**Environmental Impact Assessment**
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**Lecture – 56**
**Widening the Scope: Strategic Environmental Assessment**

Welcome to the course Environmental Impact Assessment in today's session we are going to look at Strategic Environmental Assessments which is also called SEA. With this, we will also see how the scope of EIA, the environmental assessment is now widening and there is also not only looking at project-specific impact but also looking at other concerns which we talked about in our first week of the class. So, we look at the SEA, Strategic Environmental Assessments.

So, here we see that EIA continues to widen with time. So, we saw a lot of things, like we looked at different, we even looked at the cumulative impact assessment, then we looked at different kind of impacts what are the environmental problems we are dealing with and then you also must be thinking about a lot of aspects which we I have not been able to integrate with the EIA process or within the domain of EIA. So, how that we take care of it?

So, we see that with that understanding, we have started expanding and widening the scope of EIA, and that is what we look at in the Strategic Environmental Assessment. So, this Strategic Environmental Assessment we see that it is a very stretched form of EIA which stretches vertically as well as horizontally. So, it takes care of not only the projects but the policies, plans, and programs in a very broader way.

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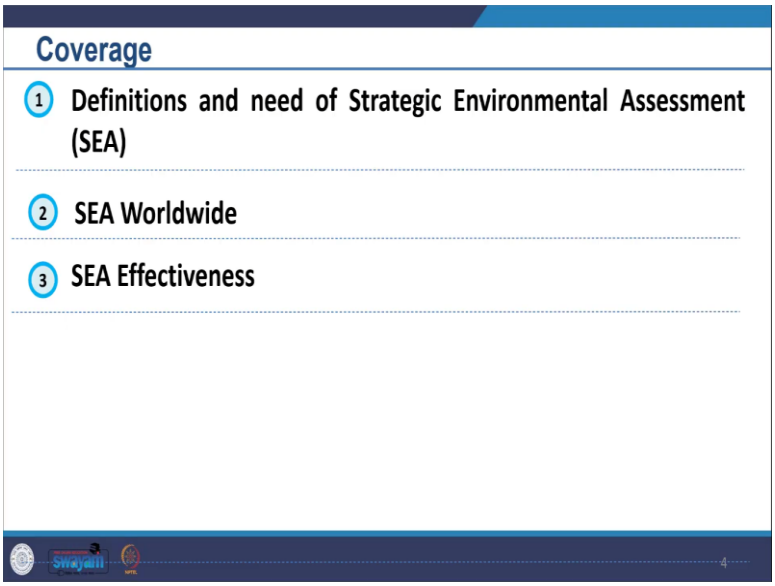


So, today we will learn about this and our coverage will include definitions and the need for strategic environmental assessments. Then we will look at what is happening worldwide and how effective it is and then we will walk through one of the examples to understand what the report looks like, strategic environmental assessment report looks like.

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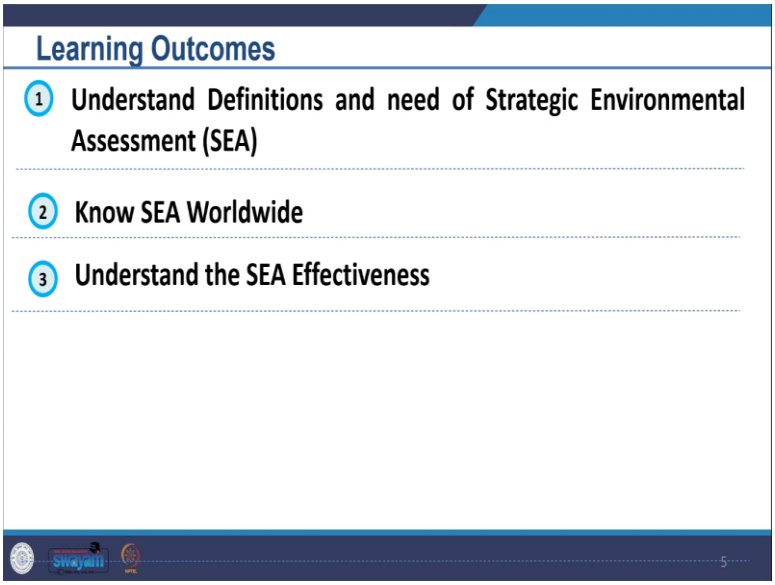


So, the expected learning outcome is that once you finish the session you can define SEA, Strategic Environmental Assessments, and also discuss why it is needed. And then you can also discuss on the what is the practice of SEA worldwide and how effective is SEA. Then you would be able to explain with the help of the example.

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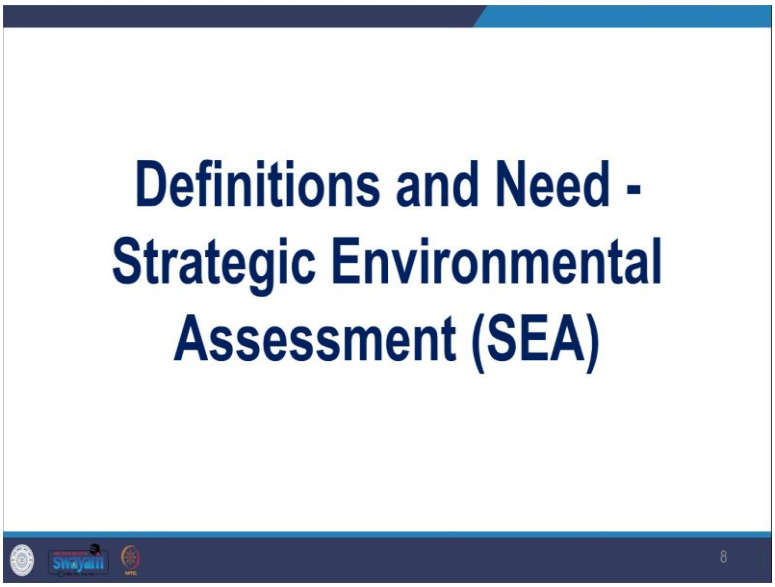


So, looking at SEA, Strategic Environmental Assessments was initiated in the USA in 1970 and then it was an initiative and as an extension of EIA, which is, project-based EIA. So, in Europe, certain changes have taken place. So, you see that not very strongly comes up but there have been changes to incorporate and accommodate SEA, China also we see they have past specific legislation in 2009 related to SEA.

We see that it is increasing and across the countries, it has been like it is finding its way to implementation, even in India we see that there is a lot of debate and discussion on the implementation of SEA. So, now moving on, we will look at the definitions and need of strategic environmental assessments.

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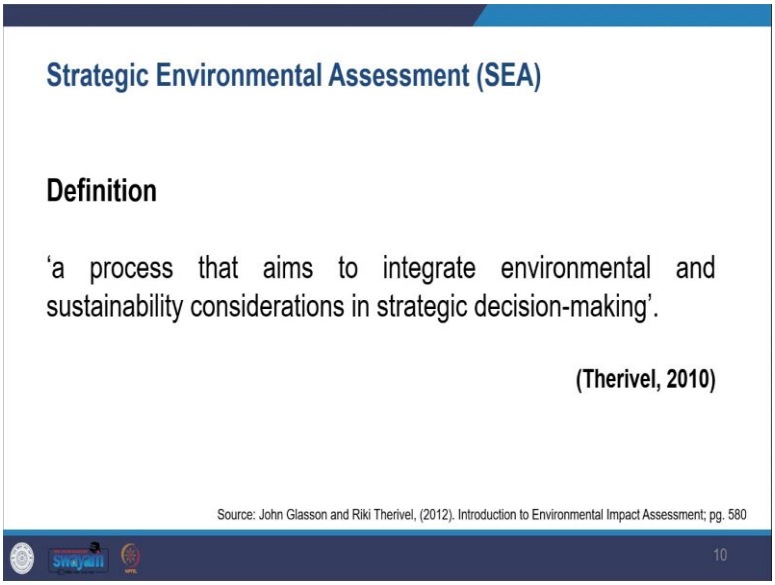


So, a definition wise, SEA can be defined as a process that aims to integrate environmental and sustainability considerations. So, it brings environmental as well as sustainability considerations and strategic decision-making. So, if you see that in EIA, that also helps in decision-making. It is also seen as a part of sustainability considerations. But it looks at individual project-wise decision-making. But here it helps in the strategic decision-making well at a larger scale what kind of decisions have to be made, whether what should be allowed, how much should be allowed, and so on.

This SEA can be said to be EIA for policies, plans, and programs. It is just not looking at the project but it is also looking at the policy on a larger scale, at a higher scale. It is looking at the plans, what kind of plans you have to develop, what range of projects and what are your programs to do what kind of activities. So, SEA takes care of all these policies, plans, and programs.

So, for this SEA, the approach is different, because you can see that it changes at the hierarchy level, it also changes when it comes to the project because you are making a complete plan, and you are deciding on the implications of policies and programs. So, the approach changes a lot because it deals with a very large scale and has a longer time frame and since it has a longer time frame, it has greater uncertainties which are involved in the process and the timeline.

And if we see SEA as specifically a process. So, it is an ongoing process where things keep on refining and we develop understanding. So, this is a process and it is said to be taking place parallelly with the plan-making process. So, wherever you are developing drawing plans, it is taken parallelly to that particular process and then it keeps on providing information, environmental information at all the relevant stages. So, what kind of programs have to come, what kind of projects have to come, and then it keeps on feeding information for that.

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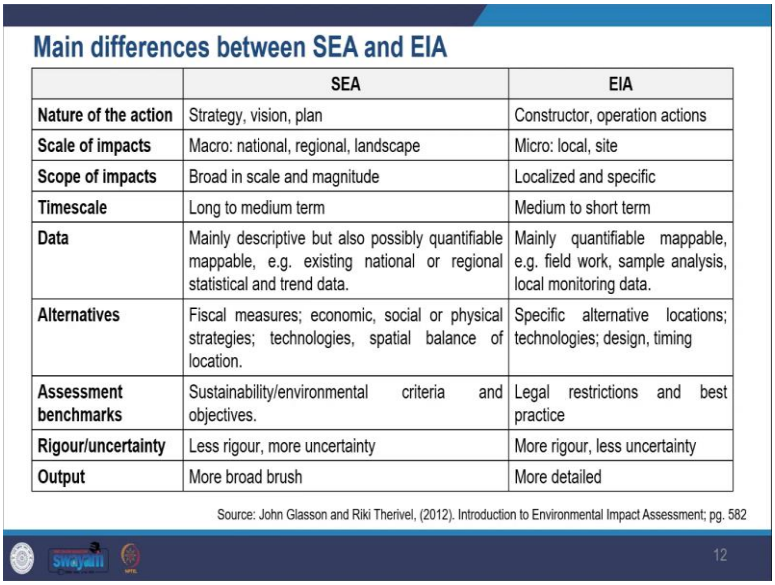


So, looking at, and trying to understand the key difference between SEA and EIA, we see that SEA the nature, by nature itself, it is a strategy, vision, and plan. So, it is not a strategy it is just a framework. It is a kind of guiding document, whereas EIA is the construction and operational actions. It is very firm and solid things rather than strategies vision, and plans.

