

**Environmental Impact Assessment**  
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**Lecture 26**  
**EIA Process- Starting and Initial Stage**

Welcome to the course- Environmental Impact Assessment. So, we are going to now start with the EIA process segment and in these lectures, we will see a logical step-by-step approach, which is followed for the EIA process. So, if you remember we had like previously seen in brief, what is the EIA process like? So, we are going to look into details and this week on the EIA process part. So, there can be many ways of doing EIA and all these ways vary with the domain and context. So, there might be variations, and not everybody would take all the steps, not everything would be followed in all the countries.

So, we also saw that there are a lot of variations and legislation as well as standards as per the context, as per the countries. So, similar way you will also see that the processes also vary. So, we will look at a very common practice of the EIA process. So, it might vary as per your country. So, you read it, and you also refer to your country's process. So, while looking at the EIA process, you may keep in mind that, EIA processes, are not necessarily linear one step at a time, but they can be cyclic also. So, you move forward and then you come back and then you have a feedback system and then you again review things and move forward so it can be a cyclic system.

So, in this session, we will look at the initial stage of the EIA process like we had seen previously, the 4 segments of it. So, today, we are going to look at the first segments very first segments of your process here. In this segment, we will look at whether the project has to undergo EIA or not and if the EIA has to be taken what should be covered and the EIA.

So, in the initial stage in many of the contexts, alternatives are also considered. So, not only just screening scoping but alternatives are also considered. And then we also see that the baseline studies are undertaken and then initial impact identifications are also done like because of this project, the kind of project is the likely impact that might happen because of this particular proposed project.

So, this initial stage is very important. It is an early stage and it is an important stage. It reduces a lot of delays at the later part of the project and it brings a lot of clarity. So, this is an important stage. So, today we are going to look at the initial stage and how this has to be taken care of.

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**Coverage**

① **EIA Process**

- **Setting up a management process for the EIA activity.**
- **Screening**
- **Scoping**
- **Baseline Studies**
- **Impact Identification**

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So, accordingly, our coverage would include that, in the process. We will look at the initial stage of the EIA process where we will look at the various we look at the aspect of management, we will look at the screening process, we will look at the scoping process and the baseline study, and then the initial impact identification. So, we are going to look at the first box of the diagram which we saw.

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**Learning Outcomes**

① **Synthesize the EIA Process**

- **Setting up a management process for the EIA activity.**
- **Screening**
- **Scoping**
- **Baseline Studies**
- **Impact Identification**

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So, according to the learning outcome, the expected learning outcome is that, after completion of this session, you should be able to synthesize the EIA process, you should be able to plan and organize your work or like understand what kind of process will take place or organize your own EIA process here. So, you should be able to synthesize all that, and then you should be able to discuss and explain all these aspects the management aspect, the stage of screening, scoping, and baseline studies, and impact identification after completion of this session.

So, looking at the management aspects of the EIA process, management is very important. So, like you are seeing, there are so many sectorial variations and then there are so many steps involved and it varies a lot from context to context and there are a lot of complex subjects which have to be dealt with here. So, the EIA

process needs considerable management because of all these kinds of ranges it has and then there can be conflicting or controversial impacts as well.

So, good management is a must for the EIA process. So, while managing EIA, you will be required to determine the EIA team. So, you might have to fix you have to fix the EIA team for undertaking the process and you may know that the EIA process requires an interdisciplinary team so, you might have to bring in people from different domains and disciplines to work together. This bringing into this reteams allows you to have a complete perspective on different inter-disciplinary issues that are involved with the project.


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### Example of EIA Team

**Interstate 526 Lowcountry Corridor West DRAFT Environmental Impact Statement and DRAFT Section 4(f) Evaluation**

Name & Title	Project Role	Highest Education/Degree	Years of Experience
<b>Federal Highway Administration (FHWA) - Lead Agency</b>			
Eric Leaton	ESF Approval	BS Civil Engineering	22
Shane Becker	NDR Lead/ES Review	BS Environmental Science	22
Jim Mason	ESF Review	Master of Business Administration	21
Yvonne Foster	ESF Review/ESJ	Master of Business Administration	24
Mark Stewart	ESF Review	Master of City & Regional Planning	28
Wanda Jordan	ESJ Coordinator	MS Business Administration	22
Jessica Miller	ESF Review	BS Community & Regional Planning	17
<b>South Carolina Department of Transportation (SCDOT) - Lead Agency</b>			
Joe Pitt	Project Manager	BS Civil Engineering	22
Wesley Price	NDR/ESJ Coordinator	BS Management	27
David Kelly	NDR Coordinator	Master of Historic Preservation	18
Wesley Giddick	Environmental Coordinator	Master of Business Administration	15
Charlton	Director of Environmental	Master of Arts	23
Chris Beckman	Natural Resources	BS Biology	21
Bill Jagolin	Cultural Resources	PhD Anthropology	30
Nicole Riddle	Public Involvement Coordinator/ESJ	BS Marine Biology	3
Stephen Gordon	Agency Coordination Meeting Facilitator	BS Biology	11
Paul Smith	State Representative	MA Anthropology	11
Chris Johnson	Asst. Director Right-of-Way/Map Products	BS Real Estate Finance	28

<https://www.526lowcountrycorridor.com/west/deis/>



Name & Title	Project Role	Highest Education/Degree	Years of Experience
<b>Consultant Team</b>			
<b>Stantec</b>			
Andrew A. Allen, P.E., Ph.D.	Project Manager	MS Civil Engineering	42
Eric Leaton	ESF Approval	BS Civil Engineering	22
Yvonne Foster	ESF Review/ESJ	Master of Business Administration	24
Mark Stewart	ESF Review	Master of City & Regional Planning	28
Wanda Jordan	ESJ Coordinator	MS Business Administration	22
Jessica Miller	ESF Review	BS Community & Regional Planning	17
<b>CDM Smith</b>			
Chris Beckman	Natural Resources	BS Biology	21
Bill Jagolin	Cultural Resources	PhD Anthropology	30
Nicole Riddle	Public Involvement Coordinator/ESJ	BS Marine Biology	3
Stephen Gordon	Agency Coordination Meeting Facilitator	BS Biology	11
Paul Smith	State Representative	MA Anthropology	11
Chris Johnson	Asst. Director Right-of-Way/Map Products	BS Real Estate Finance	28
<b>Three Cities Engineering</b>			
Charles H. Hines, P.E., Ph.D.	Principal	MS Geography	21
Nicole Riddle	Public Involvement Coordinator/ESJ	BS Marine Biology	3
Stephen Gordon	Agency Coordination Meeting Facilitator	BS Biology	11
Paul Smith	State Representative	MA Anthropology	11
Chris Johnson	Asst. Director Right-of-Way/Map Products	BS Real Estate Finance	28

(Source: Federal Highway Administration, U.S. Department of Transportation, 2020)

So, the team would mostly include a very standard format for the team would be team would mostly include proponents, the in-house team member the person on the team, who is proposing the project a lead external consultant to the project, and then also external sub-consultants and then you will also have individual specialist experts coming in and then the team size can vary it can be just a few people to like 12 people dozens of people working together.


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### Example of EIA Team

**Interstate 526 Lowcountry Corridor West DRAFT Environmental Impact Statement and DRAFT Section 4(f) Evaluation**

Name & Title	Project Role	Highest Education/Degree	Years of Experience
<b>Three Cities Engineering</b>			
A. Mark Hines	Senior Environmental Planner	BAOC	BS Organizational Leadership
A. Gordon Hines	Senior Environmental Scientist	BAOC	BS Biology
Jessica Miller	ESJ Coordinator	BS Civil Engineering	22
<b>CECS</b>			
Kelly McConroe	Natural Resources	BS Marine Biology	16
Abigail Harris	Natural Resources/ESJ	BS Marine Biology	16
Robert Harris	Natural Resources/ESJ	BS Biology	15
Jeff Beckman	Natural Resources	BS Geography	15
<b>HDR Engineering, Inc.</b>			
Ryan Hines	Senior Environmental Planner	Clear Water Act	Master of Environmental Management
Jessica Miller	ESJ Coordinator	BS Civil Engineering	22
Jessica Miller	ESJ Coordinator	BS Civil Engineering	22
Jessica Miller	ESJ Coordinator	BS Civil Engineering	22
Jessica Miller	ESJ Coordinator	BS Civil Engineering	22
<b>Maximum Consulting Services, LLC</b>			
Wesley Price	Environmental Lead	SCD Overseas, Educational Administration & Supervisors	47
Geoffrey Lantieri	Environmental Lead	BS Chemistry	42
Wesley Price	Environmental Lead	MS Health Services	20
Chris Johnson	Environmental Lead	MA Social Science	25

