

Environmental Impact Assessment
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Lecture 18

EIA- Law, Policy & Institutional Arrangements (Part-VI) Coastal Ecology and Geomorphology

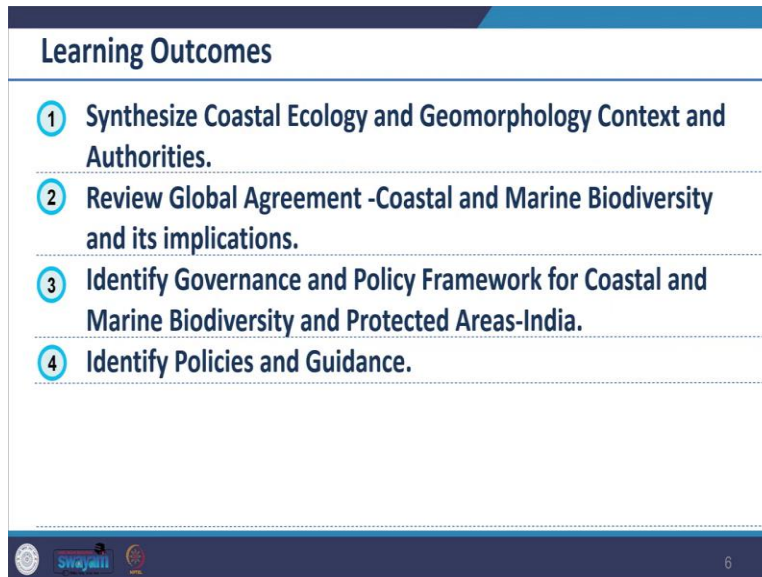
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Coverage	
①	Coastal Ecology and Geomorphology Context and Authorities.
②	Global Agreement -Coastal and Marine Biodiversity.
③	Governance and Policy Framework for Coastal and Marine.
④	Biodiversity and Protected Areas-India.
⑤	Policies and Guidance.

Welcome to the course Environmental Impact Assessment. Today we will cover coastal ecology and geomorphology under the larger ambit of our discussion, law policy, and institutional arrangement, which we are going on seeing right now. So accordingly, our coverage would include, we will look at the coastal ecology and geomorphology and then we will review the context and which are the authorities which are involved.

Further, we will look into the global agreements like the pattern that we are following and then we will look like what are its implications on coastal and marine biodiversity. Further, we will look into the governance policy framework for coastal and marine environments in particular in the Indian context. Further, we will look at the policies and guidelines involved.

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Learning Outcomes

- 1 Synthesize Coastal Ecology and Geomorphology Context and Authorities.
- 2 Review Global Agreement -Coastal and Marine Biodiversity and its implications.
- 3 Identify Governance and Policy Framework for Coastal and Marine Biodiversity and Protected Areas-India.
- 4 Identify Policies and Guidance.

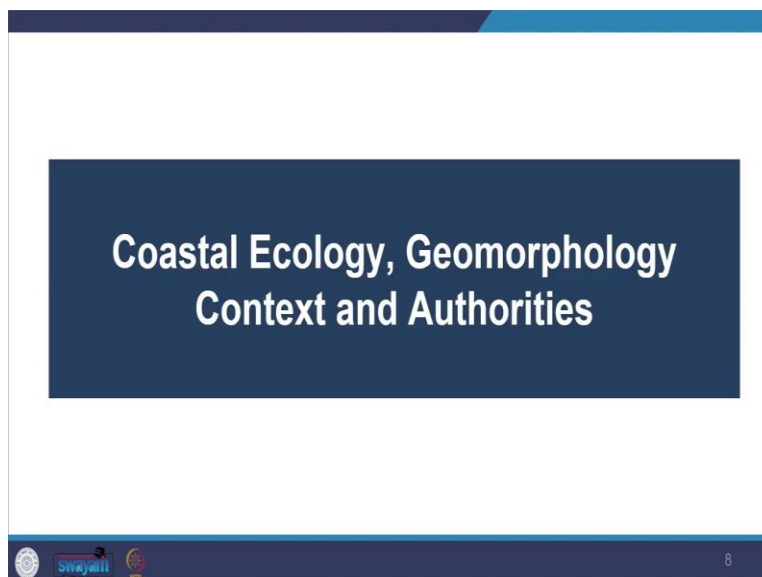
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So the learning outcomes which will be, we would expect would be done after completion of this particular session, you should be able to synthesize coastal ecology and geomorphology context and authorities, you should be able to see what is re

ally happening and then what is the complexity involved in which agencies look into it and how those regulations and acts come into place.

Further, you should be able to review the global agreements involved with coastal and marine biodiversity and look at its implications. Further, you should be able to look at the governance and policy framework for coastal and marine biodiversity and protected areas in the context of our country. Further, you should be able to identify policies and guidelines.

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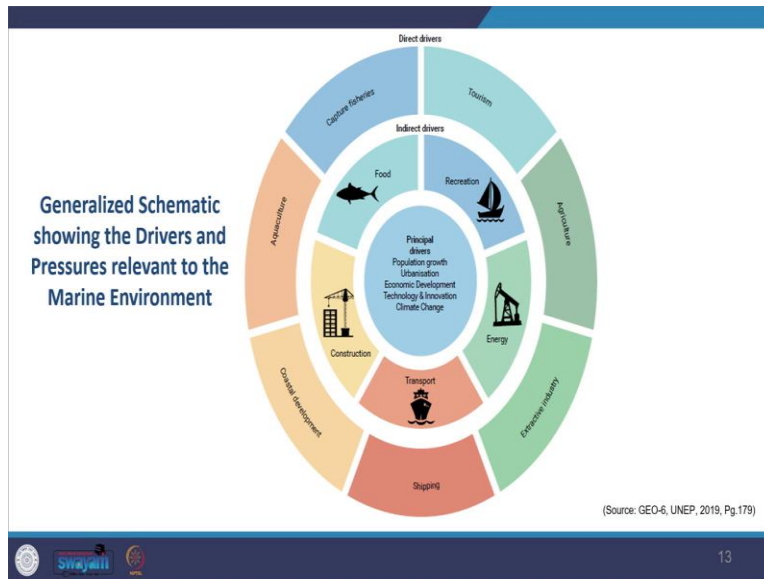


**Coastal Ecology, Geomorphology
Context and Authorities**

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So, looking at the context and authorities involved in the coastal ecology, and geomorphologic context, we see that if you recollect our first week of lectures, we particularly lecture three, where we reviewed the status of global environments, focused on oceans and coasts, we discussed the complexity involved in governance of the ocean.

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So, we discussed like, how ocean currents can carry chemicals, waste, emerging Organic Pollutants, and pathogens, and they can carry beyond areas under like, whatever is national maritime boundaries, it can carry those beyond those boundaries. And so, your area can be influenced by the activities of others or whom you have no control over, and marine organisms and seabirds may not remain under the jurisdiction of any state. So, those kinds of complexities are involved.

Further, there are interlinkages between ocean conditions and marine life. So, that is also inter interlinked, and there are like spatial dynamics of ocean process, what happens like what we had seen in the diagram, that there are a lot of multiple activities and industries involved and which have very far-reaching impacts.

So, many such patterns, disrupt the livelihoods of the people who probably receive no benefits from the industry that has caused the impact. So, those kinds of complexities are there and they become victims of the functioning of the other people. So, further, we see adding to that there are multiple and often conflicting uses which we had seen here if you recollect the graphics which we had discussed.

So, because of, these complexities, which we see here, there is no overall authority, which is responsible for the management of Oceans and coastal resources. So you see, like there are a lot of domains here and then there is a lot of complexity here. Plus you see that there are multiple authorities which are involved. So responsibilities

are shared amongst several central and local agencies, with varying responsibilities and limits of jurisdiction like what would be under whose control.

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Institution	Responsibilities
Ministry of Environment and Forests	Management of resources in the coastal water, nodal ministry with major responsibility for protecting marine environment, includes implementation of legislative measures.
Department of Ocean Development	Department of Ocean Scientific monitoring of the marine environment, Management of resources in the high seas
Ministry of Agriculture	Development of fisheries, aquaculture, fish processing
Ministry of Water Resources	Erosion
Ministry of Defense (Indian Coast Guard)	Pollution response measures, including oil pollution
Ministry of Surface Transport	Ports, shipping etc.
Ministry of Petroleum and Natural Gas	Offshore installations, Coastal refineries, pipelines etc.
Ministry of Tourism Ministry of mines	Tourism activities in coastal regions Mining activities in coastal regions

(MoEFCC, 2022)

So, for example, you can see here that MoEFCC is responsible for the management of resources in the coastal area, and coastal water, and it is the nodal ministry with major responsibility for protecting the marine environment. It is also responsible for undertaking all legislative measures. So whatever legislations are prepared, MoEFCC is the major authority here. You also see that you have the Department of Ocean Development which looks into the scientific monitoring of the marine environment, and management of resources in the high seas.