And then, when you look at the scale of impact this in for SEA the scale of impact, it is a very large scale, macro scale, where you have national, regional, landscape. Whereas if you look at EIA, it is at a micro-scale which is local and site-specific. Likewise, you see the scope of impact, and what kind of impact it might have. It might it will be broad in scale and magnitude.

So, the outcomes, when you undertake this process, the impacts which you will identify will be broader in scale and magnitude, whereas in EIA, it will be very local and very specific, pinpointed areas you would see. And then, considering the time scale, in both the cases in SEA and EIA, you see it has long to medium term, whereas EIA is medium to short term. If you look at the data requirement for SEA and EIA, so, you have mainly SEA would be descriptive but possibly quantifiable and you would be using a lot of maps of the national or regional, statistical, or trend data.

Whereas in EIA, it would be mainly quantifiable. So, in SEA, it is mostly descriptive, but in EIA, mostly it will be quantifiable and it would be mappable as well, and it would involve a lot of fieldwork, sample analysis, you might be collecting a lot of data, and local monitoring data. So, in SEA, you would be looking at larger regional statistics and trend data, whereas in that you might be looking at a lot of local patterns, what is happening, and very specific information.

Likewise looking at the in terms of alternators, what will happen in SEA is like you would be looking at the fiscal measures, what economic alternatives you would look at, social or physical strategies, technologies, spatial balance of location, where to put you would have larger choices.

Whereas in EIA, you would have very specific alternatives in terms of locations, technology, design, and timing, because you will be only deciding it for the project, and more or less you might have designed the

project. So, in the case of SEA, assessment-wise, it is more aligned with sustainability, environmental criteria, and objectives.

Whereas in EIA, it would be legal restrictions and it will follow the best practice. And if you look at the rigor or uncertainty with SEA, so, you will see that it is less rigorous more uncertainties there, and EIA is very rigorous and there is less uncertainty. So, you can say things with more certainty. The outputs SEA is broader in all its approaches because it deals with strategy, vision, and plan. Whereas in EIA, it is much more detailed. So, that is how we see the major difference between SEA and EIA.

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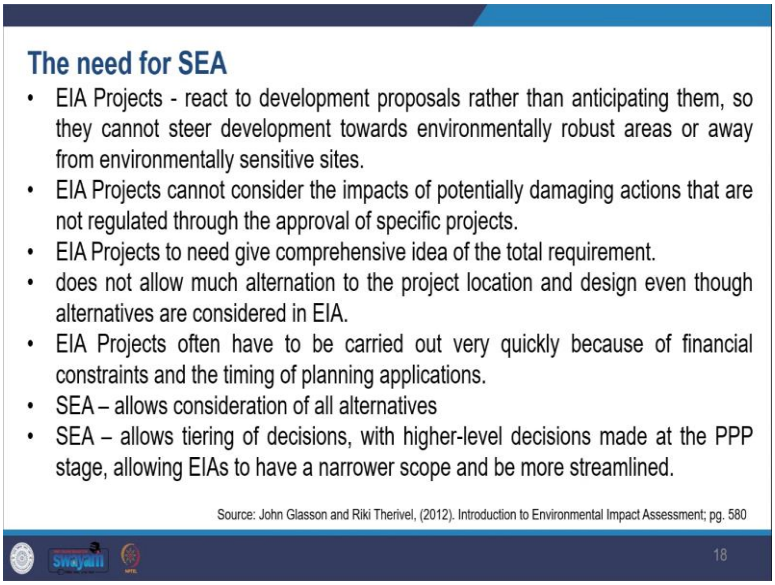


And now looking at why we need SEA, so, if you see that EIA we have been looking at all the components of EIA. So, EIA if you see his reaction. So, as you have seen we have already worked out the project description and we are starting everything after that.

So, EIA is said to be a reaction to the development proposal. So, you have already prepared the proposal and now you are looking at what impact it will have, how, what is happening, and how we can reduce that. So, it is said to be a reaction rather than anticipating them and then beforehand taking care of it.

And then because you are doing it project-wise, there are likely chances that you might not be covering things that are also equally damaging. But, they do not come in the domain of EIA. So, you saw in the Indian context, how we deal with the list, and checklist and then how in the different domains we deal with things, in different contexts how do we deal with things.

So, there are a lot of things that do not come in the domain of EIA, which in the first week we had seen like the environmental status, drivers of environment, climate change all those like really lets a lot of things pass by which might have significant environmental impact.

So, project EIA gives you project-by-project information, but it is SEA, that gives you a comprehensive idea about what kind of total requirement is there. And what is the carrying capacity of that area and then you can

deal with it. So, that is the limitation of EIA. So, that SEA can take care of it. So, you would also see that we discussed that EIA also does not allow much of alternatives to be considered.

It might have three maximum alternatives, which you might consider. But when you are dealing with SEA that time you can have a range of alternatives that can be considered at the initial phase of the project. You will also see that time constraints EIA is undertaken in a very quick manner because you have constraints of how much money can be invested as well as there is a time frame which you need to follow, because of the resources and money and because of the requirement.

And then even public participation can be limited in EIA compared to what can be done in SEA. So, SEA, if you see allows consideration of all the alternatives, maximum alternatives. SEA allows also tiering of decisions you can have decisions at different levels with higher level decisions made for the policy, programs, and plans, and then that can allow EIA's to have a narrow scope.

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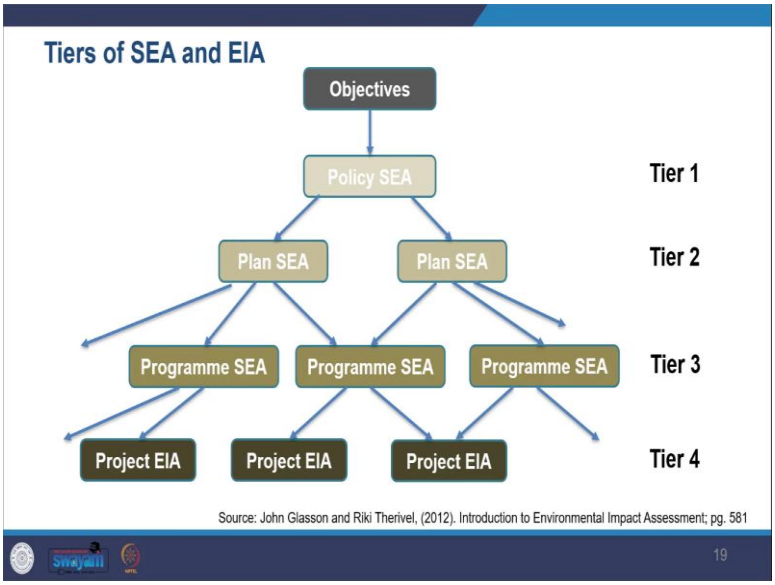


So, in the diagram, you can see, that you have policy SEA, you have plan SEA, you have plan SEA and then you have program SEA, program SEA, and this, and then when you have projects within those programs EIA can take care of it. So, at every level because of SEA also you can evaluate the environmental impact at different hierarchies as well as you can mitigate those things at different levels. So, because of that complementing nature, it is also allowing a very narrow and specific operation of EIA.

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So, now looking at SEA, and how it has been adopted worldwide, we see that it is in its usage adaptation is increasing worldwide. You see that it is been adopted in the USA, initiated, and adopted in the USA. The European Union and China have well-established SEA regulations and you also see Canada also requires it for their decision-making. South Africa also has guidance on it. And then you also have Hong Kong and other places you can see.

And many countries are implementing it, going on adopting it at various levels. So, now moving on and seeing how we deal with it at the, what do we do at the scoping stage with SEA, so, we have been seeing it for EIA, so, we will see what we do for scoping what kind of questions we look at for SEA.

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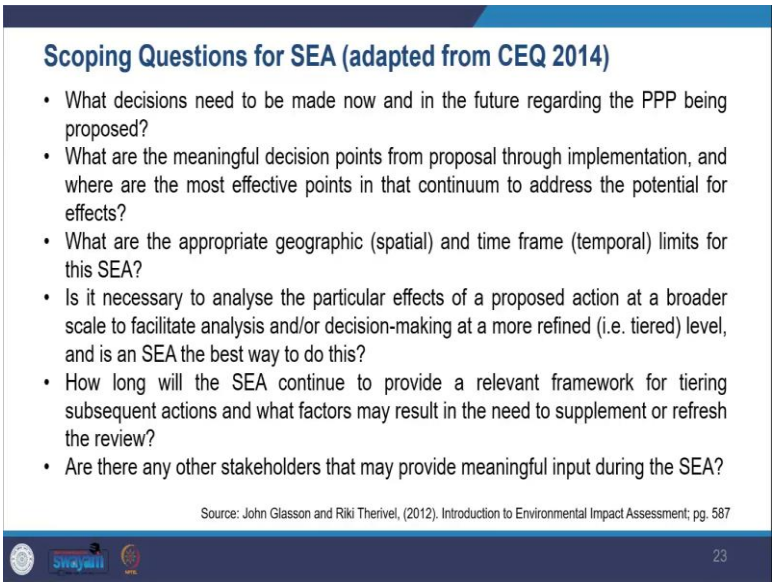


So, we look at what decisions need to be made now at the scoping stage and in the future regarding the policies, plans, and programs, which have been proposed. What are the meaningful decisions that have to be taken? And then what are the appropriate geographical locations where things have to come up? Is it necessary to analyze the particular effects of the proposed action at a broader scale? Do you need to do it or not? And how long SEA will continue?

The time frame of it. And are there any other stakeholders that may provide meaningful input? So, what stakeholders are to be considered, and how many? And identification of the key stakeholders. So, that is about the key questions that you might look at in the scoping stage of SEA.