<https://www.526lowcountrycorridor.com/west/deis/>

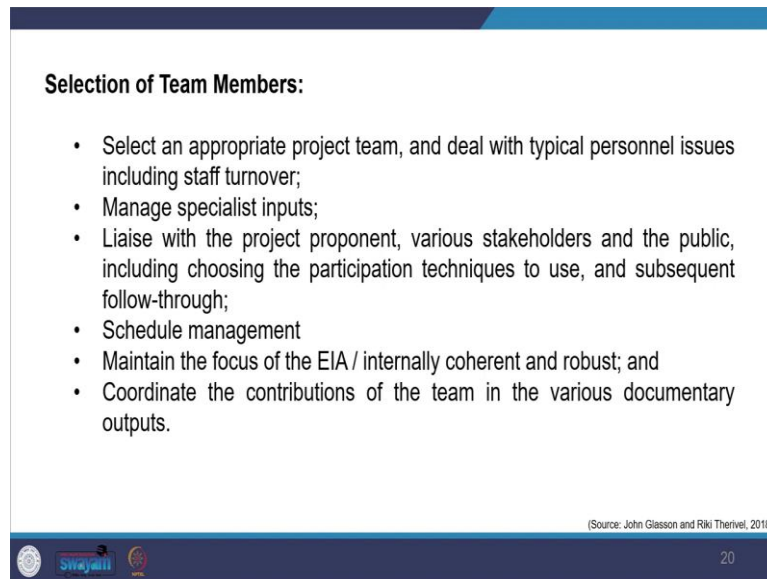


Name & Title	Project Role	Highest Education/Degree	Years of Experience
<b>Stantec</b>			
Andrew A. Allen, P.E., Ph.D.	Project Manager	MS Civil Engineering	42
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(Source: Federal Highway Administration, U.S. Department of Transportation, 2020)

And then you also need to look at these skill sets for the team and then it should be that each member can undertake their task independently and then can communicate and work interdisciplinary manner as well. You might also require additional input from experts in certain domains like you might need people from landscape you might need people from archaeology, air quality traffic, and so on usually would finalize the team members after the scoping states. So, the team member would be done like once you know, what kind of impact assessment has to be considered what kind of detail has to be considered what has to be left out so based on that, you are going to do decide your team members.

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**Selection of Team Members:**

- Select an appropriate project team, and deal with typical personnel issues including staff turnover;
- Manage specialist inputs;
- Liaise with the project proponent, various stakeholders and the public, including choosing the participation techniques to use, and subsequent follow-through;
- Schedule management
- Maintain the focus of the EIA / internally coherent and robust; and
- Coordinate the contributions of the team in the various documentary outputs.

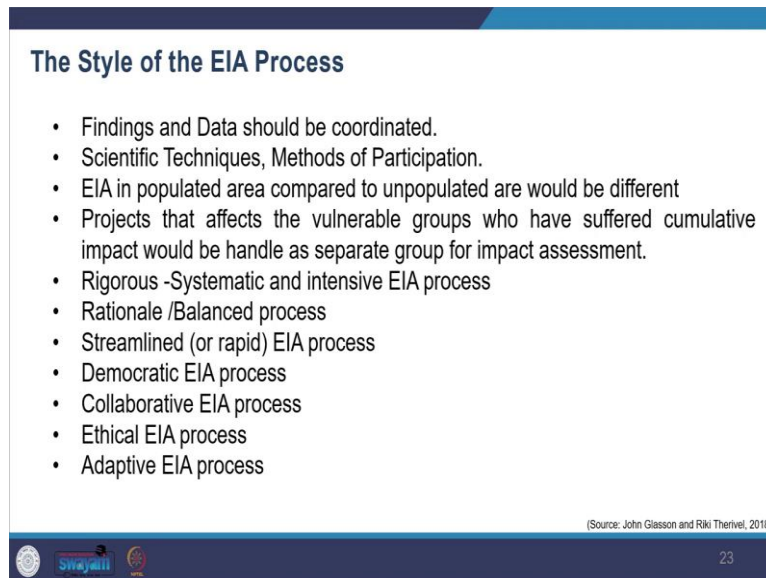
(Source: John Glasson and Riki Therivel, 2018)

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You can have core team members and then you can also have an associated team and then the team manager has a very important role to play. The team manager would handle like from the selection of the team members to managing these specialists to communicating with the project proponent communicating with the stakeholders public and then how the participation has to be handled a technique which would be used under-read and then would also look at the appropriate team and deal with typical personal issues as well.

And then also manage how the inputs will come specialist inputs will come and also look at this schedule that, whether the EIA is happening and as per the schedule and then one needs to also see that, the focus is maintained in the EIA process and then the entire report because you will have segments in which people will be working so how the report is dealt coherently and robustly. Then one needs to coordinate between the teams and also look at the documentary outputs that are required. So, this was about the management aspect, and then one also needs to know the different styles of the EIA process.

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**The Style of the EIA Process**

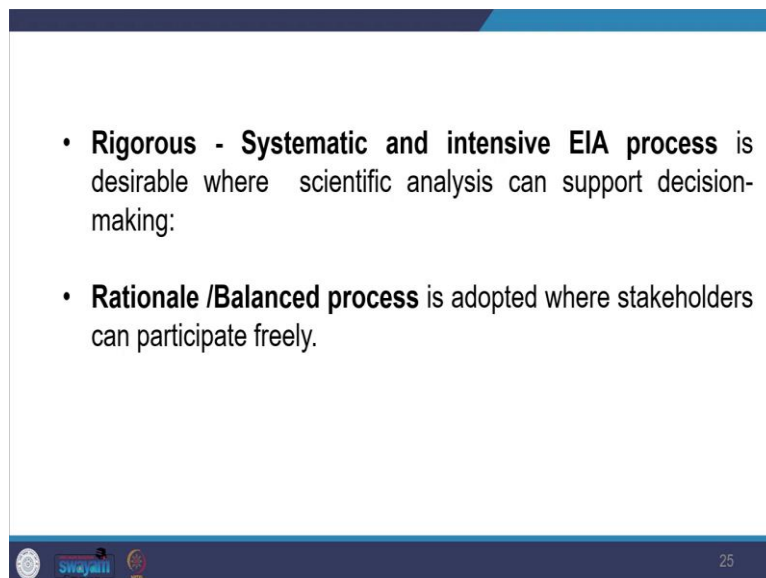
- Findings and Data should be coordinated.
- Scientific Techniques, Methods of Participation.
- EIA in populated area compared to unpopulated area would be different
- Projects that affect the vulnerable groups who have suffered cumulative impact would be handled as a separate group for impact assessment.
- Rigorous - Systematic and intensive EIA process
- Rationale /Balanced process
- Streamlined (or rapid) EIA process
- Democratic EIA process
- Collaborative EIA process
- Ethical EIA process
- Adaptive EIA process

(Source: John Glasson and Riki Therivel, 2018)

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So, one needs to know, how the data would be handled and how the findings will be communicated. And you have and these things change with different projects, the nature of projects, and depending on what context you are dealing with. So, if you are dealing with a populated context, then your EIA would be different and when you are dealing with a barren land or an unhabitated land, then your approach would be different. So, there are differences as per the textbooks given here, you find certain styles of year you report are very rigorous very, very intensive.

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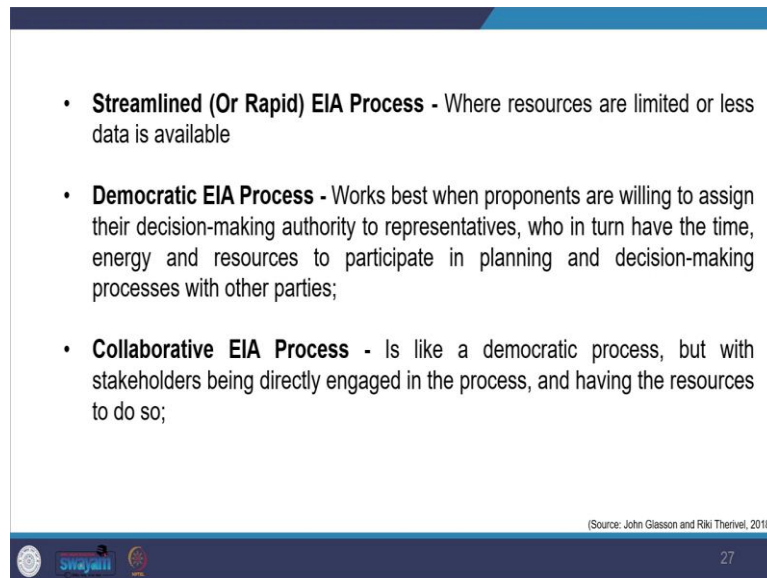


- **Rigorous - Systematic and intensive EIA process** is desirable where scientific analysis can support decision-making:
- **Rationale /Balanced process** is adopted where stakeholders can participate freely.

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A systematic and intensive EIA process is desirable especially when you have to undertake scientific analysis to support the kind of decisions that are being made. And then you can also have rationale like a balanced process can be adopted, where you have stakeholders who are not participating under pressure or certain kinds of influence, but participating in a free manner.