You would also see the Ministry of Agriculture which is responsible for fisheries, aquaculture fishing processing. And then you also find the Ministry of Water Resource which is responsible for monitoring erosion. Furthermore, you see that you have the involvement of the Ministry of Defense on the Indian coast like the Indian Coast Guard, who are responsible for pollution like taking pollution response measures, including oil pollution, so, they are responsible for that. So, you see the varied agencies that are involved.

So, you further see that the Ministry of Surface Transport, looks at the boats and shipping while the Ministry of Petroleum and Natural Gas looks at the offshore installation, like what kind of installations would happen with infrastructure, then also the coastal refineries, pipelines and other infrastructure which would come up.

Then you see the involvement of the tourism ministry in tourism-related activities in the coastal region. Furthermore, you find the Ministry of Mines for mining activities in the coastal region. So you see the level of complexity involved. And think of the EIA procedure and the references you might have to take in the process for legislative understanding of any proposed project.

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So looking at the global agreement related to coastal and marine biodiversity.

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So, you will see that the Convention on Biological Diversity which we have seen in another topic as well, we have there are a lot of things that align with that, then we have a convention on the conservation of migratory species of wild animals since like marine would be dealing with that, coastal areas we will be dealing with that. We also see that this is also called a bond convention, then you have the Convention on International Trade in Endangered Species of Wild Fauna and Flora like CITES.

So, this also applies and then you also see the international treaty on Plant Genetic Resources for food and agriculture. Then you see the Ramsar Convention or the Convention on Wetlands of International Importance. Then we also have the World Heritage Convention, then you also have UNFCCC, and then you have the United

Nations Convention to Combat Desert Defecation. Hyogo and Sengai framework for actions related to disaster risk management. And then you also see the United Nations Convention on Law of the Sea which we had seen agreement on straddling fish stock and highly migratory fish stocks.

And then you also see the London convention or convention on the prevention of marine pollution by dumping of waste and other matters. You also see the Basel Convention you also see FAO Code of Conduct for Responsible Fisheries, the international principles for Responsible shrimp farming, the International Convention for the Regulation of Veiling, and then you also see the International Convention for the Prevention of Pollution from Ships MARPOL.

So all these international agreements and legislations which you see are there for the coastal zones. So you may see here that much of the International legislation agreements provided here are both inland and coastal waters. So you see how you might have to expand to the other inland areas as well. Many of the legislations are not specific to the coast but are highly relevant to the coastal zone. So, therefore, many of them would apply to the coastal zone also when you are doing your EIA here.

So, for example, we see that you meet its obligation for like, how do they apply these or integrate these things? So, the EU, European Union meets its obligations for bird species under the bond convention and more generally the Berne Convention using the Birds Directive, they have a bird's directors, which is then like, translated into legislation of individual member states, so individual member states. So, as for the convention, The Birds Directive is prepared, and based on the Birds Directive, all the member states prepare their legislation. So, you see how it translates.

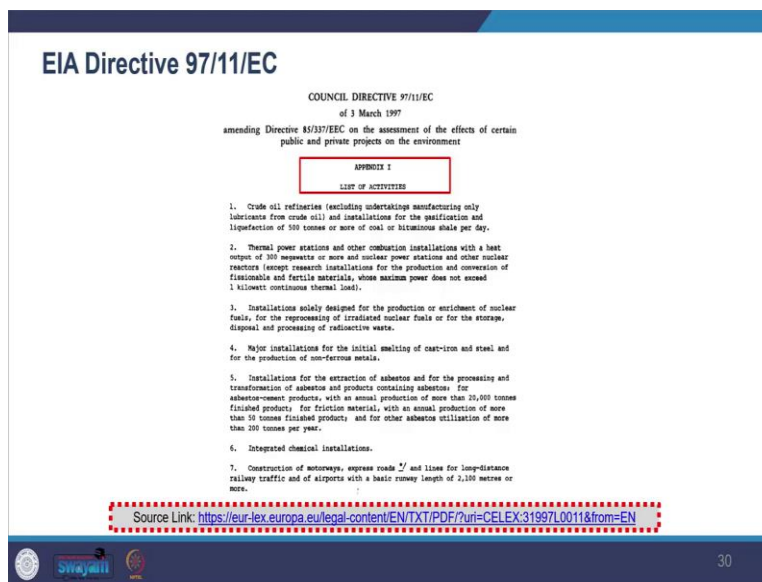
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The screenshot shows the UNECE website page for the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991). The page features a navigation menu at the top with links for Home, About UNECE, Programmes, Information, Meetings, and Contact Us. The main content area is titled "Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991) - the 'Espoo (EIA) Convention'". It includes a sub-header "Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991) - the 'Espoo (EIA) Convention'" and a main text block that states: "The Espoo (EIA) Convention sets out the obligations of Parties to assess the environmental impact of certain activities at an early stage of planning. It also lays down the general obligation of States to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across boundaries (see some examples). See a 'talking head' video presentation." Below this text is a small image of an industrial facility. To the right of the main text, there are two principles listed: "Principle 17: Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority." and "Principle 19: States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse transboundary environmental effect and shall consult with those States at an early stage and in good faith." The sidebar on the left contains links for "About the Convention", "Convention bodies", "Protocol on SEA", "Workshop activities", "Status of ratification", "Implementation & compliance", "Calendar of meetings", "News Centre", "Publications & guidance", "Resource Manual for Protocol", "Other resources", "Site index", and "Contacts". At the bottom of the page, the URL "https://unece.org/fileadmin/DAM/env/eia/eia.htm" is displayed, along with the text "(Osce, 2022)" and a page number "28".

Further, we see that similarly, on this ground, your similarly on principle, you see the Espoo convention, we have seen this before, Espoo convention on environmental impact assessments introns boundary context. So, when there is more than one nation involved, then in that context, this Espoo convention comes into place and that also sets obligations of the parties to assess the environmental impact of certain activities at an early stage of the planning process. So, that also is translated into local legislation.

However, we are not part of this as a country, but there are 30 signatories, which are there, and then mostly its EU countries and North American countries. So as per the Espoo convention, you see that the EIA process is again aligned with it.

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For example, you can see the directive 97 of environmental clearance, you will see it brought EIA practice in line with the convention. So, this particular directive aligned their practice with the convention and based on that, see how it is also influencing the process that is adopted, so it increases the type of projects covered. So, we had seen very briefly how we do screening, so, in that screening, what projects would come and what would not come. So, because of this particular convention, the types of projects covered would also increase or would be added to the list.

And the number of projects requiring mandatory EIA. Here through this directive example, you can see that in the directive projects like crude oil refineries, thermal power stations, nuclear fuel, major installations, constructions, and so on are added to the list of activities that need to be considered under EIA. So as per the convention, the list is refined and amended in the process. So that is how it impacts any country's EIA process.

So, because of these agreements, countries often set new screening arrangements. So, including new screening criteria, they would also have new screening criteria and also establish minimum information requirements.

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EIA Directive 97/11/EC

COUNCIL DIRECTIVE 97/11/EC
of 1 March 1997
amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment

ANNEX II
PROJECTS SUBJECT TO ARTICLE 4 (2)

1. Agriculture, silviculture and aquaculture

(a) Projects for the construction of rural land holdings;

(b) Projects for the use of agricultural land or semi-rural areas for intensive agricultural projects;

(c) Water management projects for agriculture, including irrigation and land drainage projects;

(d) Initial afforestation and de-afforestation for the purpose of conversion to another type of land use;

(e) Intensive livestock installations (projects not included in Annex I);

(f) Intensive fish farming;

(g) Reclamation of land from the sea.

2. Extractive industry

(a) Quarries, open-cast mining and peat extraction (projects not included in Annex I);

(b) Underground mining;

(c) Extraction of minerals by means of thermal drilling;

(d) Deep drilling, in particular:

- geothermal drilling,
- drilling for the storage of nuclear waste material,
- drilling for water supplies,

with the exception of drilling for investigating the stability of the soil;

(e) Surface industrial installations for the extraction of coal, petroleum, natural gas and ores, as well as bituminous shale.

