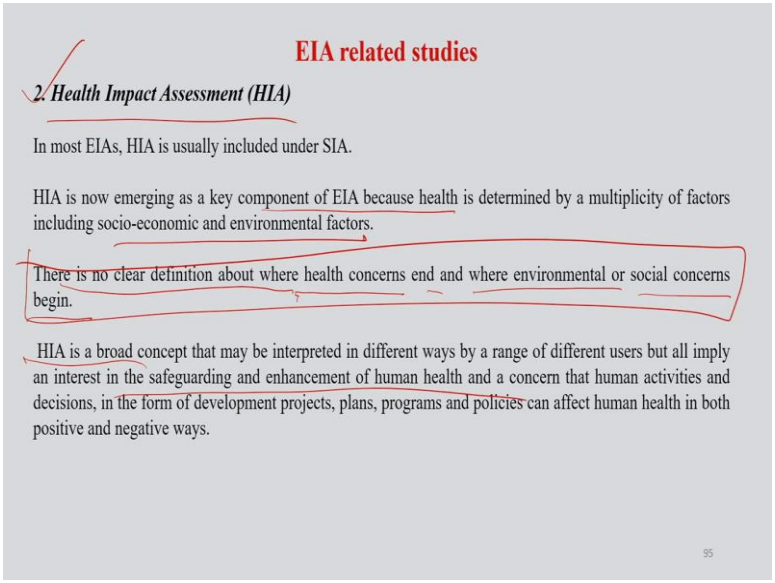

Second kind of study under EIA; Health Impact Assessment. So, Health Impact Assessment is actually a key component of EIA these days because health is determined by multiple factors including socioeconomic and environmental factors. Any development project that you can think of health assessment is one of the key one; public health, ecosystem health. So, these are certain aspects that can be covered under Health Impact Assessment study.

There is no clear definition though about where health concerns end and where environmental and socio concerns begin. There is no clear-cut definition where our health concerns end and where environmental social concerns begin. It cannot be because we want both healthy human as well as environment. Health Impact Assessment is a broad concept, which may be interpreted in different ways by a range of different users.

But at the end of the day, it implies an interest in the safeguarding and enhancement of human health. And a concern that human activities and any decisions that we take in the form of having a development project or plan or program or policy can affect human health in both

positive and negative ways. So, we need to look at that aspect under Health Impact Assessment, we can see that.

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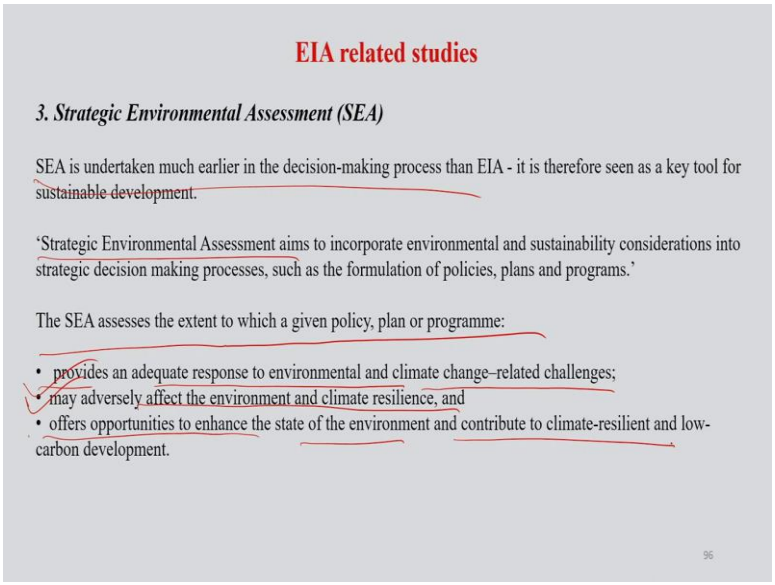

Strategic Environmental Assessment SEA, SEA is undertaken much earlier in the decision-making process itself within EIA. It is therefore seen as a key tool for sustainable development. If you see that strategic environmental assessment, it aims to incorporate environmental in one hand and sustainability conservation also into it. Such as during your formulation of policies, plans and program you try to incorporate these environment and sustainability issues into it; it is not easy, but effort has to be made.