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• **Streamlined (Or Rapid) EIA Process** - Where resources are limited or less data is available

• **Democratic EIA Process** - Works best when proponents are willing to assign their decision-making authority to representatives, who in turn have the time, energy and resources to participate in planning and decision-making processes with other parties;

• **Collaborative EIA Process** - Is like a democratic process, but with stakeholders being directly engaged in the process, and having the resources to do so;

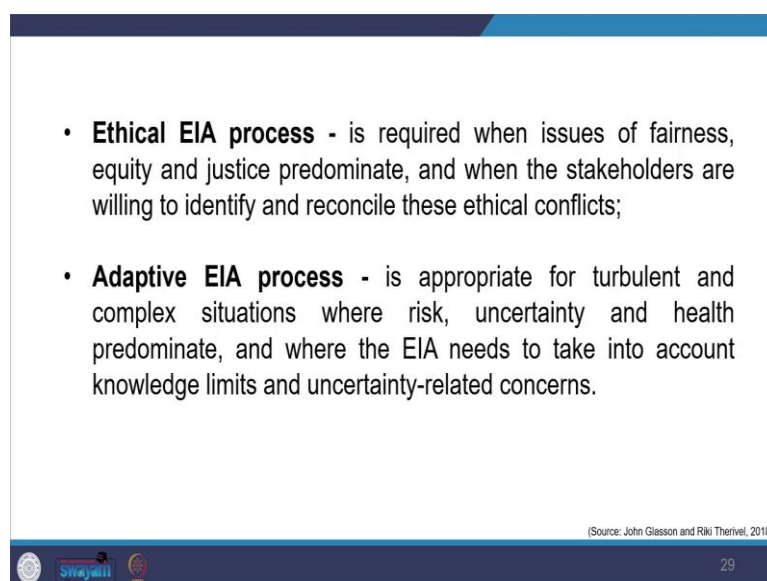
(Source: John Glasson and Riki Therivel, 2018)

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So, a balanced approach can be taken then you can also have a streamlined or rapid approach. So, where resources are limited and you have fewer data available, so, you cannot undertake a scientific approach and you have limited resources. So, you can have a rapid or a streamlined assessment, then you can also, the style which we see is the democratic EIA process and it is said to work best when the proponents, the project developers are willing to assign representatives for decision making authorities and so that, a person has like enough time and is free from all other kind of influences.

So, that, is the democratic process adopted, and then you can also have a Collaborative EIA process very similar to the democratic process, but with stakeholders being directly engaged in the process and having the resources to do so. So, they are not just being the participants, but they are part of the process itself.

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• **Ethical EIA process** - is required when issues of fairness, equity and justice predominate, and when the stakeholders are willing to identify and reconcile these ethical conflicts;

• **Adaptive EIA process** - is appropriate for turbulent and complex situations where risk, uncertainty and health predominate, and where the EIA needs to take into account knowledge limits and uncertainty-related concerns.

(Source: John Glasson and Riki Therivel, 2018)

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Then you also have the Ethical EIA process, where there are issues about equality, justice, and so on so, you have, then the ethical process can be also style, can be adopted. Then you have the Adaptive EIA process,

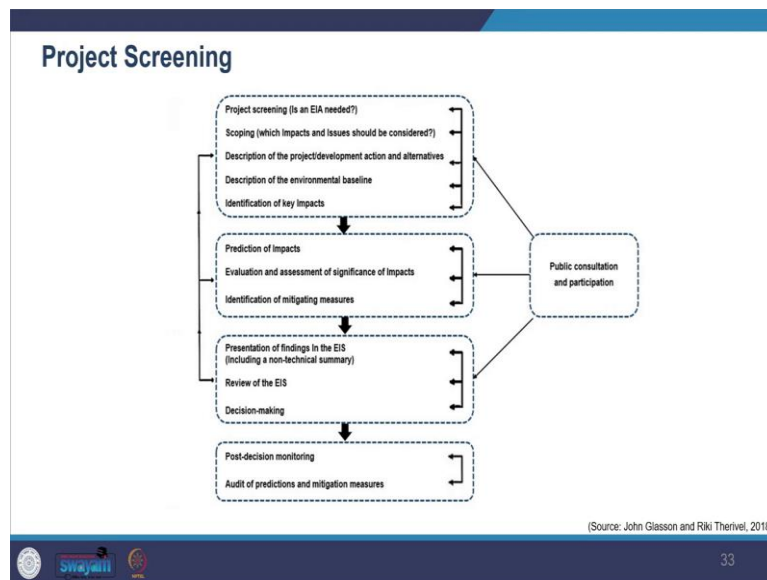
and it is appropriate when you have a disturbed or complex situation where risk uncertainty and health predominance are there. So, according to that, you will have an adaptive EIA process.

So, that was about different styles of the EIA process. So, EIA cost and resources also need to be seen. So, the EIA team and style will affect or will be influenced by the cost and the resources you have. So, the cost of the study is taken care of by the developer. So, whatever EIA is prepared, the proponent, the developer of the project takes care of it.

The cost of the review while the review is done is taken by the authority, whichever is the reviewing authority as per the legislation. And if you look at the cost of like everyone must be wondering what, as a learner like what kind of fees they would expect. So, the cost of carrying out EIA tends to range from several 1000s to several million dollars from 0.01 percent to 1 percent of the capital cost of the project.

So, it might range in percentage of the proposed project, and the cost of the capital cost of the project. And in certain cases where the problems are, there are a lot of problems and there is a problematic project and the cost might even exceed 1 percent, the cost of undertaking EIA. So, looking at the time aspect of how much time an EIA report takes, it takes between 6 months to 18 months to carry out the EIA part. And it is said that, if you have a good initial stage of scoping and other things, it reduces your later time consumption. And so, that, is all about the management aspect. So, now looking at the project screening part.

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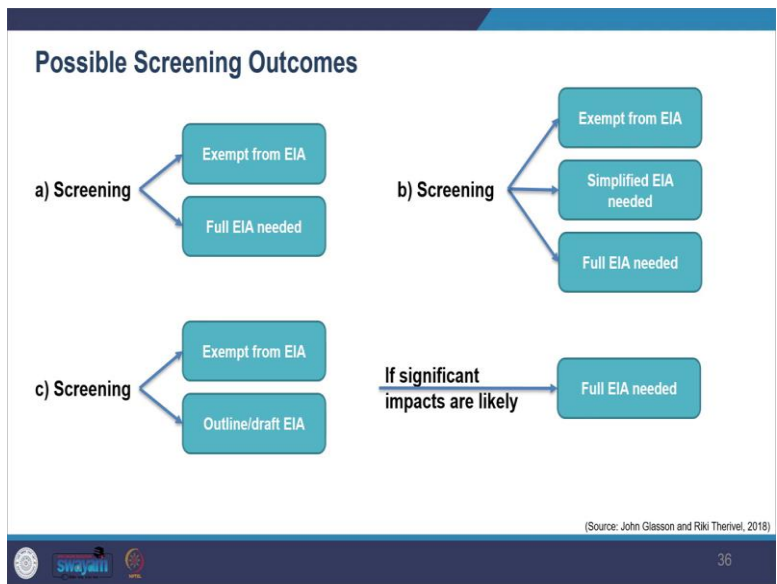


So, now we will move to another segment. So, that was about the management aspects. So, we will look at the screening part. So, looking at the first box here project screening, so here we decide whether the EIA is needed or not. So, at the screening stage, we focus on those projects which have known substantial impact.

So, we do not take into consideration the projects of which we know that they do not have substantial impact, we consider only those projects that have known substantial impact, or in some cases they also consider projects about whose impact we are unaware of. So, it is not known. So, you might like to test it or like to check those. So, the projects that have an insignificant impact are screened out and are allowed to

proceed to the normal planning permission so they can go into the normal process. So, they need not worry about preparing the EIA statement and so on.

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So, we see that in some countries, the screening stage itself as per their legislation or the process procedural requirement, they ask for like fully EIA the level of screening itself or they can just ask for the outline draft of EIA. So, in this EIA, also we see 2 main approaches for screening. The use of thresholds where they have threshold values, placing projects in categories, and setting thresholds for each project type.

So, these may relate for example to project scale you can have a project scale of a certain square meter and you can have anticipated impact in whatever quantities you take and where project locations are. So, based on the scale of the project nature of the project nature of the impact, and where it is located, you have certain threshold rates that are given.

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### Projects requiring EIA in India

SCHEDULE  
(See paragraph 2 and 7)  
LIST OF PROJECTS OR ACTIVITIES REQUIRING PRIOR ENVIRONMENTAL CLEARANCE

Project or Activity		Category with threshold limit		Conditions if any
		A	B	
1		Mining, extraction of natural resources and power generation (for a specified production capacity)		
(1)	(2)	(3)	(4)	(5)
1(a)	(i) Mining of minerals.	> 50 ha. of mining lease area in respect of non-coal mine leases. > 100 ha. of mining lease area in respect of coal mine leases. Asbestos mining irrespective of mining area.	< 50 ha. & 5 ha. of mining lease area in respect of non-coal mine leases. < 100 ha. & 5 ha. of mining lease area in respect of coal mine leases.	General Condition shall apply. Note: Mineral prospecting is exempted.
	(ii) Slurry pipelines (coal lignite and other ores) passing through national parks / sanctuaries / core reefs, ecologically sensitive areas.	All projects.		
1(b)	Onshore oil and gas exploration, development & production	All projects		
1(c)	River Valley projects	(i) > 50 MW hydroelectric power generation; (ii) > 10,000 ha. of culturable command area	(i) < 50 MW hydroelectric power generation; (ii) < 10,000 ha. of culturable command area	*General Condition shall apply. Note: Irrigation projects not involving submergence or inter-state domain shall be approved by the ECIA as Category 'B' Projects.