ANNEX III
SELECTION CRITERIA REFERRED TO IN ARTICLE 4 (3)

1. Characteristics of projects

The characteristics of projects must be considered having regard, in particular, to:

- the size of the project,
- the conditions with other projects,
- the use of natural resources,
- the production of waste,
- pollution and nuisances,
- the risk of accidents, having regard in particular to substances or technologies used.

2. Location of projects

The environmental sensitivity of geographical areas likely to be affected by projects must be considered, having regard, in particular, to:

- the existing land use,
- the relative abundance, quality and representativeness of natural resources in the area,
- the absorption capacity of the natural environment, paying particular attention to the following areas:
(a) wetlands;
(b) coastal areas;
(c) mountain and forest areas;
(d) nature reserves and parks;

(i) areas classified or proposed under Member States' legislation, special protection areas designated by Member States pursuant to Directives 79/409/EEC and 92/43/EEC;

(j) areas in which the environmental quality standards laid down in Community legislation have already been exceeded;

(k) already protected areas;

(l) landscapes of historical, cultural or archaeological significance.

Source Link: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31997L0011&from=EN>

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So, here you can see in this like, how they are going to look at agriculture, Salvi culture, and aquaculture. The extraction of extraction industries can be seen in Annexure II. Likewise, you can see in Annexure III, what will be the selection criteria, which will be imposed. So, characteristics of a project, which kind of projects would be included, locations of the projects, and so on. So, you also saw how it was also implicated in our cases as per the list and special consideration for specific areas.

So, therefore, amendments are made. So, based on these conventions amendments are made in the EIA process also. In the context of the UK, you will find amendments in the Town and Country Planning EIA regulation 2011. You would also see changes in Marine Works Regulation 2007, as well as Infrastructure Planning Regulation 2009. So all aligned with the environmental impact assessment process.

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Water Framework Directive
Implementation of WFD programmes of measures - interim results 2012

The EU Water Framework Directive - integrated river basin management for Europe

On 23 October 2000, the Council (2000/60/EC) of the European Parliament and the Council established a framework for the Community action in the field of water policy for the period of the 10th Water Framework Directive (WFD) (see link above).

The Directive was published in the Official Journal (OJ L 312) on 23 December 2000 and entered into force the same day. Some amendments have been introduced by the Directive since 2000 and are listed in the consolidated version of the Directive (see link above).

General information

- WFD - introduction and overview
- The WFD
- Implementation process
- Key public roles
- The WFD in context
- Clear objectives and milestones
- WFD case studies
- WFD - OJ L 312 - the Information Exchange Platform
- Consolidated text (Water Framework Directive)

Specific legislation

- Directive
- The European Directive 2000/60/EC has been developed in response to the requirements of Article 17 of the Water Framework Directive
- List of Parties in the water sector (national policies)

Implementation

- Common Implementation Strategy
- The Common Implementation Strategy for the EU Water Framework Directive - a virtual project
- Implementation Reports

The Commission has to assess the progress in the implementation of the WFD in certain aspects and submit the European Parliament, the Council and the public with the results of its assessment (see WFD 10 WFD).

https://www.umweltbundesamt.de/sites/default/files/medien/378/publikationen/water_framework_direktive_2012_broschuere_wrrf_en_bf.pdf

https://ec.europa.eu/environment/water/waterframework/index_en.html

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So, we see that there are many umbrella international directives, such as also see at the international level, you can find Water Framework Directive, which European countries need to follow. So the requirements of the Water Framework Directive need to be considered during all stages of the planning and development process.

So this requires the EU member states to prevent like this is done to prevent deterioration and to protect and enhance the status of aquatic ecosystems. So Water Framework directives are taken as a blanket directive, and based on that all the member states have to take actions aligned with that.

So they need to ensure all the new schemes do not have any negative impact on the aquatic ecosystem. And I have also given you the link here to the directive. So you can see all the general information given on the right-hand side in the Water Framework Directive, like what is it about, what would be the decision-making process and timetable and then the links to that, and all the legislation involved, including groundwater and also surface water chemical pollution.

So you would see that WFT requires all inland estuaries and coastal waters to reach good status by 2021, If not, then by 2026, there is a timeline, there is a target which is aligned and they approach good status by creating River Basin district structure. In this River Basin district they are required to align the environmental objectives, they have to set this to have those ecological targets in place.

So similarly, you see Directive 2008, that is the Waste Framework Directive and the purpose of this directive is to control pollution of all surface water, including coastal waters, and cover some port and harbor operations and this is aligned with the EIA process.

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The screenshot shows the European Commission website page for the Marine Strategy Framework Directive. The page is titled "Protecting Europe's Seas and Oceans" and "The Marine Strategy Framework Directive". The main content area features a red box highlighting the title "The Marine Strategy Framework Directive". Below this, the text states: "The aim of the European Union's ambitious Marine Strategy Framework Directive is to protect more effectively the marine environment across Europe." and "The Marine Strategy Framework Directive was adopted on 17 June 2008." The right-hand sidebar contains a map of Europe and various icons representing different aspects of the directive. At the bottom of the page, a URL is provided: https://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/marine-strategy-framework-directive/index_en.htm. The page number 39 is visible in the bottom right corner.

So, looking at Europe, you would also find that we have the Marine Strategy Framework Directive, which aims to protect more effectively the marine environment across Europe by achieving good environmental status. So, it looks like they have a certain period and targets set. This is the first it is said to be the first EU legislative instrument related to the protection of marine biodiversity. It contains explicit regulatory objectives very defined as biodiversity having to be maintained by a particular period, and what kind of achievements they need to make in terms of environmental status.

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So in the image, you can see, in the image you can see the steps to achieve or maintain good environmental status, the Marine Strategy Framework Directive management cycle, and here you can see, in the blue circle which represents the different elements that may be included in the marine strategies and small orange circles represent the timeline to include the elements so by when what how they have to attain the target and this helps to translate the global targets into national and local policies and then to achieve that.

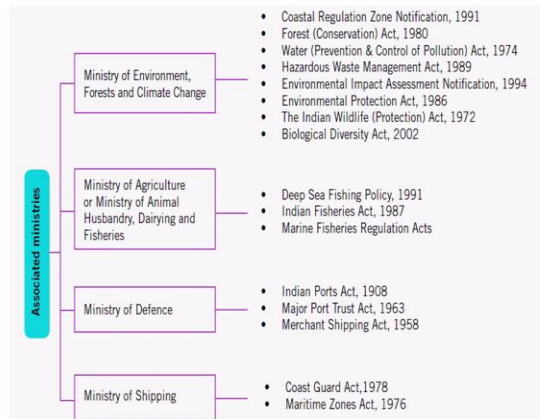
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Governance and Policy Framework for Coastal and Marine Biodiversity and Protected Areas-India

So aligned with the global agreement as well as national governance and resource management we find the following governance structure and policy framework for coastal and marine biodiversity and protected areas specifically in our country we will be looking at. And aligned with it you would see a range of laws you need to refer to or abide by.

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Laws under the purview of different ministries in India



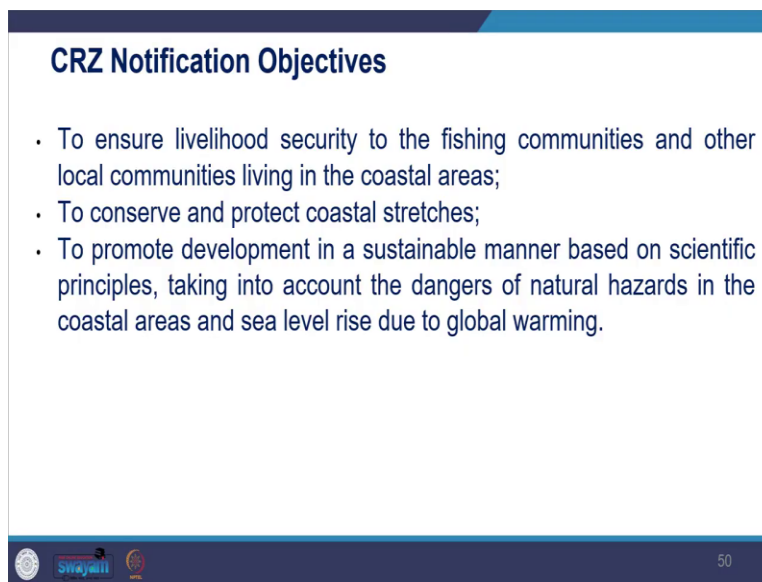
(Governance and Policy Framework for Coastal and Marine Biodiversity and Protected Areas, MoEFCC, 2015; pg: 66)

In the image you can see coastal regulation zone notification, Forest Conservation Act, and aligned with it you would see a range of laws you need to refer to and abide by. In the image you can see coastal regulation zone notification, you can also see Forest Conservation Act. Water prevention and control of Pollution Act. Hazardous Waste Management Act, EIA notification, Environmental Protection Act. Wildlife protection act, and biological diversity act. So you also see deep sea fishing policy, Indian Fisheries Act and marine fishery Regulation Act, under the Ministry of Agriculture.