SEA assesses the extent to which a particular given policy, plan or program provides adequate response to environment and climate change related challenges. It may adversely affect the environment and climate resilience or offers opportunity to enhance the state of environment and contribute to climate resilient and also helps in low carbon development. So, SEA is important from these aspects.

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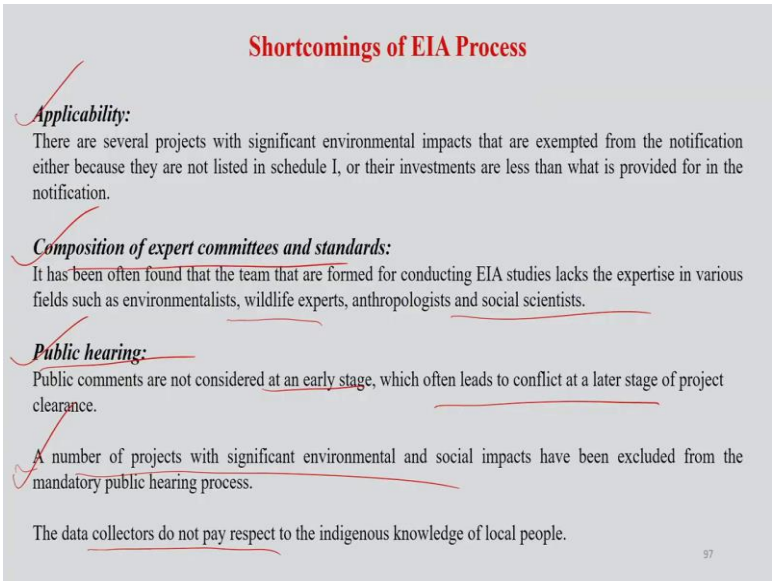

Finally, having said over the last 6 or 7 lectures about all aspects of EIA, now, let us see that what are the shortcomings of EIA process? First applicability, there are several projects with significant environmental impacts, that you will find they are exempted from the notification, either because they are not listed in the schedule, schedule one or their investment are less than what is provided in the notification. So, for that reason, the applicability is not there.

Second, composition of expert committees and standards, it has been found quite often that the team that are formed for conducting EIA studies lacks the expertise in various fields such as environment, wildlife, anthropology, and social aspect. That is why remember in one of the previous lectures I mentioned, selection of expert, selection of experienced person in the EIA team is a critical exercise like also selection of auditors is a critical exercise.

Public hearing other shortcoming; public comments are not considered at an early stage and that often leads to conflict at a later stage of project clearance. What is the problem to listen to the public at the planning stage itself? Because we are doing the project for them. So, let us make the process very democratic and inclusive. And if you involve that which I have already discussed in great detail in the previous lecture, that how public needs to be informed and public has to be taken into consideration in the process, public participation is key.

A number of projects with significant environmental and social impacts have been excluded from the mandatory public hearing processes, you will find that also happens.

The data collectors sometimes do not pay respect to the indigenous knowledge of local people. That is another problem. We feel that we are experts, we are knowledgeable, we are

PhDs and we have studied the subject. When we go to the field, sometime we knowingly unknowingly ignore the knowledge base of our indigenous people that is another shortcoming. So, friends, these are the shortcomings we should keep in mind and go ahead for an EIA process because as you understood that without a good EIA, it is almost impossible to have a very sound and sustainable project implemented in any place, anywhere.