<http://www.environmentwb.gov.in/pdf/EIA%20Notification,%202006.pdf>

(Source: John Glasson and Riki Therivel, 2018)



So, as we do in India we have a list where we have Categories A and B and you can see, how each range of projects is given and the scale is also given, and for which projects we might do the screening. So, all those are given.

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### Projects requiring EIA under EC Directive 85/337


<p><b>Annex I (mandatory)</b></p> <ol style="list-style-type: none"> <li>1 Crude oil refineries, coal/shale gasification and liquefaction</li> <li>2 Thermal power stations and other combustion installations; nuclear power stations and other nuclear reactors</li> <li>3 Radioactive waste processing and/or storage installations</li> <li>4 Cast-iron and steel smelting works</li> <li>5 Asbestos extraction, processing or transformation</li> <li>6 Integrated chemical installations</li> <li>7 Construction of motorways, express roads, other large roads, railways, airports</li> <li>8 Trading ports and inland waterways</li> <li>9 Installations for incinerating, treating or disposing of toxic and dangerous wastes</li> <li>10 Large-scale installation for incinerating or treating non-hazardous waste</li> <li>11 Large-scale groundwater abstraction or recharge schemes</li> <li>12 Large-scale transfer of water resources</li> <li>13 Large-scale waste water treatment plants</li> <li>14 Large-scale extraction of petroleum and natural gas</li> </ol>	<ol style="list-style-type: none"> <li>15 Large dams and reservoirs</li> <li>16 Long pipelines for gas, oil or chemicals</li> <li>17 Large-scale poultry or pig-rearing installations</li> <li>18 Pulp, timber or board manufacture</li> <li>19 Large-scale quarries or open-cast mines</li> <li>20 Long overhead electrical power lines</li> <li>21 Large-scale installations for petroleum, petrochemical or chemical products</li> <li>22 Carbon storage sites**</li> <li>23 Carbon capture installations**</li> <li>24 Any change or extension to an Annex I project which meets the thresholds**</li> </ol> <p><b>Annex II (discretionary)</b></p> <ol style="list-style-type: none"> <li>1 Agriculture, silviculture and aquaculture</li> <li>2 Extractive industry</li> <li>3 Energy industry</li> <li>4 Production and processing of metals</li> <li>5 Minerals industry (projects not included in Annex I)</li> <li>6 Chemical industry</li> <li>7 Food industry</li> <li>8 Textile, leather, wood and paper industries</li> </ol>	<ol style="list-style-type: none"> <li>9 Rubber industry</li> <li>10 Infrastructure projects</li> <li>11 Other projects</li> <li>12 Tourism and leisure</li> <li>13 Modification, extension or temporary testing of Annex I projects</li> </ol> <p><small>** For 2007 amendments see in table; ** see first time amendments in 2003 and 2008</small></p>
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(Source: John Glasson and Riki Therivel, 2018)

Likewise, you can see European Commission EIA directive provides a list of projects in their schedule that, allow that, always require full assessment, because of their scale and kind of environmental impact. So, those ranges you can see here what all have been given.

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### European Union (2017c) Guidance



**PART C - SCREENING CHECKLIST: CASE-BY-CASE SCREENING TOOLS**

Millen Ltd  
COWI A/S

Preparation of guidance documents for the implementation of EIA Directive  
(Directive 2011/92/EU as amended by 2014/52/EU) 51

[https://ec.europa.eu/environment/eia/pdf/EIA\\_guidance\\_Screening\\_final.pdf](https://ec.europa.eu/environment/eia/pdf/EIA_guidance_Screening_final.pdf)

You may also see that countries also do case-by-case screening, so case-by-case screening involves where, countries do case-by-case screening, there, they evaluate, evaluate the characteristics of the project, and submit for screening against checklists of the ground, as per the criteria. So, you see that the European Union has published guidance to help how to undertake a case-by-case screening process.

So, you can also look at those guidelines and then many times the screening approach, what approach you will take is also determined by the legislation. So, for example, you can see a California Environmental Quality Act has specified in their act itself like, if there is substantial evidence in light of the whole record before the lead agency that, a project may have a significant effect on the environment.

So, such kinds of writings are given there. So, according to that, it is required by the legislation to undertake the screening and what kind of approach they would adopt. So, this is an example of a case-by-case approach. So, you see that, you have threshold level and then case by case threshold level list level, and then you have case by case. So, both methods have advantages and limitations, we also find a hybrid approach. So, for example, the indicative threshold is used in combination with a flexible case-by-case approach.

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**Thresholds versus Case-by-case approach to screening: Advantages and Disadvantages**

THRESHOLDS	
Advantage	Disadvantage
<ul style="list-style-type: none"> <li>Simple to use, Quick to use; more certainty</li> <li>Consistent between locations</li> <li>Consistent between decisions within locations</li> <li>Consistent between project types</li> </ul>	<ul style="list-style-type: none"> <li>Place arbitrary, inflexible rules on a variable environment (unless tiered) Less room for common sense or good judgement.</li> <li>May be or become inconsistent, depending on neighboring receivers and developments.</li> <li>Difficult to set and, once set, difficult to change.</li> <li>Lead to a proliferation of projects lying just below the thresholds (Enriquez-de-Salamanca 2016) and can miss out small projects with significant cumulative impacts.</li> </ul>

CASE BY CASE	
Advantage	Disadvantage
<ul style="list-style-type: none"> <li>Allows common sense and good judgement</li> <li>Flexible - can incorporate variety in project and environment</li> </ul>	<ul style="list-style-type: none"> <li>Likely to be complex and ambiguous.</li> <li>Likely to be slow and costly.</li> <li>Open to abuse by decision-makers because of political or financial interests. Open to poor judgement of decision-makers. Likely to be swayed by precedent and therefore lose flexibility.</li> </ul>

(Source: John Glasson and Riki Therivel, 2018)


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So, just quickly reviewing what are the advantages and disadvantages. So, we look at the threshold type. So, the advantage of this is that it is very simple to use, and then it saves a lot of time and it also saves you from a lot of uncertainty and then it is consistent between locations, consistent between decisions, and consistent between project types.

So, these are very good advantages of adopting the threshold approach for screen purposes, but, we also see there are certain disadvantages like placing arbitrary inflexible rules on variables, like what other aspects might be and it might become inconsistent depending on the receivers' capacity, difficult to set an onset difficult to change the list and, it also leads to proliferation of the project lying just below the threshold. So, like a lot of projects, which might come, which may just touch the border case and would escape the entire EIA process.

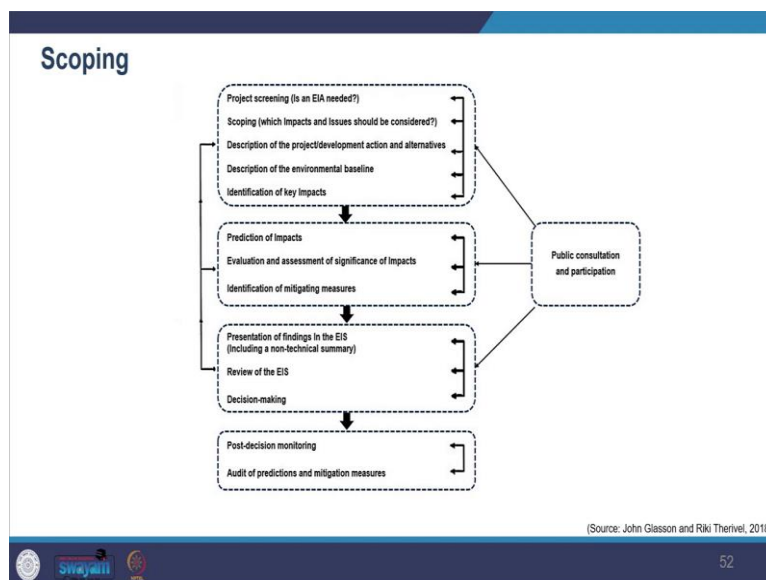
So, now we look at the advantages of case by case screening approach. So, it allows common sense and good judgment. So, it allows you to check all the things, all the aspects of a project and then it is flexible and can incorporate variety in the project and environments, it allows you to look at the newer project or a project that might otherwise escape the list.

But the disadvantage of this is that it is likely to be very complex and ambiguous which might lead to a lot of legal complications and then likely to be slow as well as costly and even this can be abused by the decision makers because of the political or financial interest involved. So, it might be open to poor judgment of the decision makers and there can be variations in the decisions as well. So, there are disadvantages to this.

So, we also see inclusion lists likewise you also have an exclusion list where you have like what kind of projects do not it is known that these projects do not have significant environmental impacts. So, they can be added to the exclusion list.

So, that was about the screening process and you see that the screening process has its benefit. So, once the screening is done, it allows the project to improve on its own so, it is also said to be self-regulating. So, when people see the screening option, then they might modify the scale of it, might modify the nature of it, or might modify the location of it, so, it is said to be self-regulating.