So you will find Indian ports at major port, Trust Act and merchant shipping act under defense, Coast Guard act and marine timezone act under ministry of shipping. So, now looking at the Indian coastal regulation zone, so we will just briefly touch upon that. So, protected areas are only...

So, there are other ways of conserving coastal marine biodiversity and the ecosystem board such as regulating the activities and coastal and marine ecosystems so a lot of activities are controlled, mere then just protecting it. So, the main instrument regarding this is the especially in the Indian context is the CRZ notification under the Environmental Protection Act. So the other significant aspect is the restriction on fishing along the coastal areas.

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CRZ Notification Objectives

- To ensure livelihood security to the fishing communities and other local communities living in the coastal areas;
- To conserve and protect coastal stretches;
- To promote development in a sustainable manner based on scientific principles, taking into account the dangers of natural hazards in the coastal areas and sea level rise due to global warming.

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So you may refer to see CRZ notification 2011 and 2018. Looking at the main purpose of this. Why CRZ notification is creating, created? So it is created to ensure livelihood security to the fishing communities and other local communities living in the coastal area. So we did talk about our context and authority like how one activity impacts the others life and access to resources.

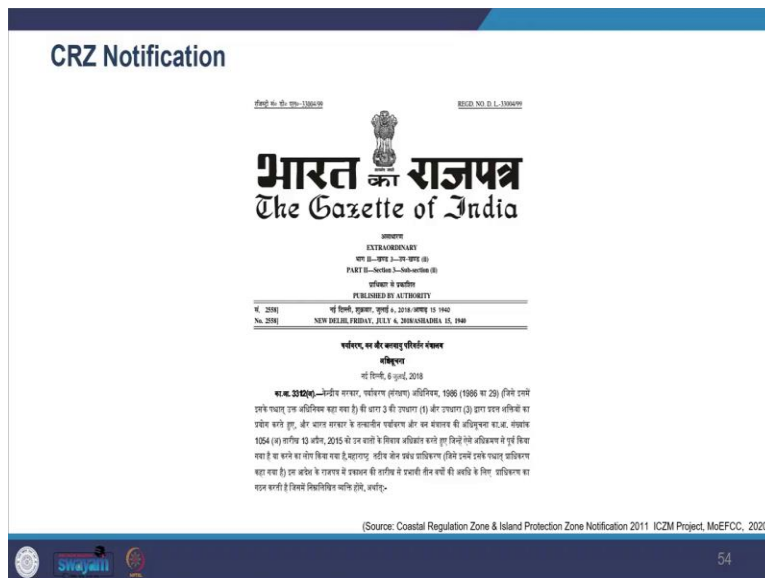
So here you see that this particular CRZ notification ensures livelihood security, the other it looks into conserve and protect coastal stretches like how the protection could be done and then promote development in sustainable manner. So whatever development happens, it happens in a sustainable manner based on scientific principles, taking into account the dangers of natural hazards in coastal areas, and sea level rise due to the global warming.

So we talked about all these things. So CRZ notification ensures that that is translated on the ground. And as a rule, it comes and it is implemented. So, in this CRSZ you would see that there are general prohibition rules. So, it prohibits certain kinds of activity, and especially prohibits the setting of new industries expansion of the existing industries. And however, it is not an absolute prohibition there can be some activities which are

allowed in CRZ, these include like, department of atomic energy power generation by non conventional energy sources and so on. So you can see look into the details.

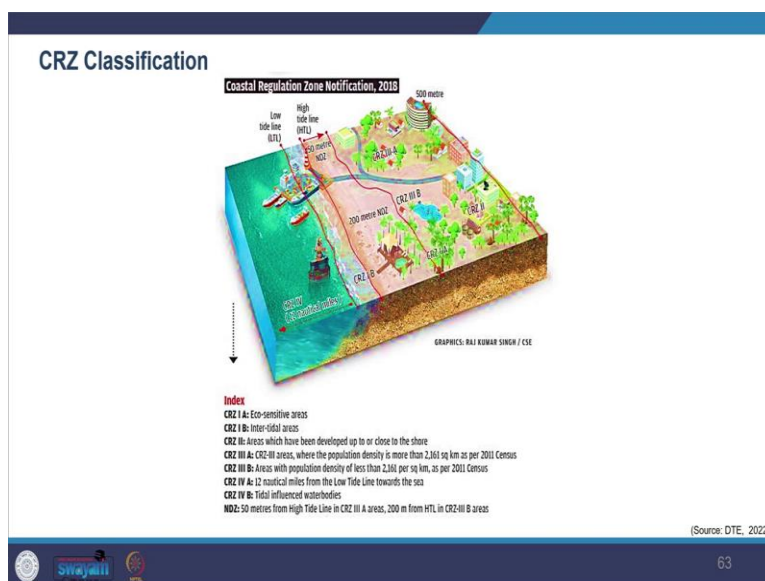
And then there are certain things which are regulated for the environmental clearance purpose. Furthermore, you see that it is in this you are required to prepare a coastal zone management plan. So all these identified areas are supposed so within this notification, they are supposed to prepare Coastal Zone Management Plan, where they would provide all the coastal related what kind of development activities they are taking, and how they plan to protect the area and then improve the condition of this particular area.

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So, this you see under the CRZ notification.

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And as for the notification, you can see that they have identified CRZ 1, 2, 3 and 4, if you look at it see CRZ 1 areas are environmentally most critical and are further classified as A and B. So, you would see that CRZ A would be the ecologically sensitive area, ESA, and the geomorphological features which would play a role in maintaining the integrity of the course. So all those kinds of areas would fall under CRZ 1A and then you would see CRZ 1B, which is like the intertidal zone that is the area between low tide line and the high tide line. This would constitute the CRZ 1B.

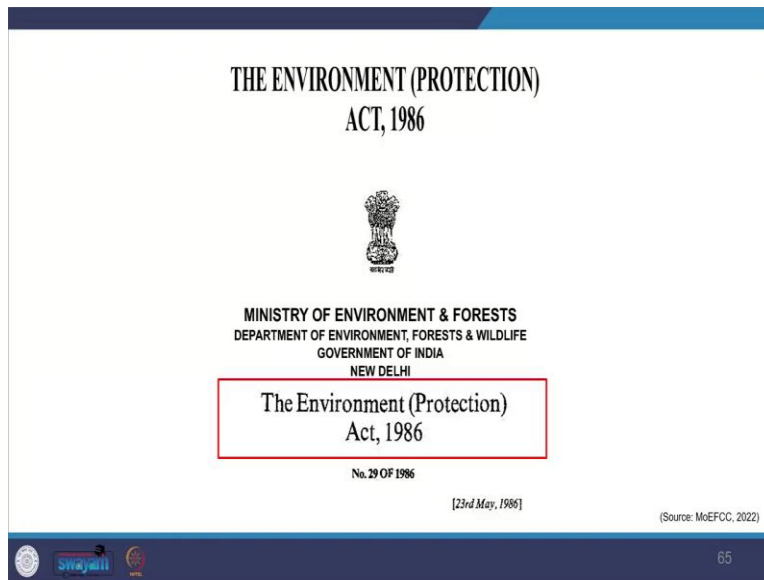
Likewise, you can see CRZ 2 which would be the developed land area up to the close to the shoreline. And within the existing municipal limits or in other existing legally designated way, either it is someone's upper limit or it is any other designation which is given there. So that area would be included under CRZ 2. Then you have CRZ 3 that includes the land area that are relatively undisturbed, so that would come under CRZ 3, then you see CRZ 3A, the subdivision which are like densely populated areas, where the population density is more than like 2000 plus per square kilometer as per 2011 census.