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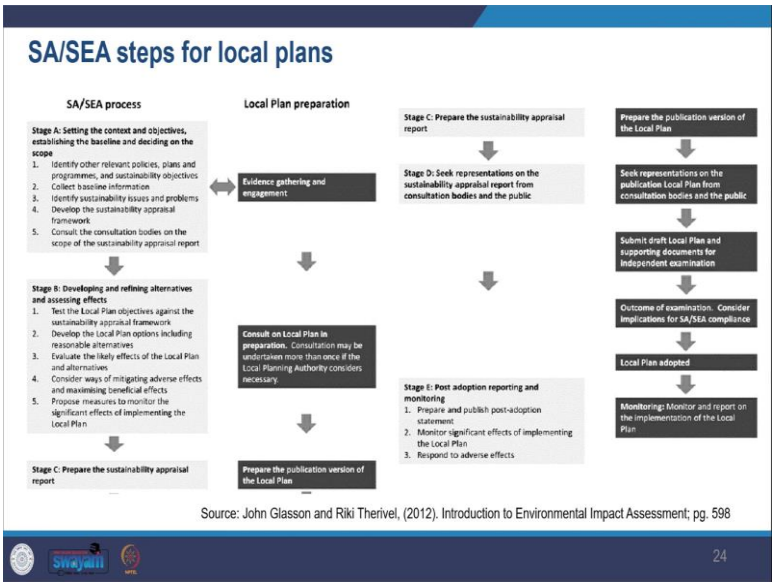


Now looking at the SEA process. So, if you look at it, there are certain steps you can see here and then how while you are doing the program, planning, and policy development, it can help you. So, you see that SEA process the stage one, setting the context and objective for what you are doing.

And then, you can have evidence gathering and engagement from the local plan preparation, whatever is being planned there then you can transfer that here. Then stage B deals with developing and refining alternatives and assessing effects. So, what choices do you have in terms of alternatives? Then, stage C deals with preparing the sustainability appraisal report and stage D deals with the representation of the sustainability appraisal report from public consultation and then post-adaptation reporting and monitoring.

So, similarly, you can see how the monitoring and reporting part is also taken care of in the SEA process. So, you have here all that is going to happen in your area. So, how do you keep on informing that, and how does that relate with SEA how does it link at the very beginning stage here? So, you can see that. So, you see that a post-SEA project level is also needed like the mitigation itself.

So, here we can see one example, a lot of examples which we have given you in the suggested read and watch. So, I have taken one example to help you see what it looks like, and what scale it works on.

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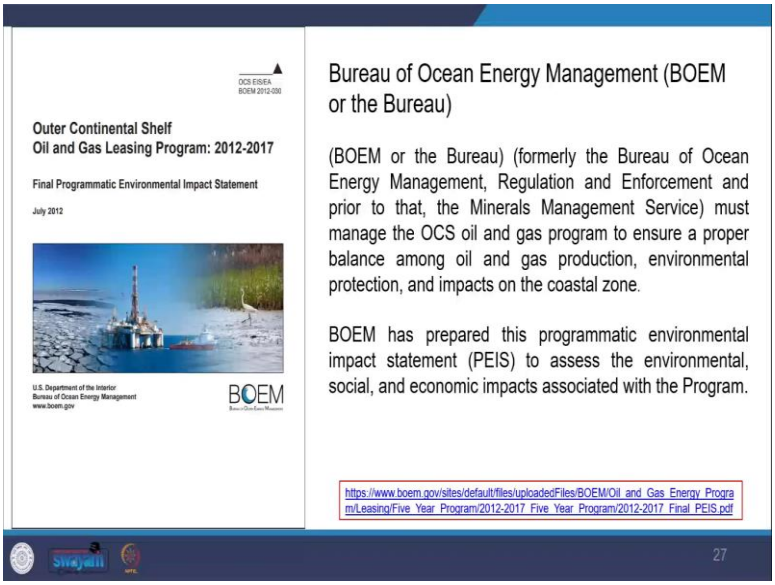


So, we have taken here the outer continental shelf oil and gas leasing program. So, see, you see here that SEA is done for the program, not just for any particular projects. You have seen up. So, here we are looking at the example which is done for the program. So, it is an oil and gas leasing program.

It is by the Bureau of Ocean Energy Management BOEM. We can call it bureau here. This bureau is managing the oil and gas program and it is required to ensure proper balance among oil and gas production in the area and the complete region. And then it is also required to ensure environmental protection and ensure impacts on the coastal zone. So, the bureau prepared this Programmatic Environmental Impact as Statement PEIS, Programmatic Environmental Impact Statement.

So, you see because it is connected with the program to assess the environmental, social, and economic impact associated with the program. So, what? So, now they are not going to look for just one project, but they are going to look for a complete program that will involve several projects together.

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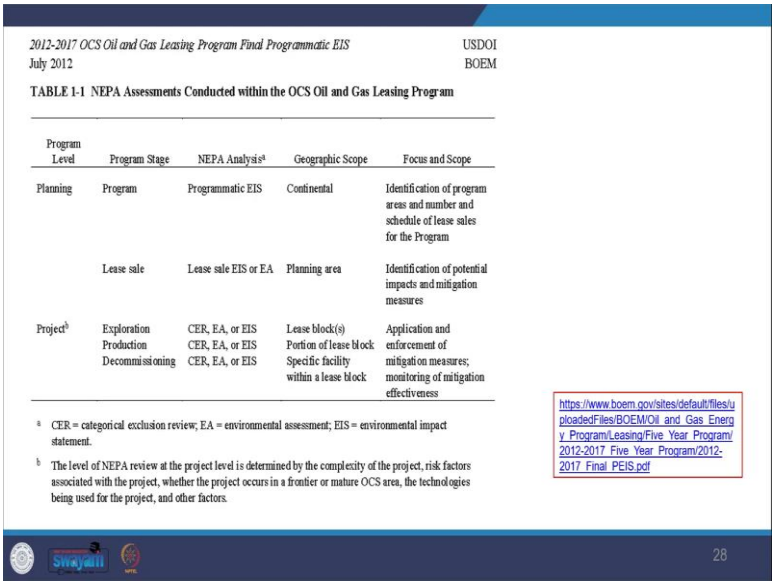

So, here we can see how they are looking at, what kind of assessment will be taken care of within the program. So, you can see the program level, our planning level, and project, and the program, stage program. Then they would also have certain leasing, then within the project, they would be undertaking exploration, they would be taking production, and they would be undertaking decommissioning of this.

So, for the planning, the geographical scope of this, now you see what you have seen in EIA and now you see the geographical scope of this is the continental. And then the lease sale where they would be doing that would be a planning area and within that, they would have their projects.

So, they would have specific areas where the projects would come up. And then the focus and scope of that would be the identification of the program areas and number and schedule of lease sales for the program, identification of potential impacts and mitigation measures, and then application and enforcement of mitigation measures throughout the project. So, here you see that these all things will be part of this program which will happen.

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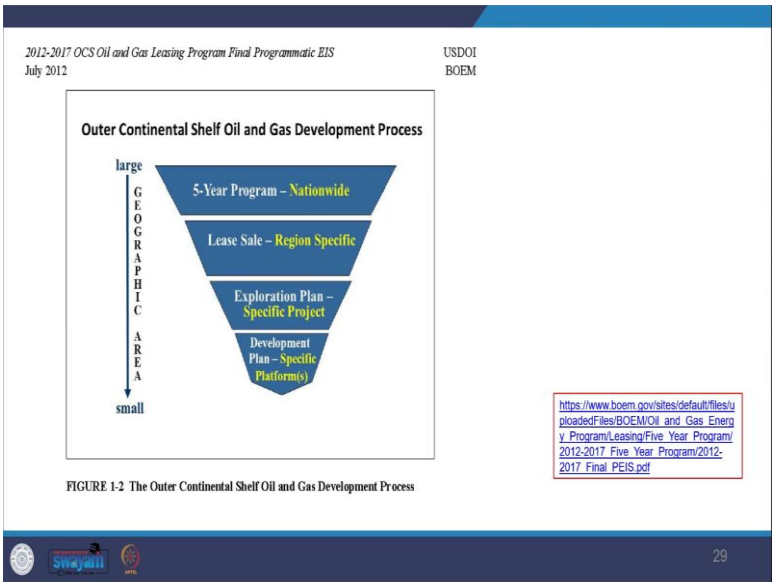

FIGURE 1-2 The Outer Continental Shelf Oil and Gas Development Process

And then you see how what they are going to look at is a 5-year program nationwide. And within that, they would be giving lease sales within the region-specific and they would be doing exploration, project-specific, and development plans for the specific platform they would be doing. So, all this will be analyzed for its environmental impact. So, they identified certain major issues for consideration, for preparing this program, environmental impact statement.

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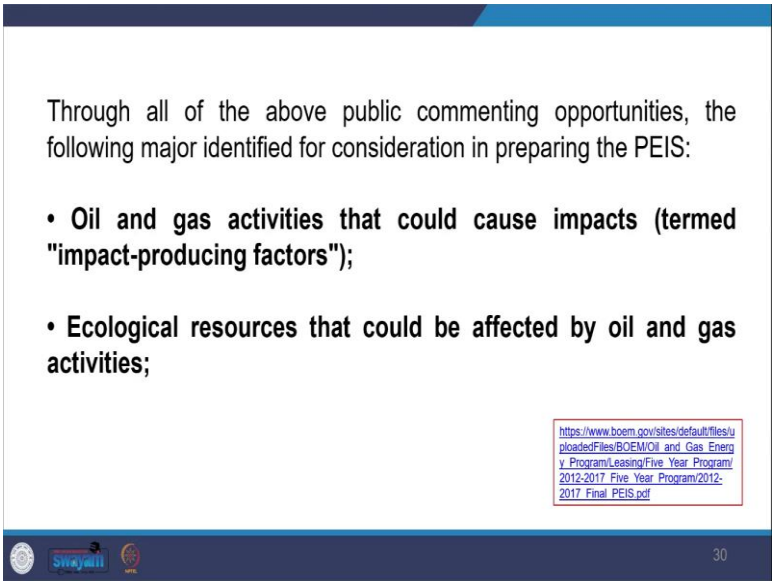


So, you see like oil and gas activities. Then they had ecological resources that could be affected by oil and gas activities.

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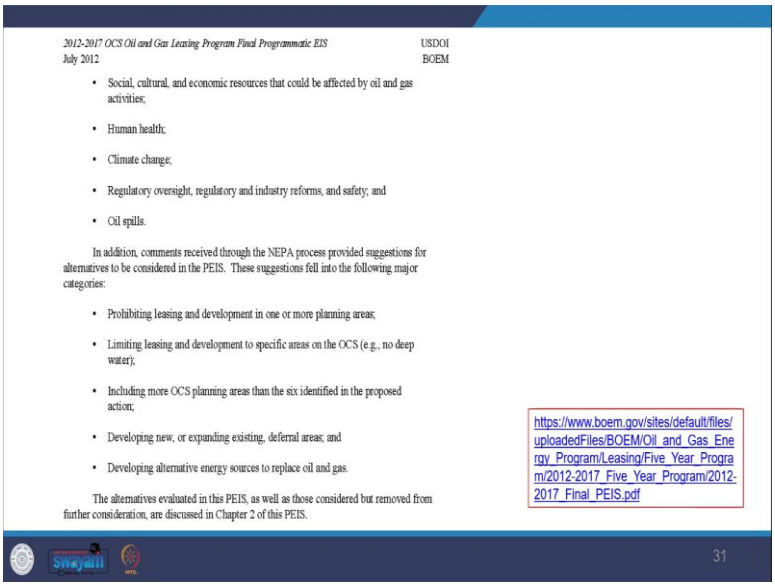


Then they identified socio-cultural and economic resources, human health, climate change, regulatory oversight, oil spills, prohibiting leasing, and limiting leasing including more planning areas developing. So, these all areas came through public commenting opportunities. So, larger public participation. So, through that, they got these impact areas.