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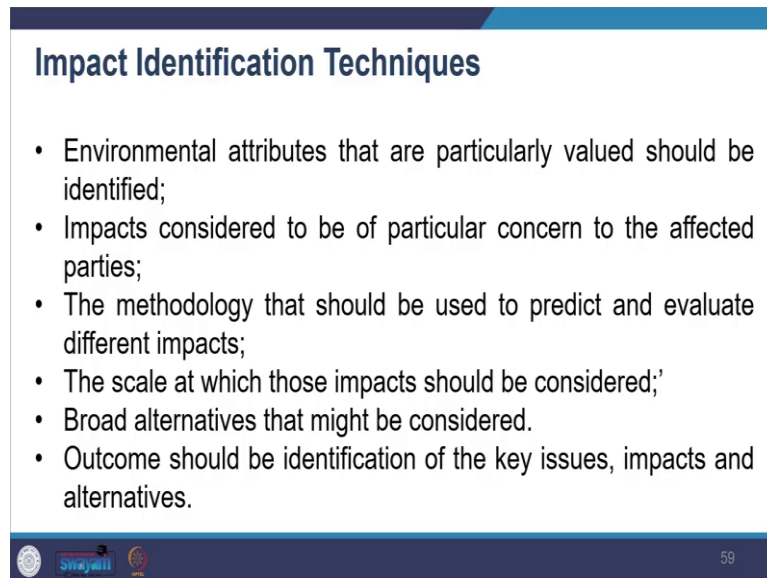


Now, moving on, we will look at the second point that, is concerned with the process, which is the scoping part. So, at the scoping stage, you decide which impacts and issues are to be considered. So, what all has to be included, what impact you will study which impacts you will not study depending on the nature of the project it is said to be very effective in the long run because it allows you to save time and allows you to use your resources very efficiently if you decide, and if you plan it out well.

So, the initial scoping of possible impacts may identify those impacts thought to be potentially significant. So, you will be able to identify those and then in this stage, you will decide what kind of further, in-depth studies have to be undertaken. And you would eliminate what kind of things are not required. So, unnecessary assessment or data collection would not be done undertaken in this and you will have the refined outcome here.

And if you see the scoping is generally carried out through discussions between the developers and then also the local planning authority and then the other relevant agencies and the public and it is often the first stage where you start the negotiation and consultation process. This is also considered an important step in EIA because it allows you to make the best use of your resources and allocate resources for identifying the key aspects of the environment here.

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**Impact Identification Techniques**

- Environmental attributes that are particularly valued should be identified;
- Impacts considered to be of particular concern to the affected parties;
- The methodology that should be used to predict and evaluate different impacts;
- The scale at which those impacts should be considered;'
- Broad alternatives that might be considered.
- Outcome should be identification of the key issues, impacts and alternatives.

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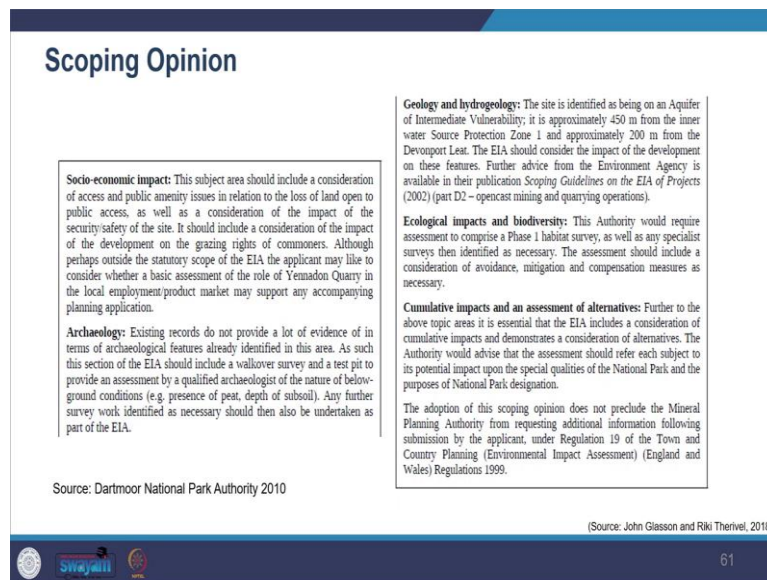
So, you can also have impact identification techniques used for scoping purposes and at this stage environmental attributes that, are particularly valued should be identified. So, when you undertake scoping, you need to ensure that, there might be environmental attributes that might be of importance to the people who are being affected or in the range of the project.

And then all the affected parties if they have any particular concerns, those things should be included here. And then you should also take care of the methodology which you will be using here and then the scale at which those impacts should be considered. So, where are they, what radius you will be taking, and what boundaries you will be taking for impact assessments?

So, how you will designate your study area, and then, what kind, and then we would also look at what kind of alternatives you will look at. So, how many alternatives you look at, and what kind of possible alternatives you should look at? And then the outcome of this scoping should help you to identify key issues that have to be covered and then also identify impacts and impacts of the alternatives and then you should be able to have an explanation of why other issues are not considered significantly.

So, why you have taken certain sets of issues, and why you have not taken other sets of issues? So, you need to have an explanation for the decisions you make and you also need to give justification for the key impacts which you have identified and then justification for, what period you will take and what special boundaries you will take. So, all these will be identified at this stage.

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**Scoping Opinion**

**Socio-economic impact:** This subject area should include a consideration of access and public amenity issues in relation to the loss of land open to public access, as well as a consideration of the impact of the security/safety of the site. It should include a consideration of the impact of the development on the grazing rights of commoners. Although perhaps outside the statutory scope of the EIA the applicant may like to consider whether a basic assessment of the role of Yemadon Quarry in the local employment/product market may support any accompanying planning application.

**Archaeology:** Existing records do not provide a lot of evidence of in terms of archaeological features already identified in this area. As such this section of the EIA should include a walkover survey and a test pit to provide an assessment by a qualified archaeologist of the nature of below-ground conditions (e.g. presence of peat, depth of subsoil). Any further survey work identified as necessary should then also be undertaken as part of the EIA.

**Geology and hydrogeology:** The site is identified as being on an Aquifer of Intermediate Vulnerability; it is approximately 450 m from the inner water Source Protection Zone 1 and approximately 200 m from the Devonport Leat. The EIA should consider the impact of the development on these features. Further advice from the Environment Agency is available in their publication *Scoping Guidelines on the EIA of Projects* (2002) (part D2 – opencast mining and quarrying operations).

**Ecological impacts and biodiversity:** This Authority would require assessment to comprise a Phase 1 habitat survey, as well as any specialist surveys then identified as necessary. The assessment should include a consideration of avoidance, mitigation and compensation measures as necessary.

**Cumulative impacts and an assessment of alternatives:** Further to the above topic areas it is essential that the EIA includes a consideration of cumulative impacts and demonstrates a consideration of alternatives. The Authority would advise that the assessment should refer each subject to its potential impact upon the special qualities of the National Park and the purposes of National Park designation.

The adoption of this scoping opinion does not preclude the Mineral Planning Authority from requesting additional information following submission by the applicant, under Regulation 19 of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999.

Source: Dartmoor National Park Authority 2010

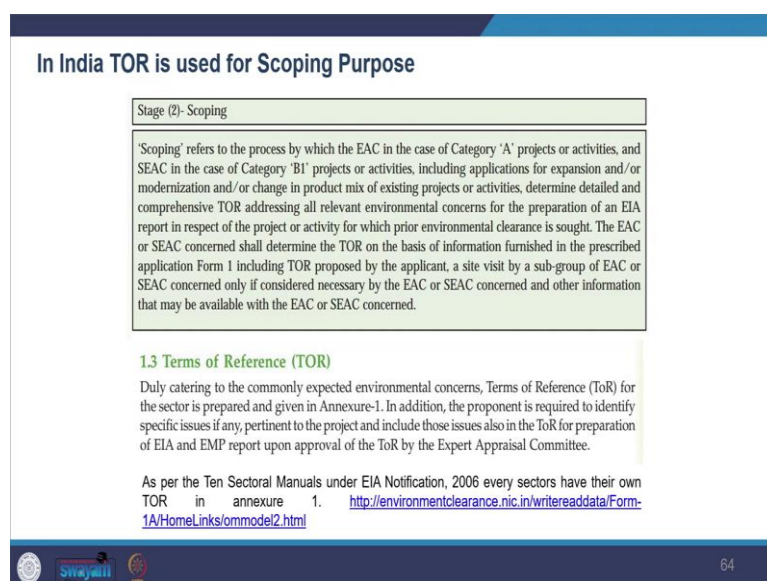
(Source: John Glasson and Riki Therivel, 2018)

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So, this is the example of one of these briefs of this scoping report so you can see how the socio-economic impacts what they are going to undertake in their archaeology and what they are going to undertake in geology and hydrology. What they will cover ecological impact and biodiversity cumulative impact and assessment of alternatives. So, what are all things or what areas they would consider and which they would not consider?

So, you see that, scoping is an important step however, it is not legally required in like, you can see it is not legally required in Europe, but undertaking that, improves the EIA outcomes. So, your results are better whenever you take and some countries like Canada and Netherlands have a formal scoping stage. So, they have it by legislation, in which the developers agree with the competent authority to conduct the EIA.

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**In India TOR is used for Scoping Purpose**

**Stage (2)- Scoping**

“Scoping” refers to the process by which the EAC in the case of Category ‘A’ projects or activities, and SEAC in the case of Category ‘B1’ projects or activities, including applications for expansion and/or modernization and/or change in product mix of existing projects or activities, determine detailed and comprehensive TOR addressing all relevant environmental concerns for the preparation of an EIA report in respect of the project or activity for which prior environmental clearance is sought. The EAC or SEAC concerned shall determine the TOR on the basis of information furnished in the prescribed application Form 1 including TOR proposed by the applicant, a site visit by a sub-group of EAC or SEAC concerned only if considered necessary by the EAC or SEAC concerned and other information that may be available with the EAC or SEAC concerned.