So, that would be under CRZ A, then an area up to 50 metres from a high tide line on the landward side shall be like usually, it is marked as no development zone which is like NDZ. So, they provide the coast and they are also required to provide the Coastal Zone Management Plan as per the notification and it has to be undertaken with due consultative process and if any kind of development comes in these areas.

Further you see that there is CRZ 3B and that you see that wherever you have population density less than 2161 per square kilometer as specified, according to the census of 2011 shall be designated as CRZ B. And there are buffer range which are given again which would be considered as no development zone.

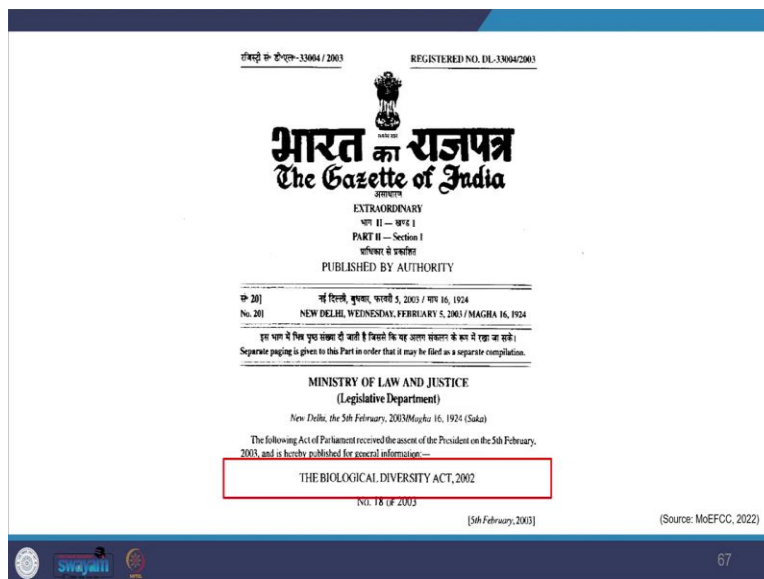
So, likewise you CRZ 4 then with that also subdivided as A and B and CRZ 4 is the water area and within that water area, the seabed area between low tide and up to like 12 nautical miles of seaward side is constitute 4A, likewise you can see area of water area. And the bed area between low tide and the bank of the tidal influence water body is considered as 4B. So that is for your understanding like how these areas are divided. So that was about the CRZ Act.

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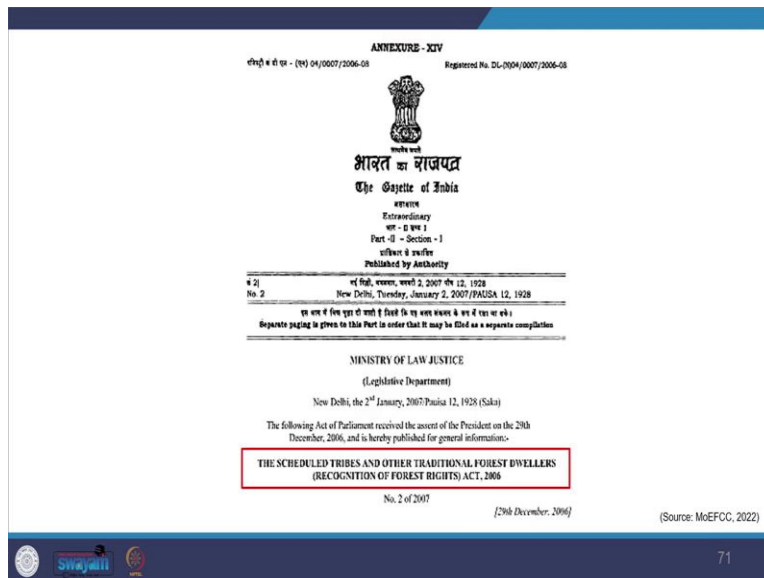
Now moving on, we look at the Environmental Protection Act 1986 in the context of marine protection areas. So EPA, the Environmental Protection Act 1986, which is an umbrella legislation for protection of the environment that are within that, we identify these MPA's. And these provisions are made. So within that everything is worked and they are the ones who make the laws.

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Then you also see the biological diversity act 2002 and this also addresses the MPAs here. So this Act contains provision which aims at preservation of the biological diversity in India and establish a mechanism for equitable sharing of benefits arising out of use of traditional biological resources and knowledge. So, here you see through this, how the sharing of the resources happen. So that also you can see here as per the government notification.

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So you also look at the scheduled tribes and other traditional forest dwellers act 2006 in this context of MPAs. So, this one provides for a framework for recording forest rights and this act recognized rights under the Act, including responsibility and authority for sustainable use. So they have the responsibility as well as conservation of biodiversity and maintenance of ecological balance, and thereby strengthening the conservation regime of forests while ensuring livelihood and food security for this.

And this forest right include the community rights of use or entitlements of natural products such as fish. So that would be your concern while preparing the EIA. And then the rules under the Act make provision for inclusion of traditional fishing grounds as evidence for determination of forest rights. These could be of importance to fishing communities living in the like for example, you can see Sundarbans Tiger Reserve area in West Bengal. So, all those have been identified and then they when while preparing should look into that.


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Wetlands (Conservation and Management) Rules, 2010

Wetland:

“Wetland means an area of marsh, peatland or water, natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six meters, and includes all inland waters such as lakes, reservoirs, tanks, backwaters, lagoons, creeks, estuaries and man-made wetlands and the zone of direct influence on wetlands.”

(Source: MoEFCC, 2022)




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And then you also have wetlands conservation management rules of 2010. So, you can look into the wetlands what does the wetland mean. So, wetland means an area of marsh, peatland and water. So, all these are identified and these are the areas where the water level remains near or above the surface of the ground for most of the year. And so, there is lot of significance which is given to its function and importance now, so, there is a lot of protection which are being done.

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Wetlands



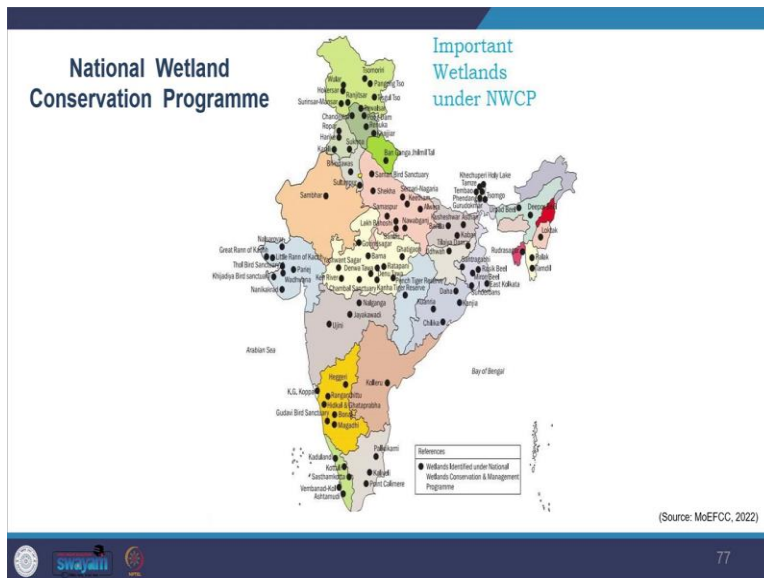
(Source: wetland of India portal, 2022)



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So, regarding that, we have national wetland conservation programs which protected so, the government of India has been implementing the National wetland conservation program like in it does it in the collaboration with the state government and state government and union territories.

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And under this program, there has been how 100 Plus wetlands have been identified till now by the ministry, which require like urgent conservation and management intervention. So, you can see the entire map here. So, moving forward, we see another act for concern which is like Indian wildlife protection act of 1972. This also has implication on the marine protected areas.

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Marine Protected Areas (MPAs)

- They are protected areas of seas and oceans that typically restrict human activity to protect natural or cultural resources.


(Source: MoEFCC, 2022)

So, looking at, like, what is marine protected areas, they are the Protected Areas of seas and ocean that typically restrict human activities to protect natural or cultural resources.