Then they looked into the analytical issues where they had identified how they were going to, how much geographical area they were going to take, and the geographical scope of their impact statement. Then what kind of factors they would be considering here? And then what kind of resource on which they would be evaluating the effects.

So, all those were considered in the analytical issues and then they had to consider the geographical scope. So, they had 26 planning areas. So, now you look at 26 planning areas and 6 of these have been identified for leasing considerations and so, they have all the numbers here. So, you look at the scale of it.

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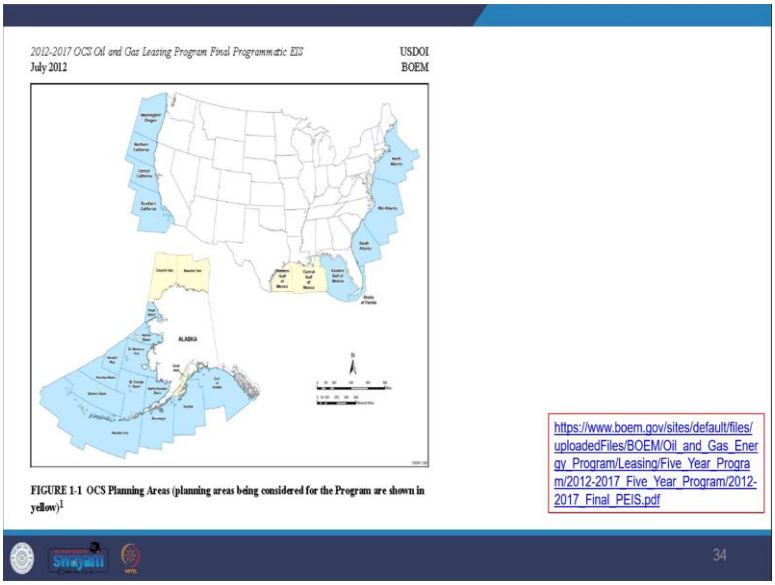


So, here when we see the planning area map here. So, you can see all the yellow areas that will be for their assessment purpose, and within this, their scope is for the preparation of these impact statements. They would only base it on the current and available reliable information, scientific information. And they would use this for they would be looking at direct impact, indirect impact as well as cumulative impact within this SEA.

Then they would be looking at the proposed action as well as the alternators that they have. So, like you, we read that it has more alternatives and this is also taken for all the stages and then here we are seeing that it is also considering direct, indirect, and cumulative impact as well.

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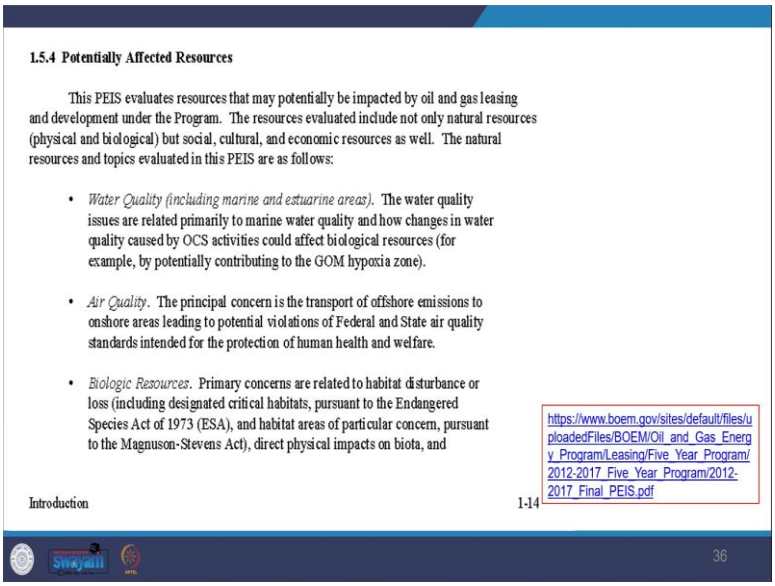


So, they identified potentially affected resources here. So, from this example, you can see, water quality, air quality, and biological resources. For this also reporter has also given you the link, so, you can access this report as well and see. It is a 2000-plus page document. So, you use huge documents. We are just browsing some of the very selective pages to see what is, what it looks like, and how it is different from EIA.

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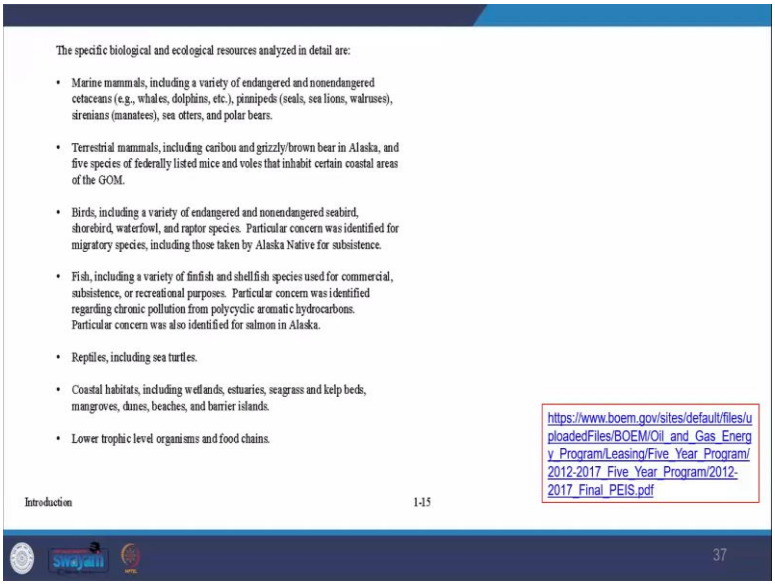


So, you can look at how they have identified specific biological and ecological resources, which were analyzed in detail.

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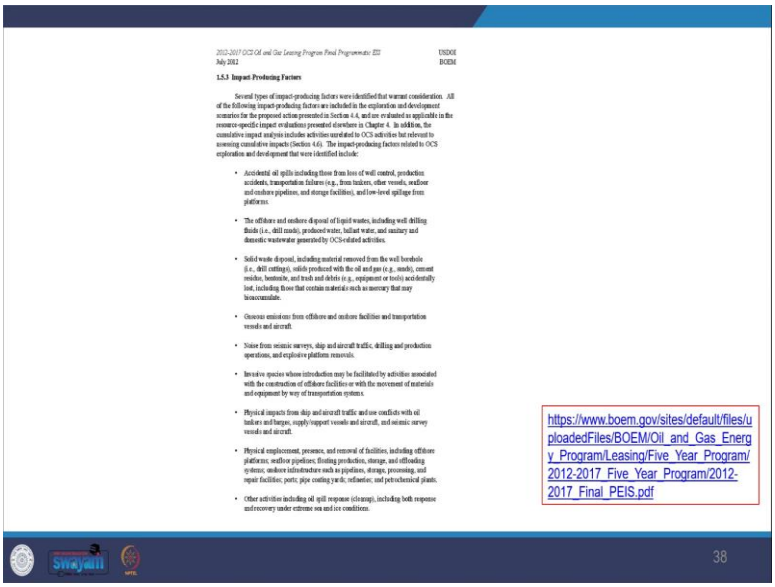


Then they looked into impact-producing factors like accidental oil spills, offshore and onshore disposal of liquid waste, solid waste disposal, gaseous emissions, and so on.

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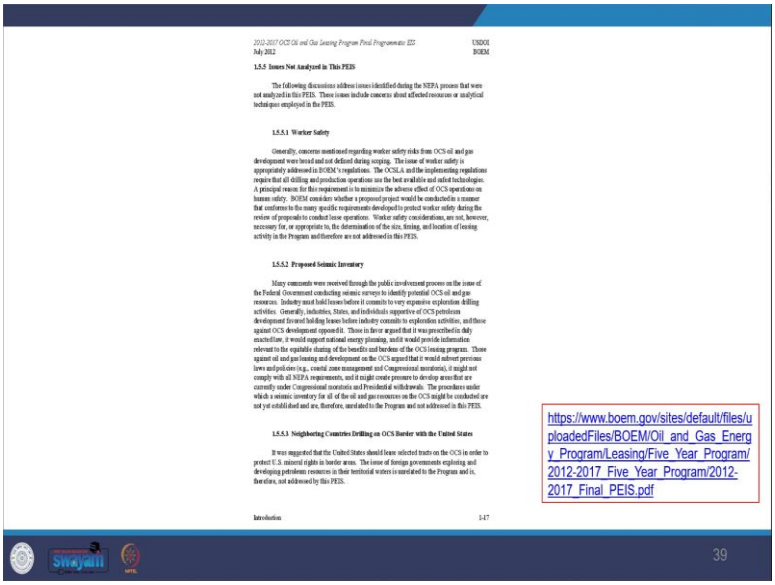


And then which were the issues that were not analyzed in this particular impact statement are also given here, like worker safety, seismic inventory, and so on. So, you see that is how it does not become part of this.

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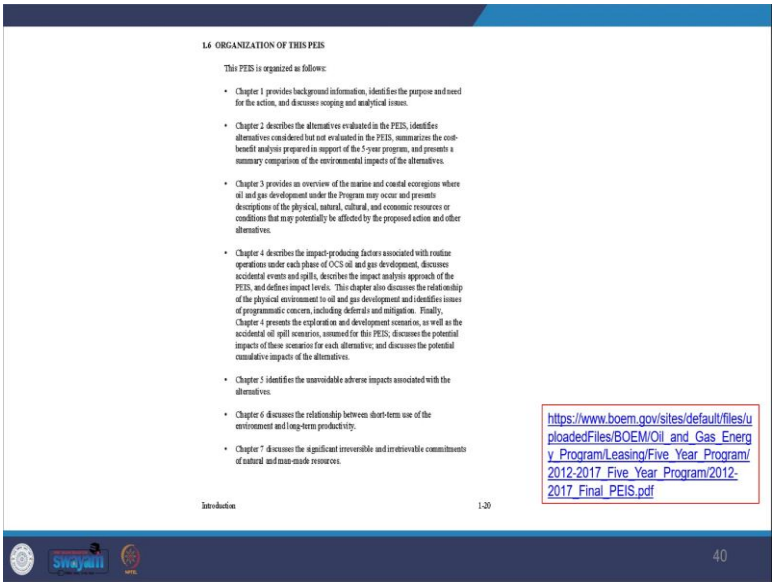


And then how the entire report is structured. So, if you look at the structure of the reports, we have seen theoretically how it is structured. So, you are seeing by the example. We see that Chapter 1 provides the background information. So, we have seen that in EIA also, we provide project information. So, even this provides similar background information.