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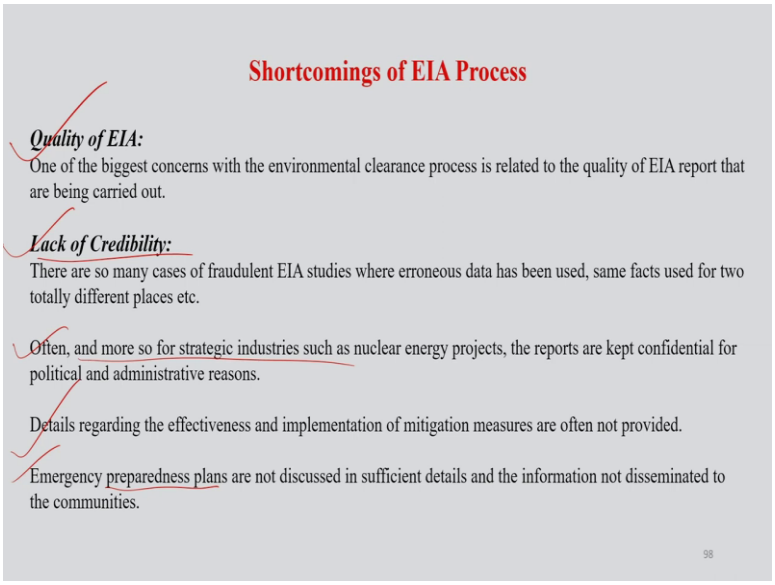

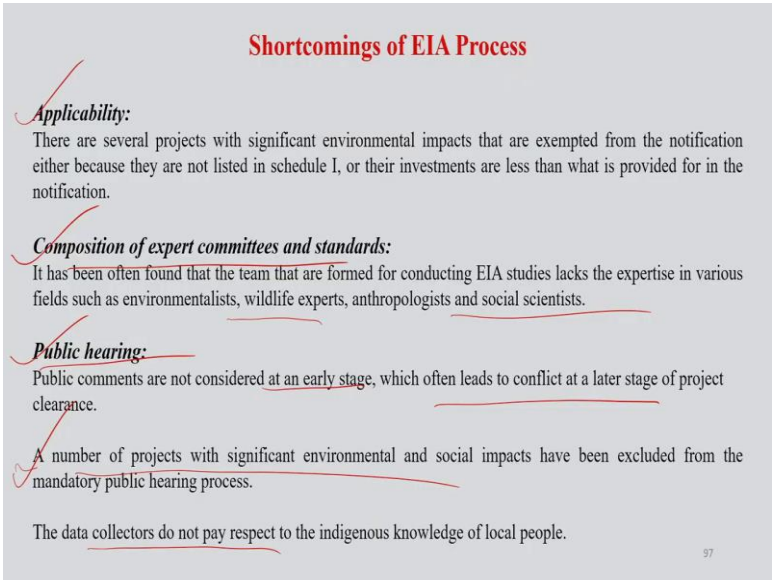

Next quality of EIA, one of the biggest concerns with the environmental clearance process is related to the quality of EIA report that is being carried out by the team. People often have concerns about the quality.

Lack of credibility, there are so many cases of fraudulent EIA studies where erroneous data has been used, same facts used for 2 totally different places. Suppose one project is taking in

Uttar Pradesh another is taking in Punjab without going to the field or without studying both areas one areas result has been used for the other one, how can that be? So, if it happens once, then the credibility of the entire team or exercise come under question. Often and more unsourced strategic industries such as nuclear energy project, the reports are kept confidential for political and administrative reasons.

Details regarding the effectiveness and implementation of mitigation measures are often not provided. Emergency preparedness plans are not discussed in sufficient details and the information not disseminate to the communities. Now, how in case suppose even if a project was sanctioned, after appropriate analysis, appropriate EIA, but some accident might happen. If it happens then if community is not well prepared, how they will cope up.

So, the emergency preparedness plans also has to be in place and also communicated with the people. But that also sometime does not take place. That is also an important shortcoming of EIA process.

So, friends, we discussed about a lot of important aspects of EIA, and most of them are very good sound, but we also should remember these few points the shortcomings of EIA. If we are careful about these shortcomings, and if we can avoid as much as possible EIA tool or exercise is a wonderful process for successful implementation of development projects in anywhere, anyplace.