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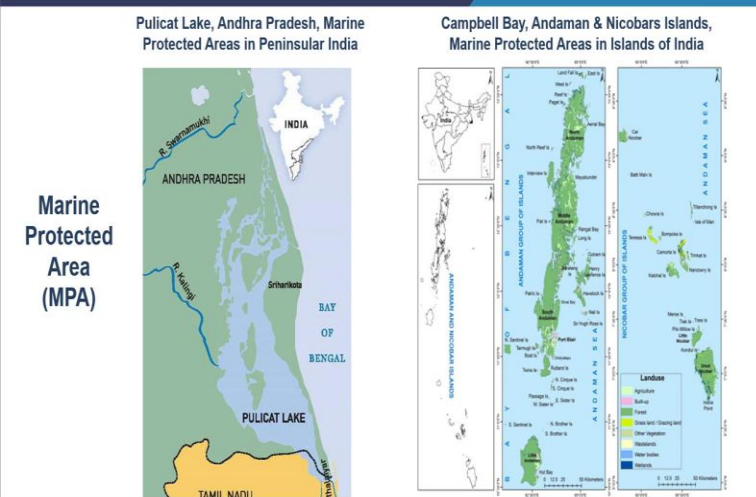
- **Marine Protected Areas (MPAs)**
- A marine protected area (MPA) is essentially a space in the ocean where human activities are more strictly regulated than the surrounding waters - similar to parks we have on land.
- These places are given special protections for natural or historic marine resources by local, state, territorial, native, regional, or national authorities.

Source: Wildlife Institute of India, Dehradun



So as per the Wildlife Institute of India, Dehradun, you see the marine protected area is essentially a space in the ocean, where human activities are more strictly regulated, so that there is a very protected area we cannot really do everything, but there are restrictions on what can be done in these areas.

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Pulicat Lake, Andhra Pradesh, Marine Protected Areas in Peninsular India

Marine Protected Area (MPA)

Campbell Bay, Andaman & Nicobar Islands, Marine Protected Areas in Islands of India

(Source: Wildlife Institute of India, Dehradun, 2022)



For example, you can see Pulicat lake in Andhra Pradesh, then you can also see Campbell Bay in Andaman and Nicobar Islands. So, which are all classified as marine protected areas.

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Activities permissible under various conservation levels

Table 1: Matrix of marine activities that may be appropriate for MPAs under the WPA

Activity type	National park	Sanctuary	Community reserve	Conservation reserve
Research: nonextractive	Y (with permission)	Y	Y	Y
Nonextractive traditional use	N	N	Y	
Nonextractive recreation, e.g., tourism	Y (with restrictions)			
Shipping (except as may be unavoidable under international maritime law)	N	N	NA	NA
Traditional fishing/collection in accordance with cultural tradition and use	N	Y		
Untreated waste discharge	N	N	N	N
Fishing/collection: long-term and sustainable local fishing				
Harbours, ports, dredging	N	N		
Mining (seafloor as well as sub-seafloor)	N	N		
Renewable energy generation, e.g., windmills	N	N	NA	NA

(Source: MoEFCC, 2022)

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So, you can see the activities permissible under various conservation levels for marine protected areas. You can see range of activities from research, traditional use fishing harbours, ports and permissions in national parks, sanctuary, community reserves, conservation and most stringent you can see is the National Park. So, you will look into definitions of national parks sanctuary community reserve in the later part of the lecture.

So, you see all range of activities which are allowed activities like, research, non extractive traditional use, non extractive recreational, shipping, traditional fishing, untreated waste discharge, fishing, collection, harbor, mining, renewal and you see like how, across the national parks, sanctuary, community reserve, Conservation Reserve, what all kinds of activities are allowed or not allowed.

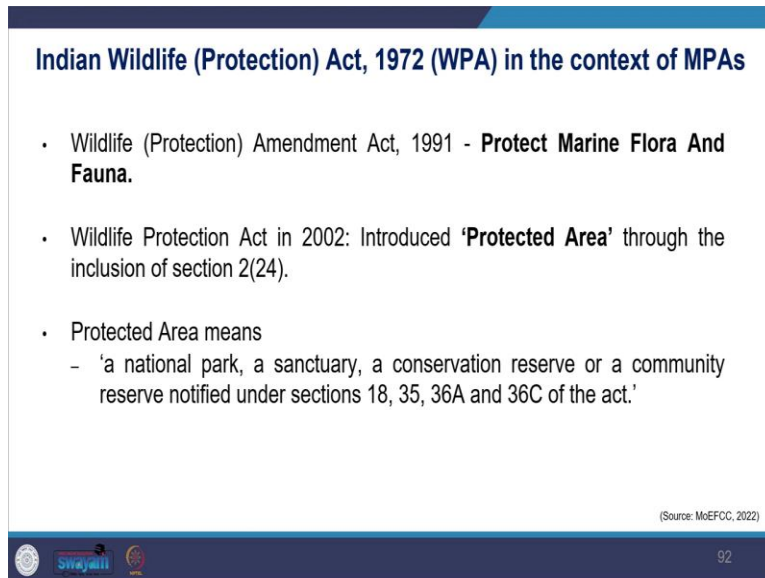
So, looking at all these protected areas, the largest MPAs are in India and Pacific oceans. In 2014, more than 6500 MPAs encompassed just over 2 percent of the world's ocean. So, we have numbers of, number of them here. And there are a number of voluntary marine nature reserves have been also established by agreement between non-governmental organization, stakeholders and user groups and coastal sites and may have national designations and non-statutory designations also. So, you might have these as well. Then, we also see a special area of conservation that is SAC.

And you also see special protection areas or the Ramsar site. So, a lot of protection is provided to this as well and they are at the international level. So, Ramsar Convention, which is also the Convention on Wetlands for international importance and especially for the wetland habitat within that so we identify a lot of areas and presently there are 169 contracting parties to this.

So, Ramsar's definitions of wetland considerably it is wide so it includes lot of areas. So like it includes areas of marine water depth of which low tide does not exceed six meters, as well as fish ponds, rice paddies and

salt pans. So in EU we see many Ramsar sites are also SPAs, classified under the Birds Directive. And however, despite all these kinds of initiatives, it is still reported that there is significant development pressures on these areas.

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Indian Wildlife (Protection) Act, 1972 (WPA) in the context of MPAs

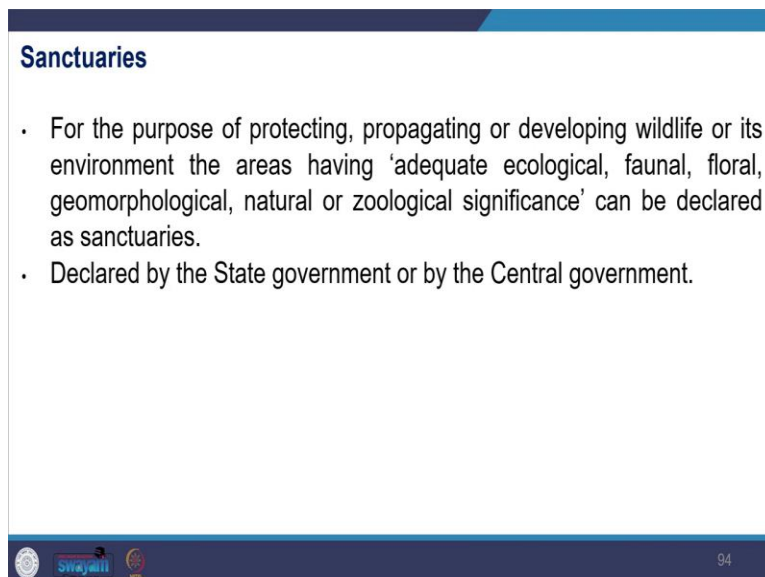
- Wildlife (Protection) Amendment Act, 1991 - **Protect Marine Flora And Fauna.**
- Wildlife Protection Act in 2002: Introduced '**Protected Area**' through the inclusion of section 2(24).
- Protected Area means
 - 'a national park, a sanctuary, a conservation reserve or a community reserve notified under sections 18, 35, 36A and 36C of the act.'

(Source: MoEFCC, 2022)

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So, now looking at the Indian wildlife protection act 1972. This came with the need to protect marine flora and fauna and this specially recognized and reflected the purpose of protecting the wildlife. So, here you see this one particularly introduced the definition of protected areas and with inclusions of certain sections, and under this, if you look at the definition of protected areas, they also created national park, here they created sanctuary, then the Conservation Reserve or the community reserve, that all were identified for the purpose of protection.