Then we see Chapter 2 describes alternatives evaluated for this impact statement. So, all the alternatives are considered. Then Chapter 3 provides an overview of marine and coastal ecoregions. So, what are the different regions, and then what are the physical, natural, cultural, and economic resources or conditions that can be potentially affected by the proposed action?

Then you also have Chapter 4 here, which describes impact-producing factors. So, which are the factors that are producing an impact on routine operations? So, that has been undertaken here and then it discusses the relationship of the physical environment to oil and gas development. Then it provides exploration and development scenarios as well as the accident of oil spill scenarios for whatever different assumptions they have made in the impact statement.

So, in Chapter 5, you see that they identify unavoidable adverse impacts associated with alternatives. Then in Chapter 6, they discuss the relationship between short-term use of the environment and long-term productivity. Chapter 7 discussed the significant irreversible, irritable commitment of natural and man-made resources. So, you see a lot of similarities in the logical structuring of SEA with EIA.

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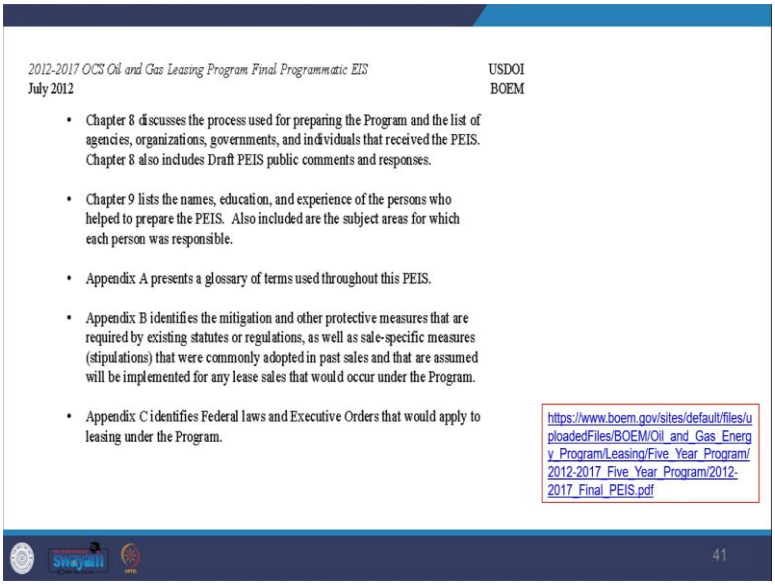


And Chapter 8, you see they discuss the process used for preparing the program and the list of agencies, and organizations that are there, except the names, list the names, education experiences of persons who help prepare the impact statements in Chapter 9. And then all the attachments, all the details which are there have been provided. So, you see how intensive the report is.

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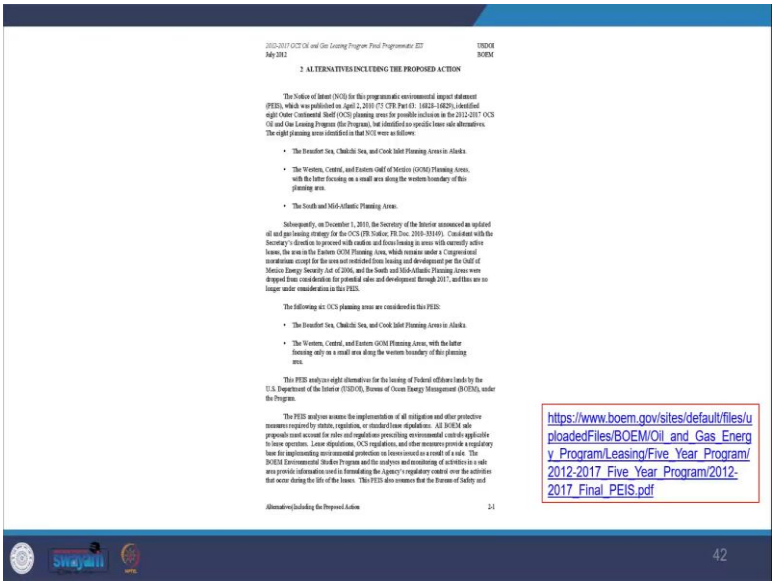


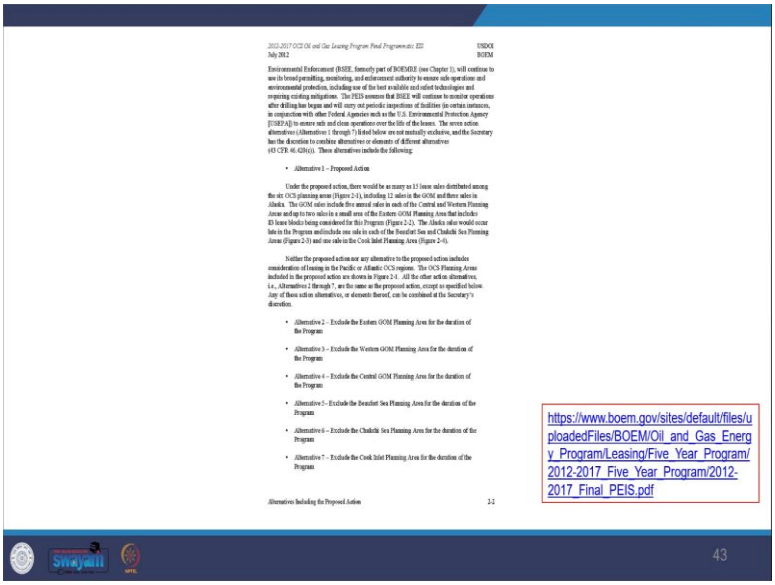


So, here you can see they are discussing the alternatives included in the proposed actions, you see, they had like 8 planning areas. And then they had 8 alternatives and the eighth alternative if you see, is the null situation where they do nothing. So, here also the number of alternatives is large, as we said compared to EIA and SEA. In SEA you have larger alternatives which are discussed here.

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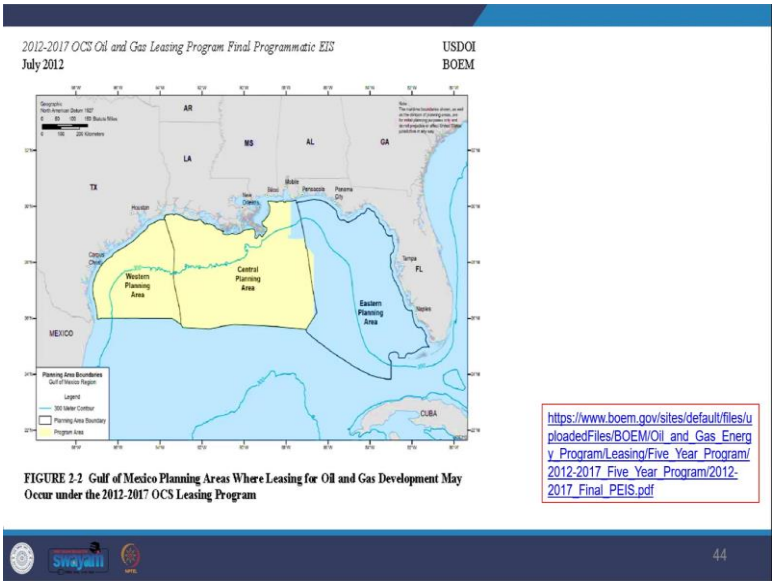


FIGURE 2-2 Gulf of Mexico Planning Areas Where Leasing for Oil and Gas Development May Occur under the 2012-2017 OCS Leasing Program

So, you see here in the figure, so, we will just skim through all the kinds of analysis, not all, very selective analysis which they have done.

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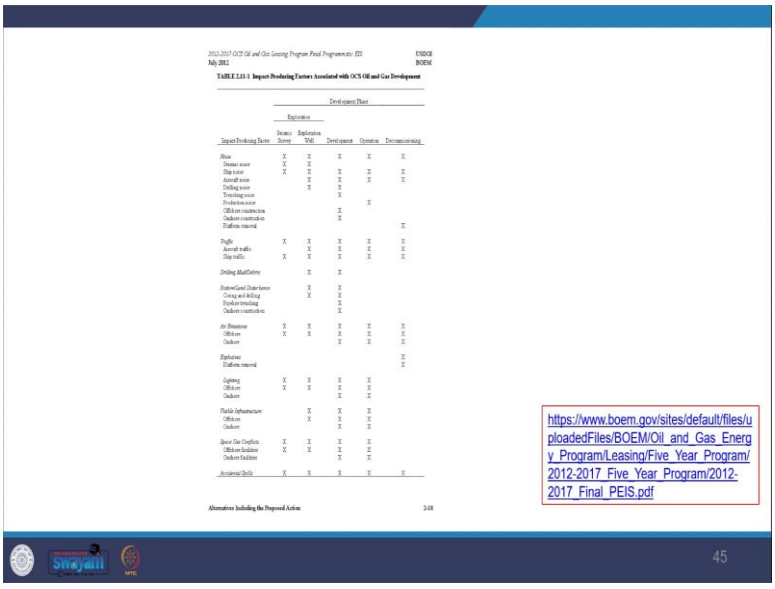


So, you can see the Gulf of Mexico planning area where the leasing will happen and then you see the impact-producing factors that they have identified like noise, traffic, drilling, bottomland disturbance, air emissions, explosives, visible infrastructure, and space use. So, you have now already studied all those domains. So, now they are culminating that here, and then they are also doing it at the SEA level.

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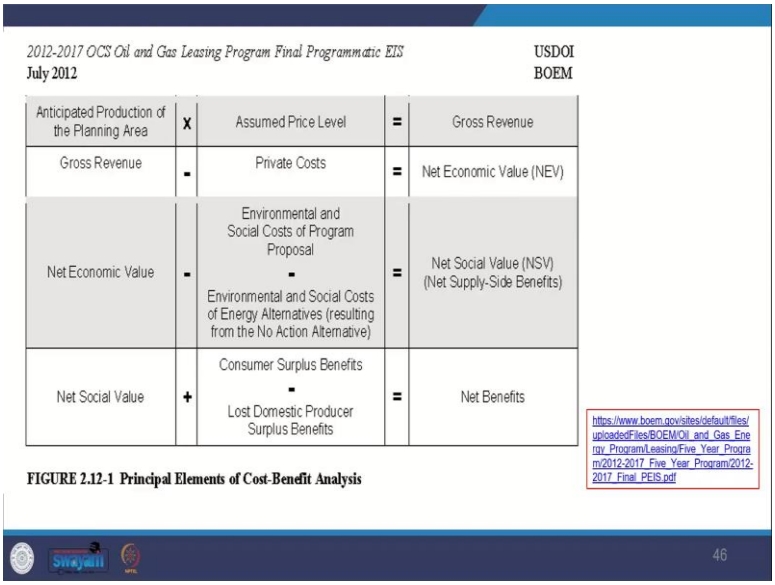


And then you can see different development phases here during exploration development operation and decommissioning. So, for all that they have prepared this matrix which you can see here. So, that is how very very selective things I am showing here. So, here they are also undertaking the cost-benefit analysis.