**1.3 Terms of Reference (TOR)**

Duly catering to the commonly expected environmental concerns, Terms of Reference (ToR) for the sector is prepared and given in Annexure-1. In addition, the proponent is required to identify specific issues if any, pertinent to the project and include those issues also in the ToR for preparation of EIA and EMP report upon approval of the ToR by the Expert Appraisal Committee.

As per the Ten Sectoral Manuals under EIA Notification, 2006 every sectors have their own TOR in annexure 1. <http://environmentclearance.nic.in/writereaddata/Form-1A/HomeLinks/ommodel2.html>

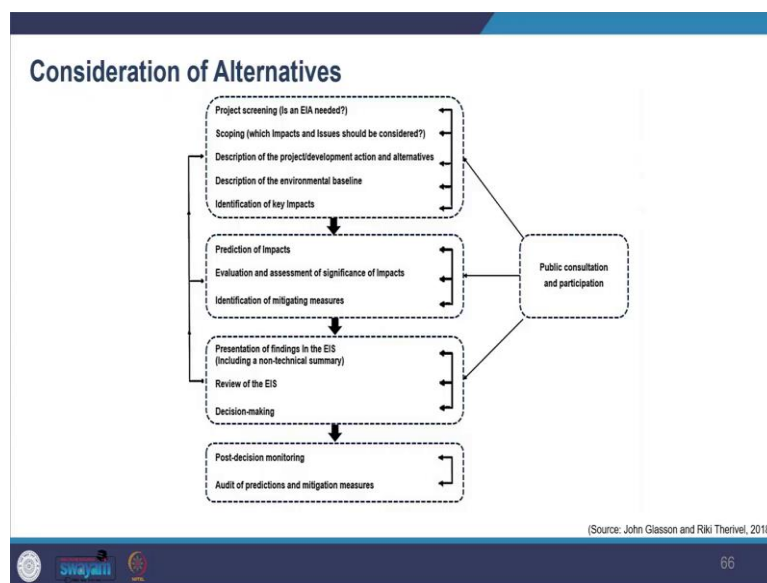
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And we see, in India, we have terms of reference TOR as used for scoping purposes. So, either that, TOR is provided by the ministry or the usual TOR also available for reference. So, case by case TOR is either

provided or the declared TOR is used for EIA purposes. So, you can see here you have TOR for scoping purposes.

So, how this has been given for each you can see that, it has been given for each sector, 10 sector manual you can see here that, it has been given sector wise. Terms of Reference are usually Terms of Reference are given for each sector in our country. So, how to undertake what area is to be covered, what area is not to be covered for that, particular sector is given in the manual. Then further, you find the European Union has published a detailed scoping checklist you also see environmental agencies have developed a guidance for particular types of projects. So, that was about the scoping parts. Now, you look at the can how do we look at the alternatives?

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So, how many alternatives will be considered what has to be considered? So, that can be like you can consider many alternatives. So, what is enough, and what kind of how do you choose to discuss and evaluate more? So, the US Council for Environmental Quality calls the discussion of alternatives a very important part of the environmental impact statement. So, in EIA you look at various alternatives, to see that, whatever decisions are made are made at their best, it is not guaranteed, and it is not assured that, the selected alternative is the best, but it gives you the optimum optimized approach to the particular problem and problem at hand.

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## Reasonable Alternatives: The 'No Action' Option

- Alternative Locations,
- Alternative Scales of The Project,
- Alternative Processes or Equipment,
- Alternative Site Layouts,
- Alternative Operating Conditions
- Alternative Ways of Dealing with Environmental Impacts.

(Source: John Glasson and Riki Therivel, 2018)



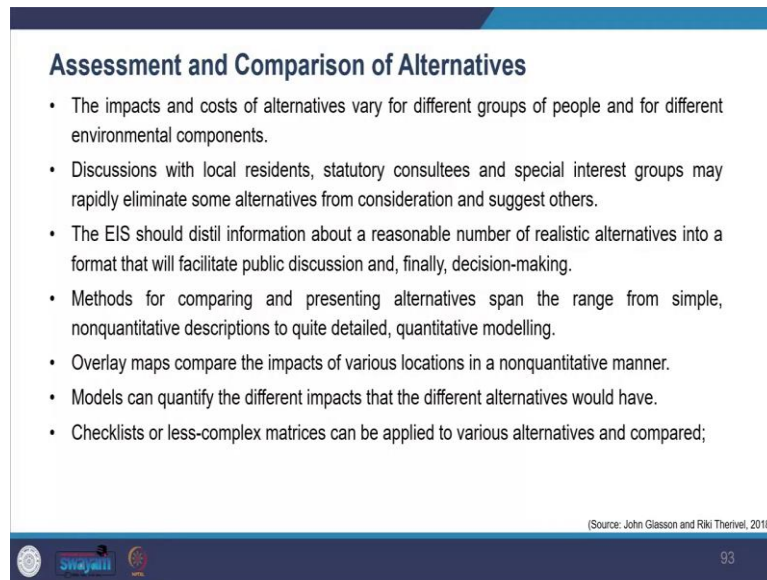
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So, you need to identify reasonable alternatives, so, many decisions are to be made based on scale type location, and details. So, and so, the EIA team works to ensure the inclusion of environmental criteria for alternatives and this consideration for alternatives starts at a very initial stage even before EIA it starts at the very initial stage and but then, starts mostly with the economic aspects of the functioning aspect of it.

So, a number of the broad types of alternatives are considered by looking at the alternatives, so, you have one option which is no action option. So, you look at that, if nothing is done if no development project comes so, that is the no action option what is happening then you have an alternative location, then you have the alternative scale of the project or you can have alternative processor equipment's, then you can have alternative site layouts and alternative operating conditions and alternative ways of dealing with the environmental impact.

So, you can see, what happens with or without a project or if you see an alternative like if the project is done in this location compared to the other location or if you see that, the project is done with a smaller size if he can serve the same purpose with a smaller size with lesser impact then what will happen and then what if you change the process or you have a better design or you change the layout of the project or you change the conditions under which it works, and so, this way, these are the general broad types of alternatives which are considered. So, you see that no action or business-as-usual option is sometimes considered to be mandatory and when this is taken then it also justifies that, whatever project is been undertaken is a required project and all the alternatives have been considered for that,

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**Assessment and Comparison of Alternatives**

- The impacts and costs of alternatives vary for different groups of people and for different environmental components.
- Discussions with local residents, statutory consultees and special interest groups may rapidly eliminate some alternatives from consideration and suggest others.
- The EIS should distil information about a reasonable number of realistic alternatives into a format that will facilitate public discussion and, finally, decision-making.
- Methods for comparing and presenting alternatives span the range from simple, nonquantitative descriptions to quite detailed, quantitative modelling.
- Overlay maps compare the impacts of various locations in a nonquantitative manner.
- Models can quantify the different impacts that the different alternatives would have.
- Checklists or less-complex matrices can be applied to various alternatives and compared;

(Source: John Glasson and Riki Therivel, 2018)

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So, that, is about the alternatives and now, we look at the comparison of alternatives, how do we compare and assess the alternatives. So, the impact and cost of alternatives also vary with different groups of people and different environmental components. And so, when you discuss with, when you have a consultative process, so, many of the alternatives will go out from the process itself they will not be included.

So, that would save you time. So, you will you can have the local perspective on which alternatives have to be considered and it is quite like you may not expect that, whichever alternative comes up will be acceptable by all the parties here. So, that usually does not happen. You need to have a reasonable number of realistic alternatives to undertake because it is intensive work and that, should support your decision-making.

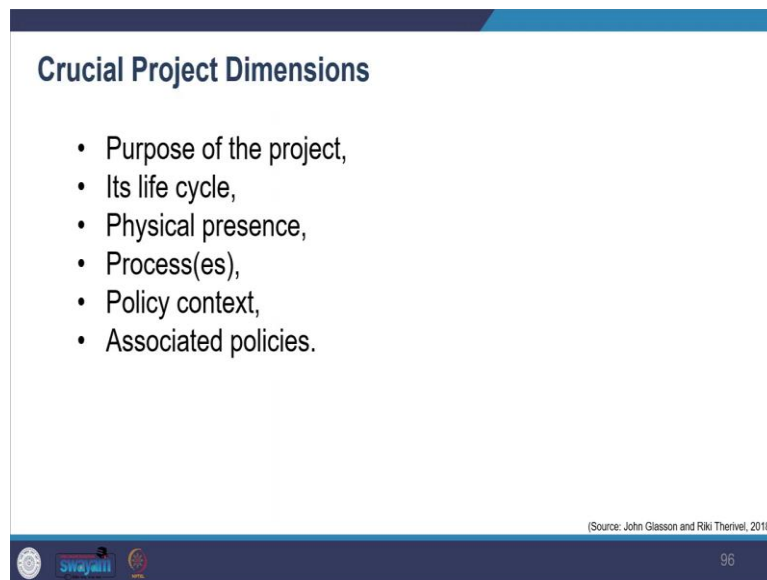
So, there are methods for under-reviewing your alternatives and comparing your alternatives, including methods for comparing and presenting alternatives, they are they can be non-quality, quantitative, they can be descriptive, then can have quantitative modeling. So, you can have numbers in all the alternatives and you can quantitatively explain which one is better.