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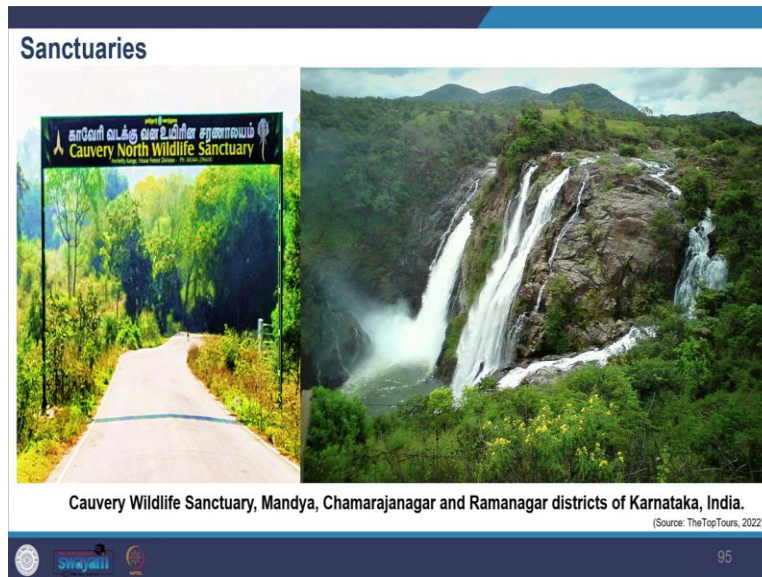
Sanctuaries

- For the purpose of protecting, propagating or developing wildlife or its environment the areas having 'adequate ecological, faunal, floral, geomorphological, natural or zoological significance' can be declared as sanctuaries.
- Declared by the State government or by the Central government.

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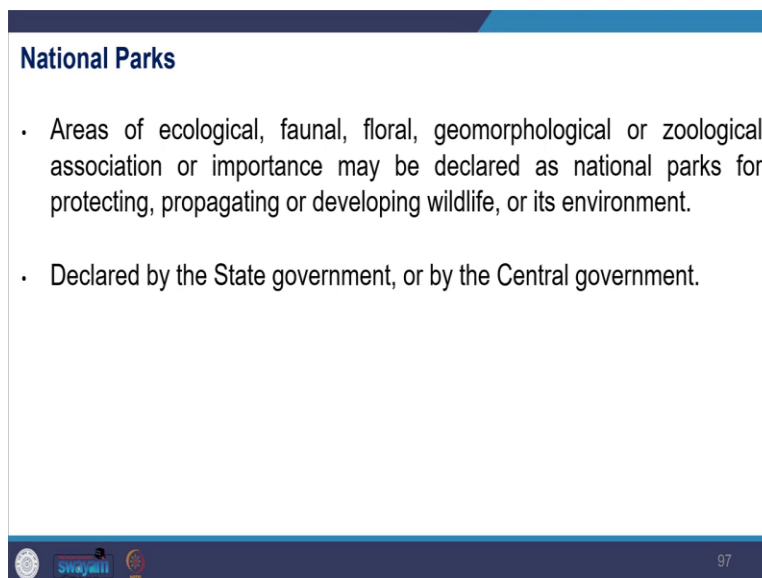
So, if you look at their terms, how they are defined. So, there are, the sanctuaries are the areas of adequate ecological, fauna and floral, geomorphological, natural or geological significance, and wherever such areas are found, they can be declared as sanctuaries for the purpose of protecting, also propagating or developing wildlife or its environment. So, sanctuaries can be declared this can be declared by the state government or the central government. They both can declare any any area which is which may fall under this category as sanctuaries.

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So for example, you can see here Cauvery Wildlife Sanctuary. Here you can see this has been identified.

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Looking at National Park, these are also protected areas. So national parks are the areas of ecological, fauna and floral geomorphological, or geological association or importance. So they are also identified within this and then the within this, it is identified for the purpose of protecting, propagating and developing wildlife and its

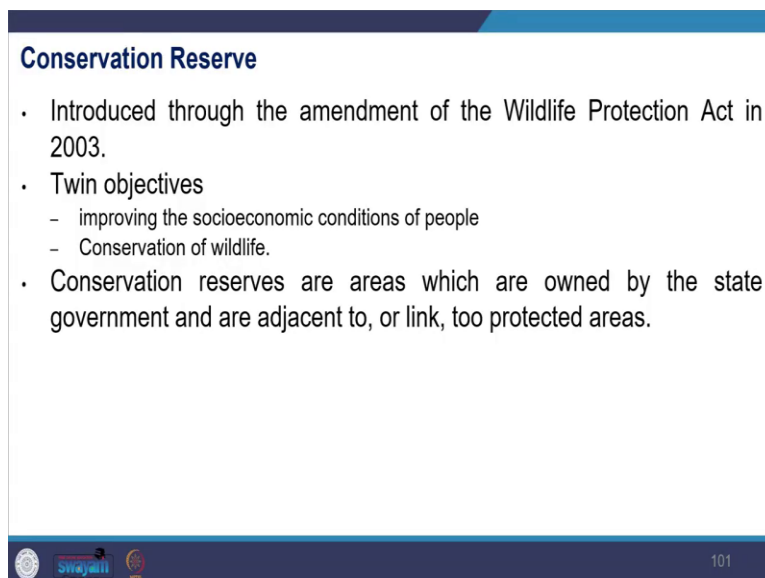
environment. So the state government and the central government, any of them can declare that as a national park. So the example would include.

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So the example if you see here is I have just picked up one you have a list of these national parks. So the Kaziranga National Park, Assam you can see here from the country, so, looking at conservation reserves, so, the cons like paying attention to the concept of Conservation Reserve, so Conservation Reserve is like and you also have community reserve.

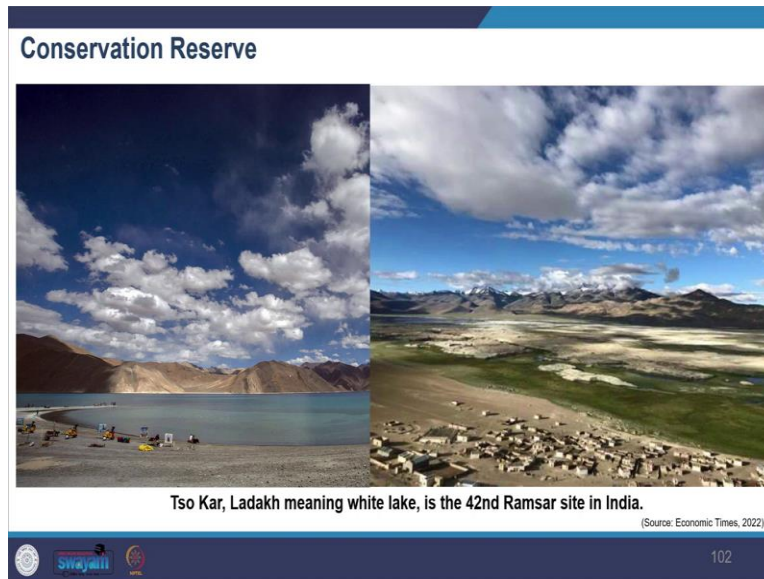
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These concepts were introduced through the amendment of wildlife protection act in 2003. So, both of these aimed at like improving the socioeconomic condition of people as well conservation of the Wildlife, so looking at both the aspect not only protecting the wildlife, but also taking care of the people.

So conservation reserves are areas which are owned by the state government and are adjacent to or linked to the protected areas. So these are the surrounding area. So anything adjoining to the protected areas would fall under the Conservation Reserve or the community reserve area. So again, the power of notifying this is with the State governments and they can notify this area.

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And the example of this includes Tso kar, Ladakh you can see here, which is as a Conservation Reserve site identified. And then you also see the efforts at international level to bring responsibility under one umbrella. So you saw that we have a lot of complexity in terms of there are a lot of numerous authorities, there are a lot of numerous acts as well as responsibilities and then there are conflicting uses and requirements. But then there is effort being made to bring everything under international. Like at the international level, there are efforts to bring all these things under one umbrella.

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- Marine Management Organisation (MMO)
- Umbrella organisation.




legislation.gov.uk

(Source: graphicmaps,2022)

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So, for example, we can see it in UK, there is a marine management organization MMO which was established under the marine and coastal access act 2009. So, this is an umbrella organization with overall responsibility. So, it looks after everything from licensing, regulating and planning marine activities in the seas around the England and Wales. So, they have, they are overall in charge of this. So, you can see here.