This principle they have followed like what is the anticipated production of the planning area, what is the revenue and what is the cost which will be incurred, and then what will be the gross revenue because of that. So, based on that they have prepared here like all program areas and then what kind of cost will be their, environmental, social cost and then what will be the net benefit. So, they have a fair idea about how positive or negative their project is.

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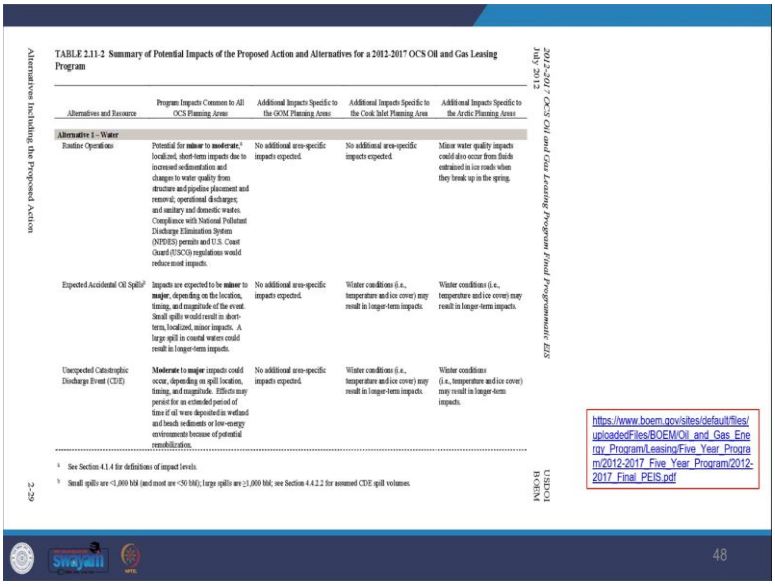


So, in the table here, you can see the potential impacts of projects' proposed actions and alternatives. So, because of the proposed program, what is going to happen? And based on all the alternatives, so, they are talking about eight alternatives. So, here you can see alternative 1, how they are looking at the water. Because of the routine operation expected accidental oil spills, unexpected catastrophic discharge events, and then program impacts common to all planning areas. So, and then what kind of impact it might have on specific areas, the areas which they have identified.

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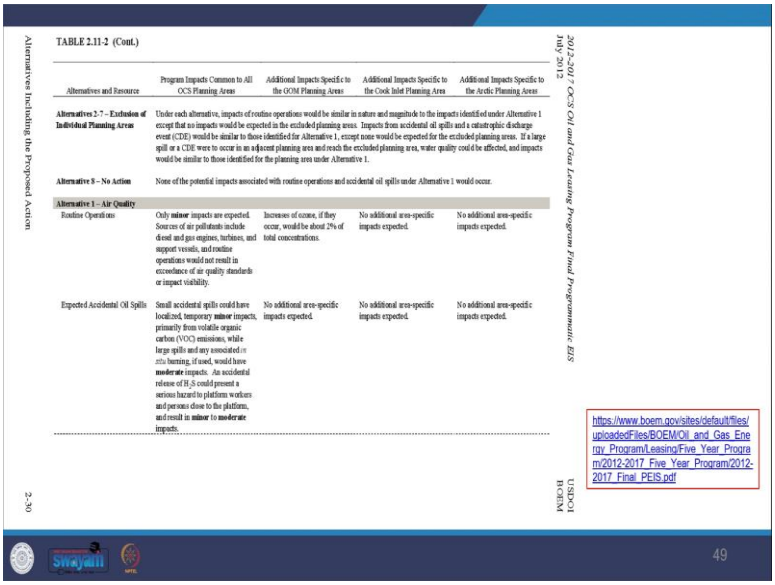


So, with that all for alternative 1, for water, they have looked at alternative 1, air quality, and so on, all the aspects of the factors they have identified. So, they are going to look for all the alternatives for all the factors here. So, you think about how intensive the report is.

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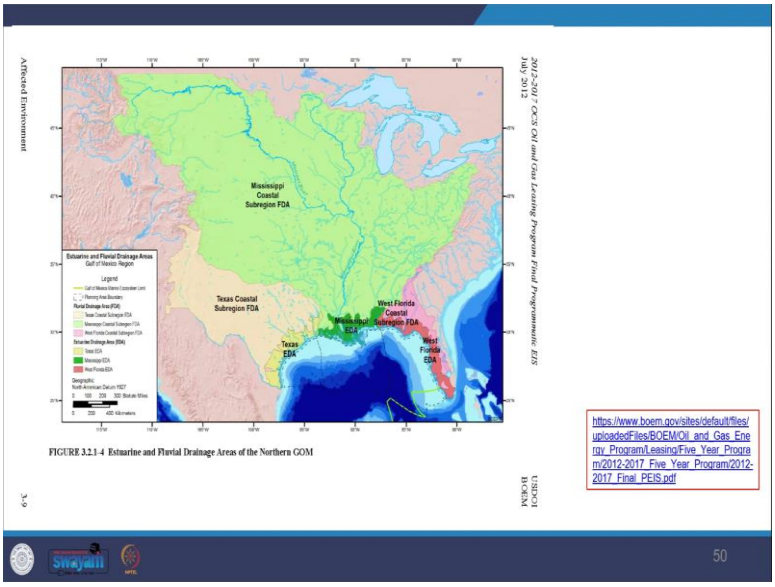


So, I am going to skip that. And then you look at here, what kind of maps they are making. So, you saw that it is more descriptive and then mappable. So, you look at all the maps and tables they have prepared. So, you can see estuarine and fluvial drainage areas of the northern Gulf of Mexico region. So, you can see here, how they have prepared. You can look at the legend as well. You can see all the ecoregions they have identified in the Gulf of Mexico.

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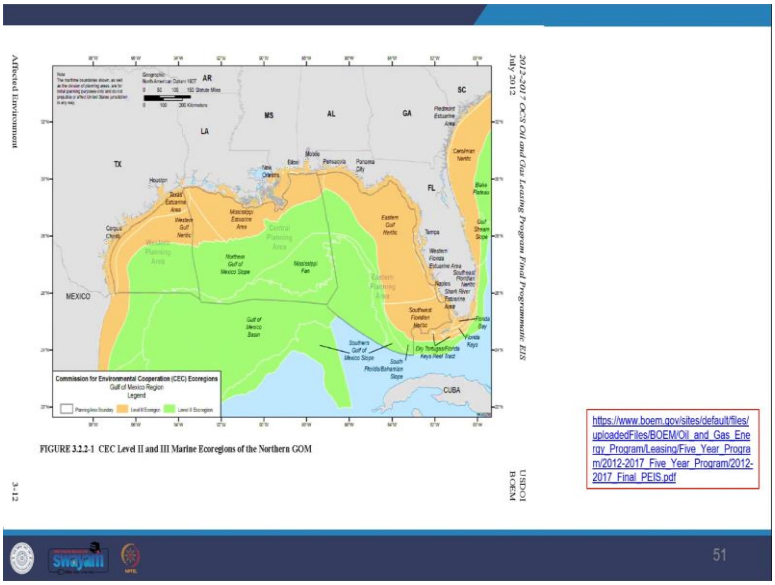


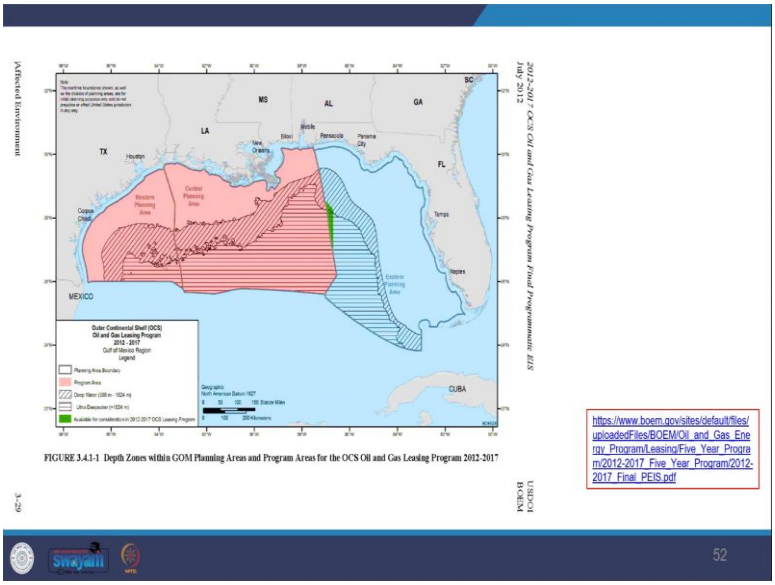


Then you can see the program area they have identified and, the depth zone they have studied here.

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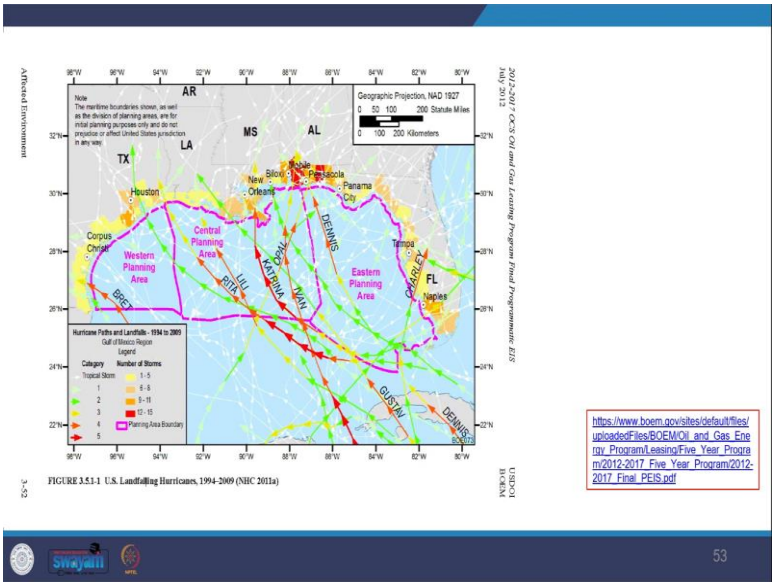


Then you can see the hurricane and landfalling possibilities here. And then the frequency of what they are looking at.