And then you can also have overlay maps where you can undertake the analysis and then show which one where you have better results. Then you can also have models that can quantify the different impacts that, different alternatives would have. So, you can also use checklists or less complex metrics can be used to communicate this.

So, using all these techniques you can compare. And then you would also be required to explain why you chose one alternative over the other. So, in this section of your report, you have to justify all your alternatives, why certain alternatives have been taken, and why certain alternatives have been not taken. And you may think about a range of projects like a mining project has to be closer to the resource and then the highway project has to depend a lot on the engineering details of it. So, there will be a lot of limitations on how many alternatives they can try.



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**Crucial Project Dimensions**

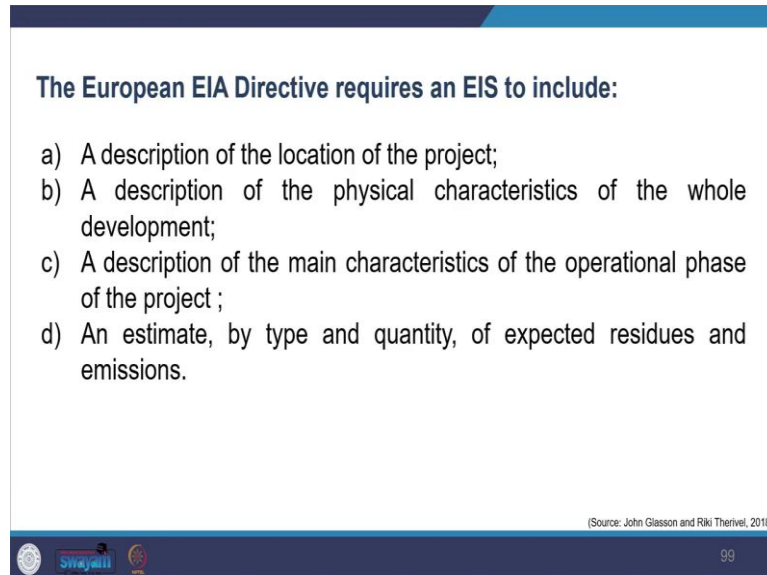
- Purpose of the project,
- Its life cycle,
- Physical presence,
- Process(es),
- Policy context,
- Associated policies.

(Source: John Glasson and Riki Therivel, 2018)

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So, now moving on, we will see project development actions and then the project dimensions in a report you are required to give the project dimensions in detail. So, a project has many dimensions for what the project is been done, what will be the life cycle of the project 60 or 70 years 100 years or so, and then how what will be the physical presence of the project, will be the process involved, what will be the under which policy context which has been done, and what are the related policies with that, project.

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**The European EIA Directive requires an EIS to include:**

- a) A description of the location of the project;
- b) A description of the physical characteristics of the whole development;
- c) A description of the main characteristics of the operational phase of the project ;
- d) An estimate, by type and quantity, of expected residues and emissions.

(Source: John Glasson and Riki Therivel, 2018)

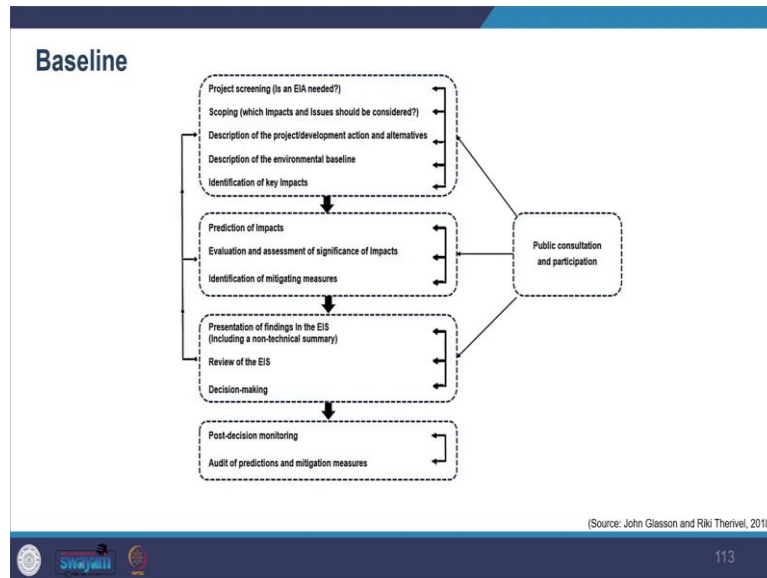
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So, there are directives and legislation, that tell what kind of descriptions have to be given for a particular project. So, the European EIA directive gives like, gives guidance on like, there should be a description of the location there should be a description of the physical characteristics, there should be a description of the main characteristic of the operational phase of the project. Then there should be estimates by type and quantity of expected residues and what kind of waste and emissions will be generated from the project.

So, that, all has to be given in the description of the project. In the Indian context, you have all these secretarial manuals, which give you details on how you have to provide the project descriptions. So, you

show various physical characteristics. Then you show socio-economic characteristics, which may include labor requirements, provision of other housing, direct services, flow of expenditure, and so on. And then you also need to look at how you are going to present this data in a very systematic manner and what information you will be able to gather. that, gather, and then communicate.

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### Environmental Baseline General Considerations

- Both the present and likely 'no project' future state of the environment, taking into account changes resulting from natural events and from other human activities.
- The population of a species of fish in a lake may already be declining before the proposed introduction of an industrial project on the lake shore.
- The period for the prediction of the future state of the environment should be comparable with the life of the proposed development;
- Spatial coverage will focus on the local, but may refer to the wider region and beyond for some environmental elements.
- Initial baseline studies may cover a wide range of environmental, social and economic variables, but comprehensive overviews can be wasteful of resources.

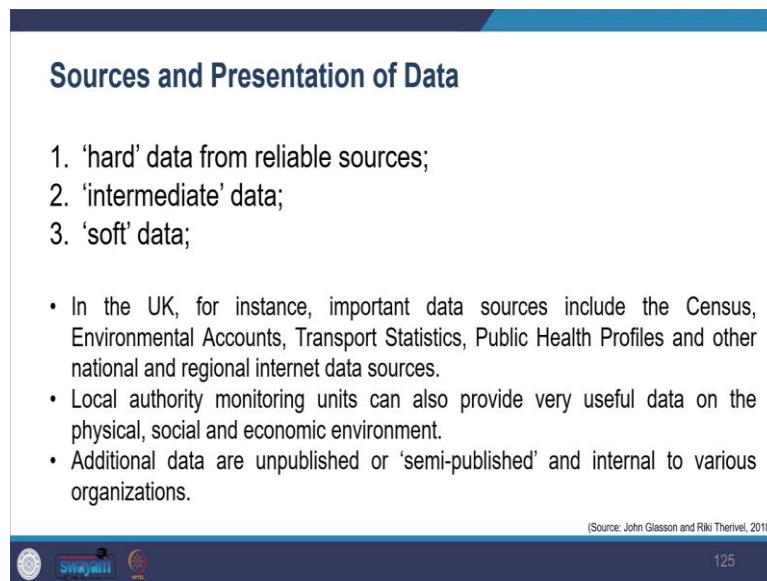
(Source: John Glasson and Riki Therivel, 2018)

Now, moving on to the baseline study. So, here in this particular segment, you have to establish an environmental baseline. So, you have general consideration and the baseline. So, here you can use both the present and likely no project future scenario also, so, you have to give the current environmental status currently and what will happen in the future with project or no project.

So, those kinds of information have to be given and you need to look like while you give that information like. for example, it is quite possible that, without your project also the environmental quality is degrading. So, you can give like what is the existing happening like what is happening with the current, what is the forestation status, what is the fish status in the lake, what is the water quality in the local environment, and so on. So, that can be given.

So, your initial study may cover a wide range of environmental, social, and economic variables. So, all those have to be taken care of. And you may also refer to all the sectoral manuals given by the MOEFCC. So, you can see that, what kind of baseline studies have to be covered. So,

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**Sources and Presentation of Data**

1. 'hard' data from reliable sources;
2. 'intermediate' data;
3. 'soft' data;

- In the UK, for instance, important data sources include the Census, Environmental Accounts, Transport Statistics, Public Health Profiles and other national and regional internet data sources.
- Local authority monitoring units can also provide very useful data on the physical, social and economic environment.
- Additional data are unpublished or 'semi-published' and internal to various organizations.