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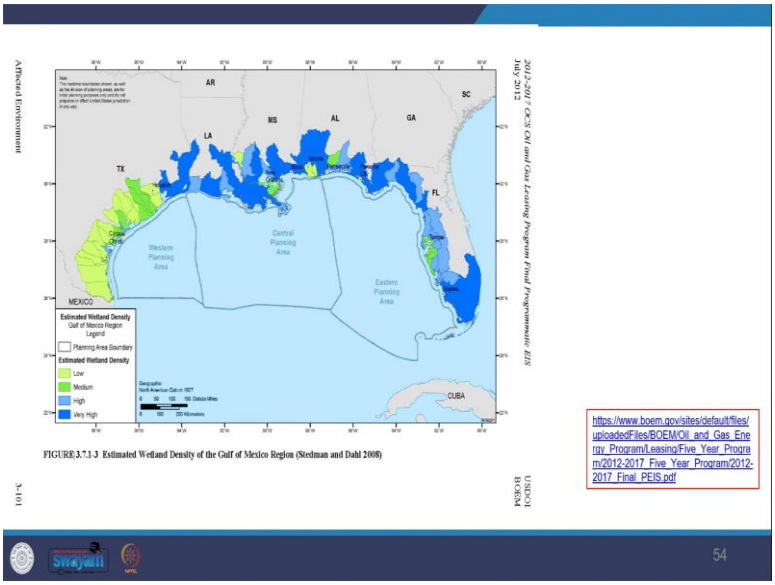


And then you can look at the estimated wetland density of the Gulf of Mexico region here. So, what kind of wetland density is here that has been estimated?

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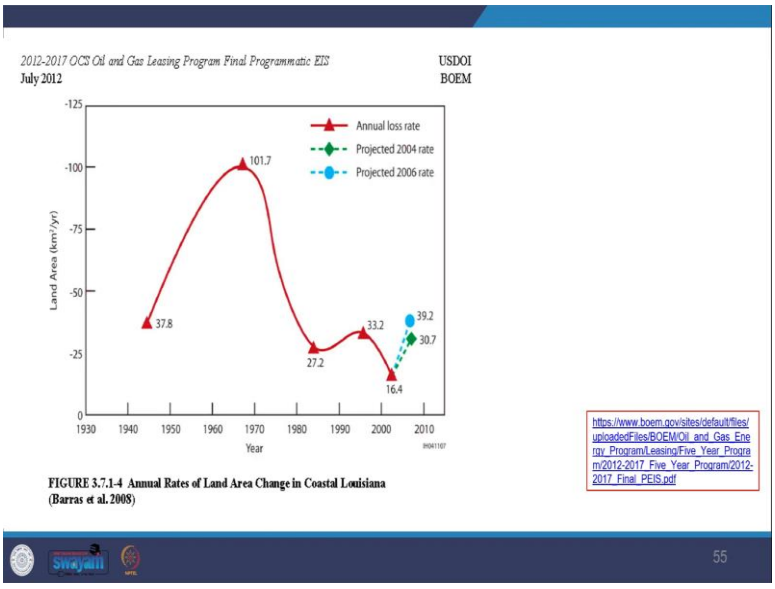


You can look at the annual rate of land area change in coastal Louisiana and what is happening. So, they are taking a very collective assessment of the entire area concerning the program they are dealing with, where they are going to have several projects within five years.

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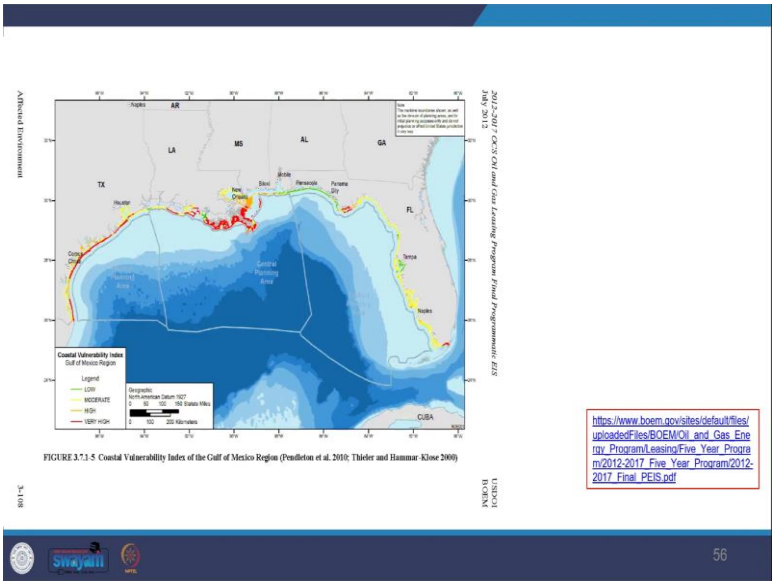


So, they are looking at the coastal vulnerability index of the Gulf of Mexico. So, see how big is the region.

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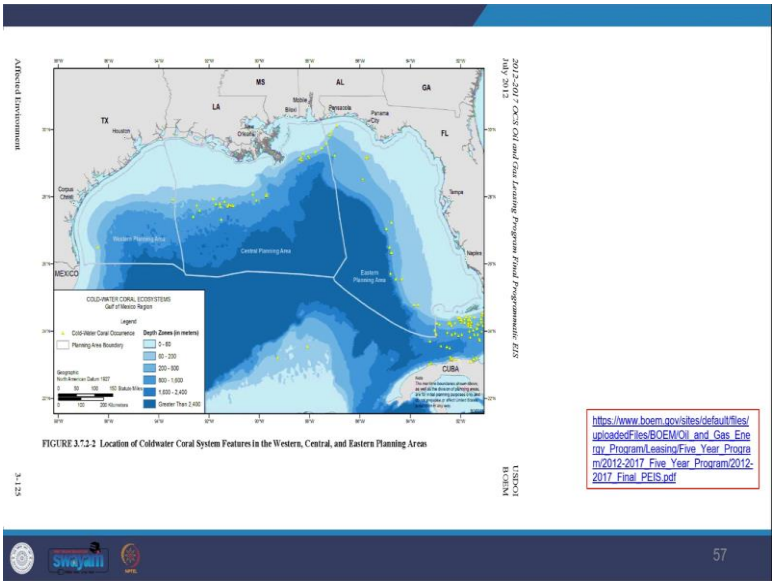


And then the location of the cold-water coral system features. So, look at the complexity that is there.

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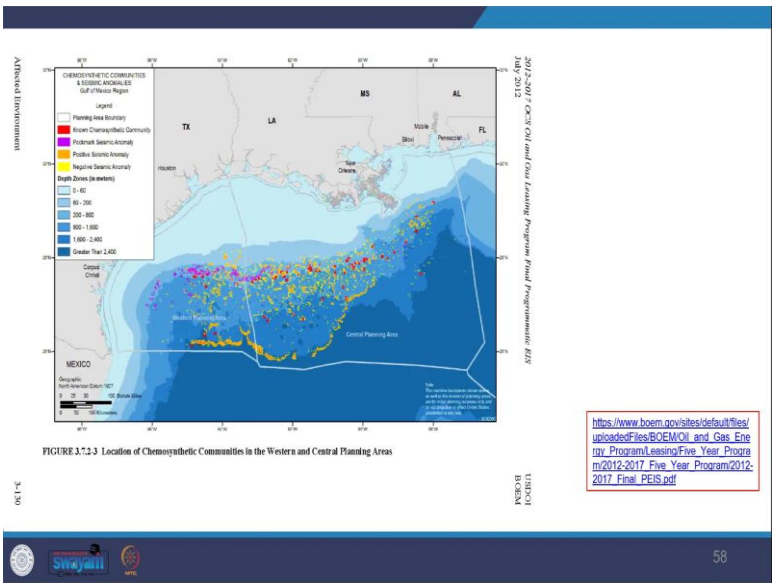

And then chemosynthetic communities which are there.

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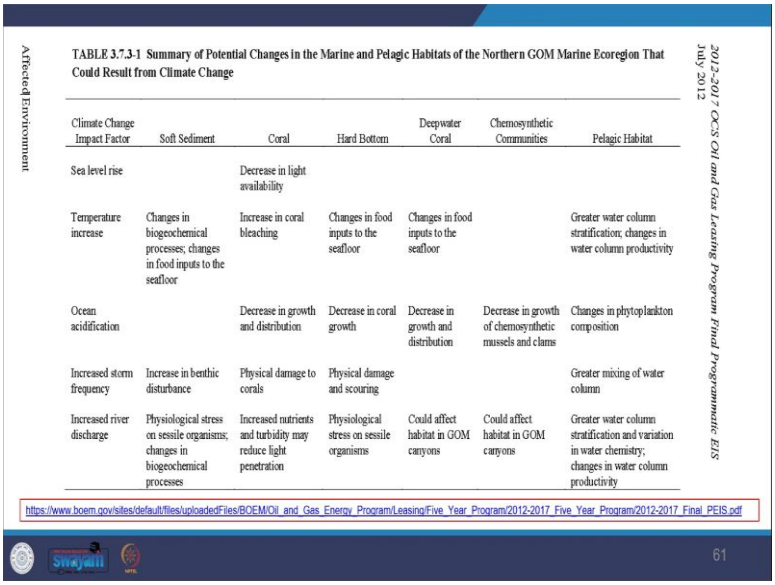


So, here you can see the potential changes in marine and pelagic habitats of the northern Gulf of Mexico or marine ecoregion that could result from climate change as well. So, they have also taken care of the climate change aspect here.

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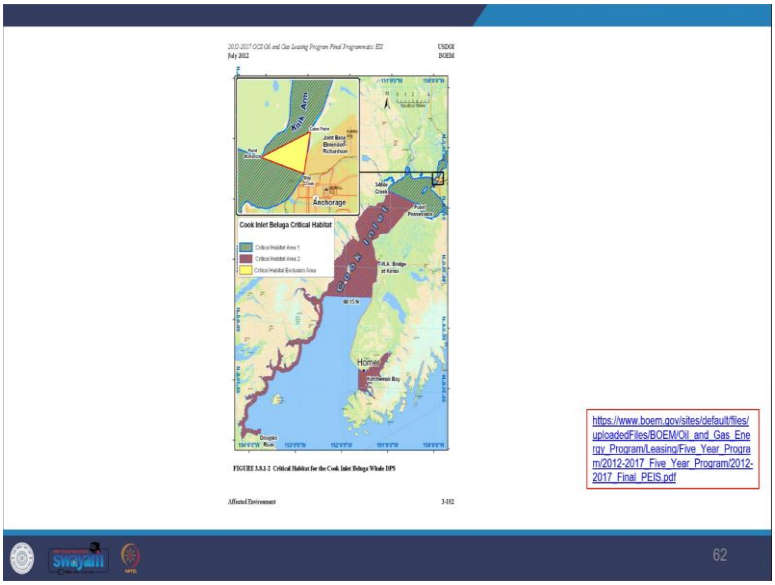


Then you can also see critical habitat from one of the areas here, what they have identified and mapped.