(Source: John Glasson and Riki Therivel, 2018)

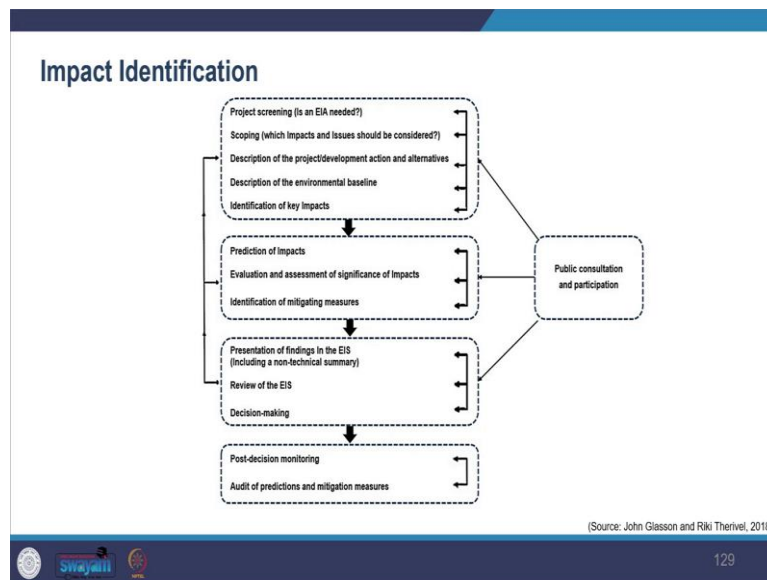
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When you would undertake this baseline study, you have a certain source of data. So, you have like secondary data or hard data which can be taken from the agencies and then you have soft data which you can do by the primary service and all. So, hard data is collected from secondary sources, and this should be much more reliable and easy, easy to communicate.

So, you have loads of information sources, like you can use sensors, you can have other environmental accounts, transport, statistics, public health profiles, all these can be used. And then the local authority may also provide a lot of information on this. And as a professional, you might have to present this data in a variety of ways.

So, you can have like all these range of data that, can be presented. Usually, you will see that, maps are used, which are not necessary, but maps are very well for communication. So, you can also use GIS, and Geographic Information System maps to communicate your baseline environmental status, and what would happen with or without the project. So, that was about the baseline, and we are going to in the impact section.

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### Impact Identification Aim:

- To ensure compliance with regulations;
- To provide a comprehensive coverage of a full range of impacts, including social, economic and physical;
- To distinguish between positive and negative, large and small, long-term and short term, reversible and irreversible impacts;
- To identify secondary, indirect and cumulative impacts as well as direct impacts;
- To distinguish between significant and insignificant impacts;
- To allow a comparison of alternative development proposals;
- To consider impacts within the constraints of an area's carrying capacity;
- To incorporate qualitative as well as quantitative information; to be easy and economical to use;
- To be unbiased and to give consistent results;
- To be of use in summarizing and presenting impacts in the EIS.

(Source: John Glasson and Riki Therivel, 2018)

### Methods Categories:

- Checklists,
- Matrices,
- Quantitative methods,
- Networks,
- Overlay maps.

(Source: John Glasson and Riki Therivel, 2018)

We are going to look at how to undertake those baseline studies. So, now looking at the impact identification. So, impact identification is like in the initial stage, you find out what kind of impact would happen in the project. So, you look at that, aspect. And then there are and with that, basic impact you would

like you would try to find out what is the positive impact and what is the negative impact and there are methods which are available to check the impact such as like the checklist methods, matrices, method quality, quantitative methods, network overlay maps, so you can hear just look at these like, we will cover them in detail later.

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### Part of a Questionnaire Checklist

No. Questions to be considered in scoping	Yes/No?	Which characteristics of the project environment could be affected and how?	Is the effect likely to be significant? Why?
7 Will the project lead to risks of contamination of land or water from releases of pollutants onto the ground or into sewers, surface waters, ground water, coastal waters or the sea?			
7.1 From handling, storage, use or spillage of hazardous or toxic materials?			
7.2 From discharge of sewage or other effluents (whether treated or untreated) to water or the land?			
7.3 By deposition of pollutants emitted to air, onto the land or into water?			
7.4 From any other sources?			
7.5 Is there a risk of long-term build-up of pollutants in the environment from these sources?			

Source: EC 2017b

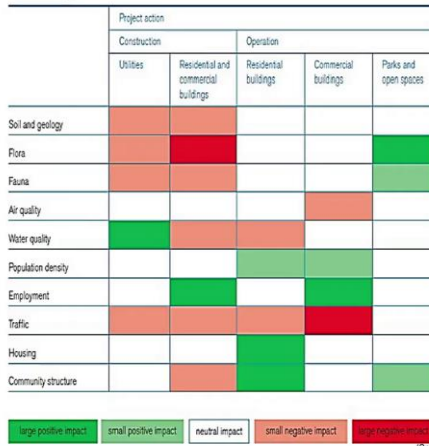
(Source: John Glasson and Riki Therivel, 2018)

### Example of a Simple Matrix

	Project action				
	Construction		Operation		
	Utilities	Residential and commercial buildings	Residential buildings	Commercial buildings	Parks and open spaces
Soil and geology	✓	✓			
Flora	✓	✓			✓
Fauna	✓	✓			✓
Air quality				✓	
Water quality	✓	✓	✓		
Population density			✓	✓	
Employment		✓		✓	
Traffic	✓	✓	✓	✓	
Housing			✓		
Community structure		✓	✓		✓

(Source: John Glasson and Riki Therivel, 2018)

**Example of a Magnitude Matrix**

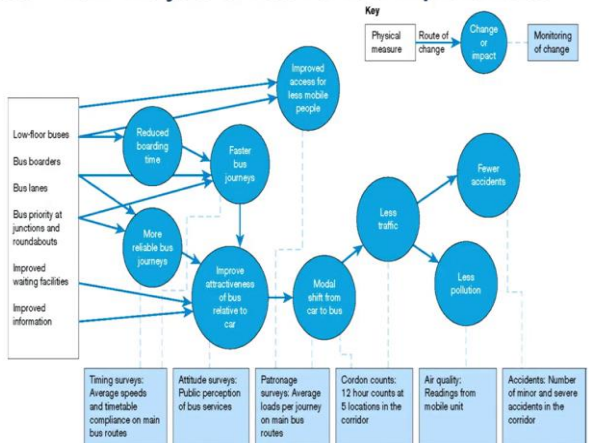


(Source: John Glasston and Riki Therivel, 2018)

But then they can be simple checklists, which help you to understand what kind of like to just to see whether those impacts will happen or not. And then you have matrices to matrix to see and to communicate what kind of impact you are going to see at the initial stage.

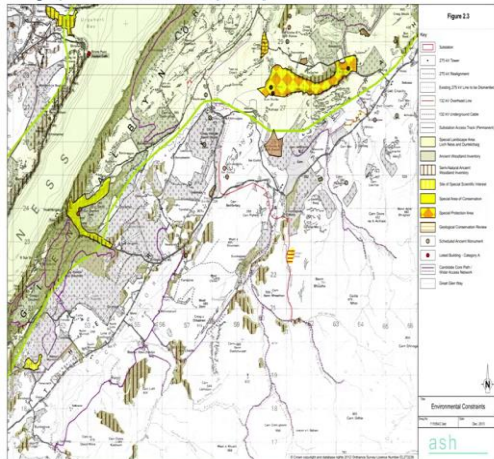
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**Causal Chain Analysis for Bus Corridor Improvements**



(Source: John Glasston and Riki Therivel, 2018)

**Overlay (or Constraints) Maps**



(Source: John Glasston and Riki Therivel, 2018)

Then you also have network and causal change and chain analysis which can be undertaken, you can look at the diagram here. And then you can have overlay maps over the GIS. So, you can see the maps here. So, you need to carefully choose different methods and you can use a combination of methods for impact assessments.

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**Summary**

- 1 Synthesized the EIA Process
  - Setting up a management process for the EIA activity.
  - Screening
  - Scoping
  - Baseline Studies
  - Impact Identification

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So, to summarize, that is all for this session. To, summarize, in this session, we looked at the initial stage of the EIA process and we looked at the management aspect and then we looked at the screening aspects how we took care of the scoping and baseline studies, and then eventually how the impact identification was done. So, that was the coverage of this particular session.


(Refer Slide Time: 39:41)

**References**


- 1 John Glasson and Riki Therivel (2018). Introduction to Environmental Impact Assessment; 5th edition; <https://lcn.loc.gov/2017010184>

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## Suggested Watch and Read






[https://www.youtube.com/watch?v=bcvbC4NHKXs&ab\\_channel=IITRoorkeeJuly2018](https://www.youtube.com/watch?v=bcvbC4NHKXs&ab_channel=IITRoorkeeJuly2018)




[https://www.youtube.com/watch?v=3PS3UZ-7T4&ab\\_channel=NetherlandsCommissionforEnvironmentalAssessment%28NCEA%29](https://www.youtube.com/watch?v=3PS3UZ-7T4&ab_channel=NetherlandsCommissionforEnvironmentalAssessment%28NCEA%29)







[https://www.youtube.com/watch?v=dJa8LMGSSs&ab\\_channel=CAGChennai](https://www.youtube.com/watch?v=dJa8LMGSSs&ab_channel=CAGChennai)







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Please feel free to ask Questions.  
Let us know about any Concerns you have .  
Do share your Opinions, Experiences and Suggestions.  
Looking forward to Interacting and Co-learning with you while exploring EIA.






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This was our key reference for this and there are suggested watch and read and all the sectorial manuals also you can see for the purpose. Please feel free to ask questions. Let us know about any concerns you have to share your opinions, experiences, and stations looking forward to interacting and Co-learning with you while exploring EIA. Thank you