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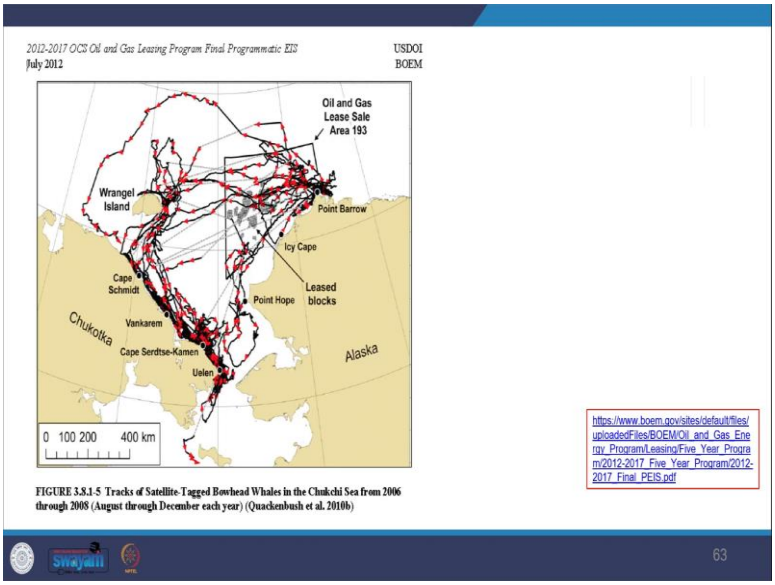


And then how the bowhead whales, their tracking has been done in the area. So, you see through these examples, like through this particular example, the scale of how SEA deals with. So, a royal town planning institute has also given advice and technical notes on how to undertake SEA. Then we see that China has relatively implemented, though it has adopted it later it has implemented SEA through the legislative framework and then has created a lot of examples here. So, they have also published regulations and guidelines China has done that.

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And based on that, it needs three types of plans are required in SEA in China. So, you see category A plans where you have land use plans. Then you have category B. Special plans for industries. And then category C guidance plan for category B plans those which establish development strategies for special plans.

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So, now looking at the SEA effectiveness, how effective it is. So, it said that SEA, its effectiveness like EIA's effectiveness can be considered in different ways. So, it is initially SEA had been very challenging and then also not having legal support, which has also led to a lot of its in terms of its effectiveness has led to slow exceptions of that.

But, now, there has been increasing emphasis on SEA and it is just because it is very important to have a wider understanding of what is happening in an area and what kind of broad programs, policies, and plans can bring that kind of change here. So, wherever the plans are made and if they are robust plans and then have been identified, all aspects are assessed, then it leads to a good development of robust plans and then they are not challenged.

So, they help you to attain sustainability and it helps you to even make decisions it can also streamline EIA projects, and EIA assessments as well. So, politically also it helps you to assess which aspects are important or not important. It also helps you to identify the social, and societal issues very well and you can look at the larger context.

And it is also evidence-based. And then it allows you to integrate not just the physical component, and social component, but policy, program, and plan components all together and it makes SEA very effective. So, now we see that SEA has spread and evolved rapidly in the past decade and it has continued to increase and it is seen as if more emphasis is given on SEA or the integrated approach with SEA and EIA.

So, you see now how EIA, where we started from the entire environmental status, we saw the range of problems which were there and EIA could solve a considerable amount of it. But, then it could not handle some of the aspects. So, how widening it also allows you to take care of environmental issues in a comprehensive manner. So, we see that that, that is seen as a future of EIA in a very integrated manner. So, that is all that we saw with the example of SEA and the conceptual understanding of SEA. We are also looking at it as a future for the environmental impact assessment.

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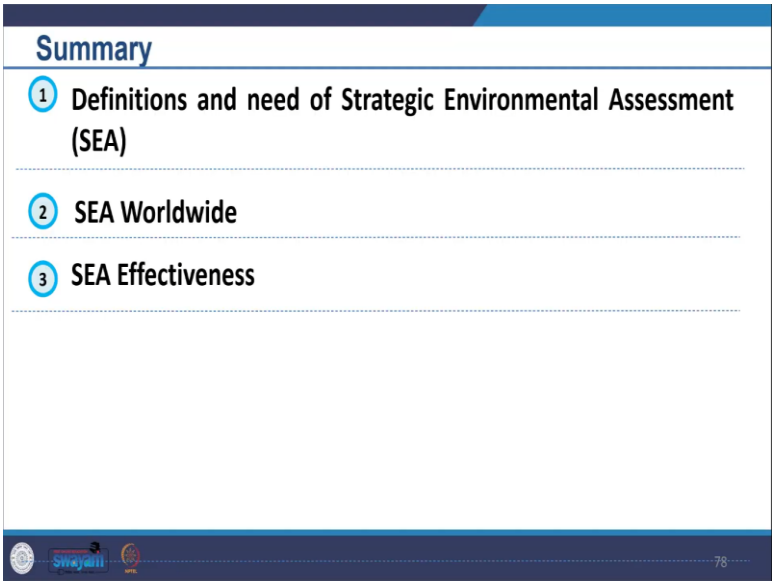


So, summarizing what we studied today. We looked at the definitions and why we need SEA. We looked at what kind of trend is happening worldwide and what about its effectiveness. Then we looked at and walked through one of the examples of SEA and we saw the huge document the kind of approach is taken and how it is different from EIA.

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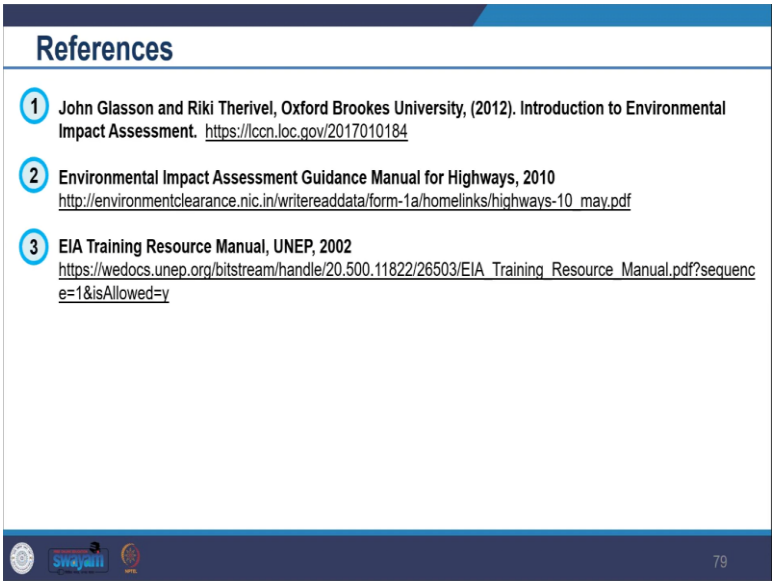


So, that is all for today. These are the key references that are used for this particular session.

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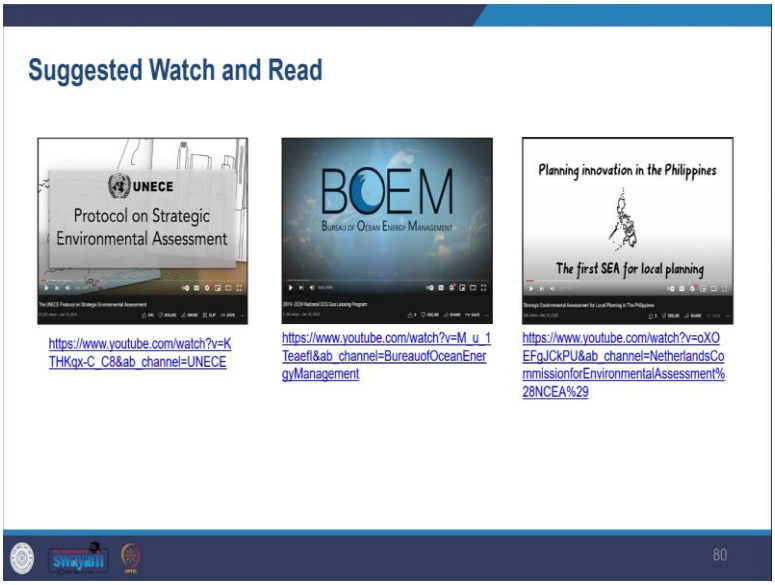


These are the suggested watch and reads, as our coverage is very limited and there are a lot of examples which you can see and a lot of issues which you can understand about it.

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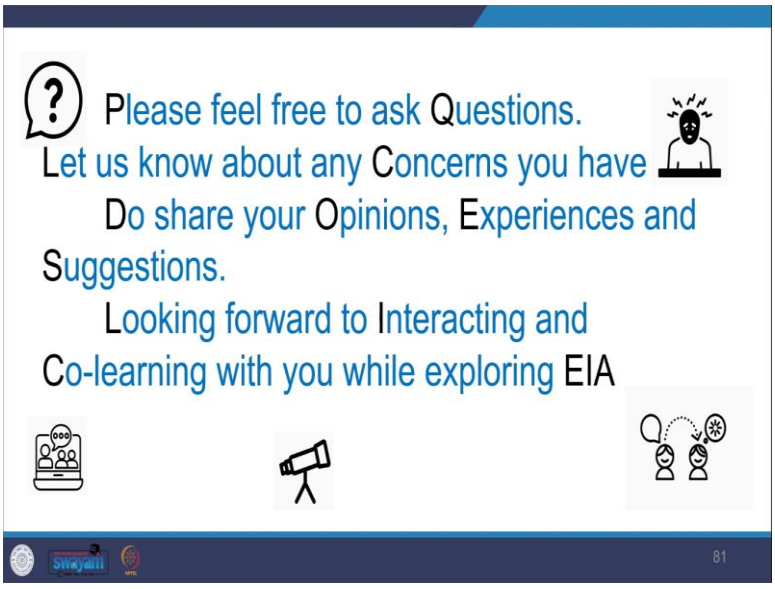


So, that is it for the session for winding up. Please, feel free to ask questions. Let us know about any concerns you have. Do share your opinions, experiences, and suggestions. Looking forward to interacting and co-learning with you while exploring EIA. Thank you.