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Policies and Guidance


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So, now, moving at the policies and guidance, so, we see that European countries made provision for carrying capacity. So now with any act any provision, they are also supporting it with policy and guidance. So, how people will really execute it. So, we see that European countries made provision for carrying capacity of coastal environment to align with the sustainable development goals.

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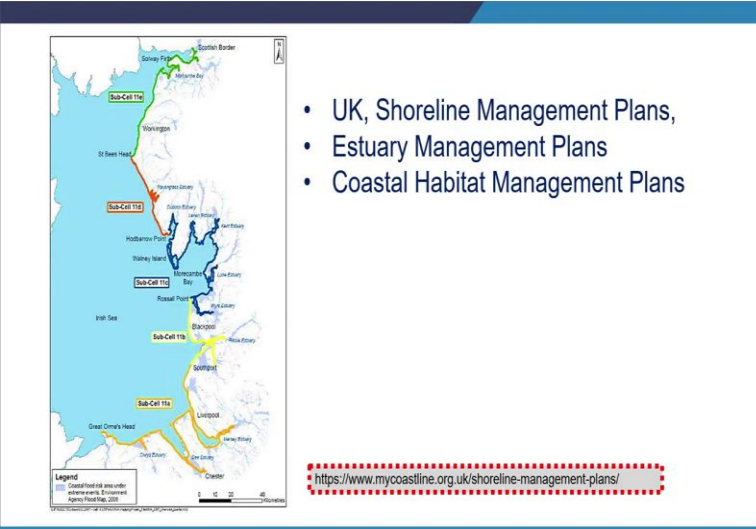
Policies and guidance

- **Carrying capacity** of the coastal environments.
- Integrated Coastal Zone Management (ICZM).




So, for that, there was requirement to assess and undertake carrying capacity studies and align them with the goals. So, anything beyond those carrying capacity would not be acceptable plus there were made provision for integrated Coastal Zone Management ICZM, which was many of the countries undertook that in the integrated Coastal Zone Management to align their interventions with Rio Earth Summit and also with World Coastal Conference. So, so, this has led to focus like because of this integrated and then carrying capacity has led to improved and integrated coastal management in order to deal with the complexity here.

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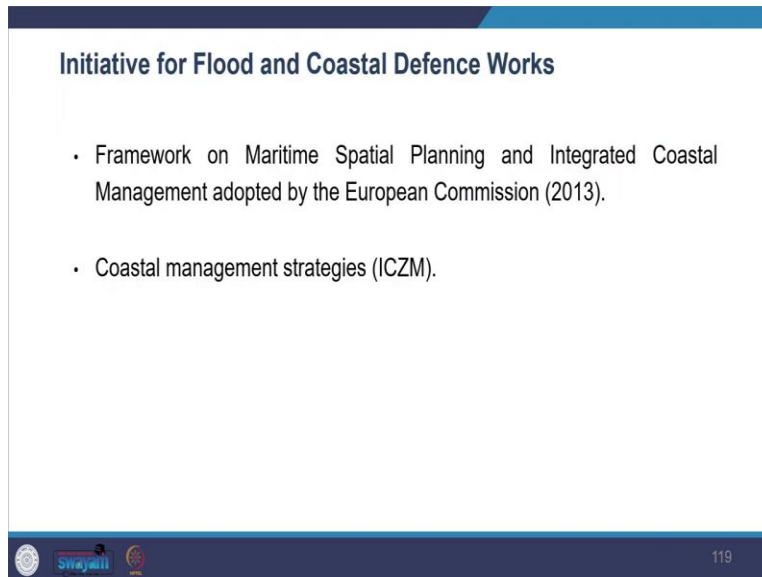
- UK, Shoreline Management Plans,
- Estuary Management Plans
- Coastal Habitat Management Plans



So, we also see that we have UK Shoreline Management plans, and we also see, we also see countries have UK Shoreline Management Plan, we also see estuaries management plan, coastal habitat management plan, so, all these kinds of management plans are coming which guide the development in the area. So, based on these plans,

that development, regular development would be executed in those areas. So, the link is provided for the reference if you would like to see that in detail.

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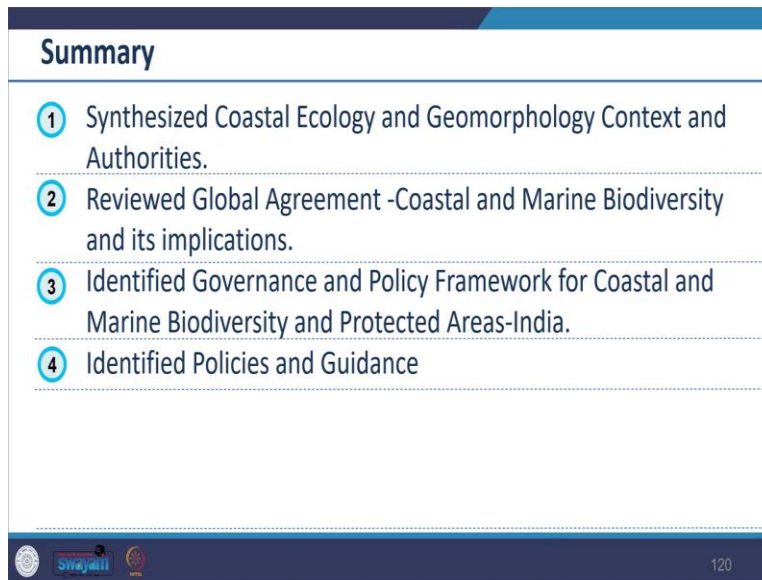


So, there are also initiatives for flood and coastal defense work. So, they are majorly done for conserving key coastal areas including nature conservation interest areas of SACs, SPS and Ramsar sites.

So, this is particularly important, where current defense line are very weak, so, they cannot really protect so, then these kinds of areas protect those costly coastal areas. So, we see there are the kind of interventions also like European Union also initiated the framework for maritime spatial planning and integrated coastal management. So, all like the spatial plans are prepared and then guidelines are also given for integrated coastal management plan.

And this, this is said to be an instrument which has to be adopted by the other member states and in integrated coastal management, this allows the coverage of entire like, allows information collection, how the planning has to be done, how this decision making has to be done and how management and monitoring has to be undertaken, it provides all kinds of guidelines here.

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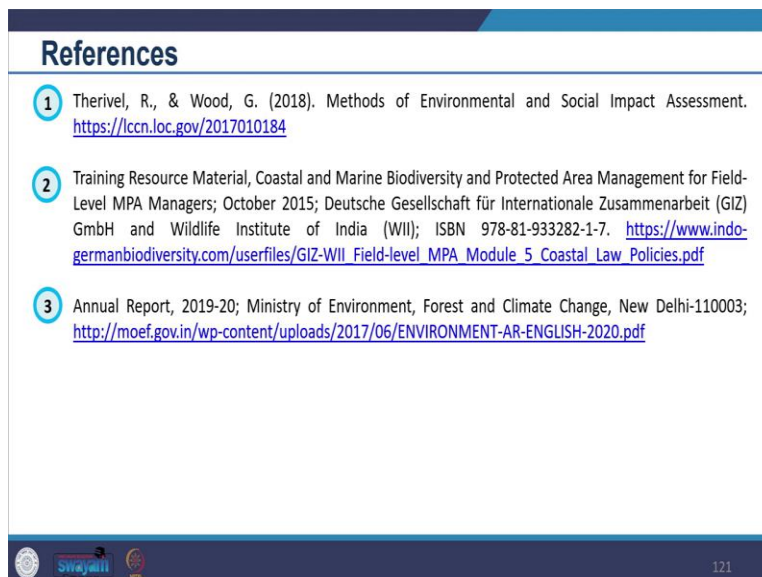
Summary

- 1 Synthesized Coastal Ecology and Geomorphology Context and Authorities.
- 2 Reviewed Global Agreement -Coastal and Marine Biodiversity and its implications.
- 3 Identified Governance and Policy Framework for Coastal and Marine Biodiversity and Protected Areas-India.
- 4 Identified Policies and Guidance

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So, this was what we saw today. So, summarizing our coverage, we saw coastal ecological and geomorphological context and the authorities and what kind of problems are there, then we reviewed global agreements, coastal and marine biodiversity and its implication, then we also looked at policy framework for coastal marine biodiversity and protected areas. And as well as we looked at the policies and some of the guidelines which are available at the international level, so that was the coverage for today.

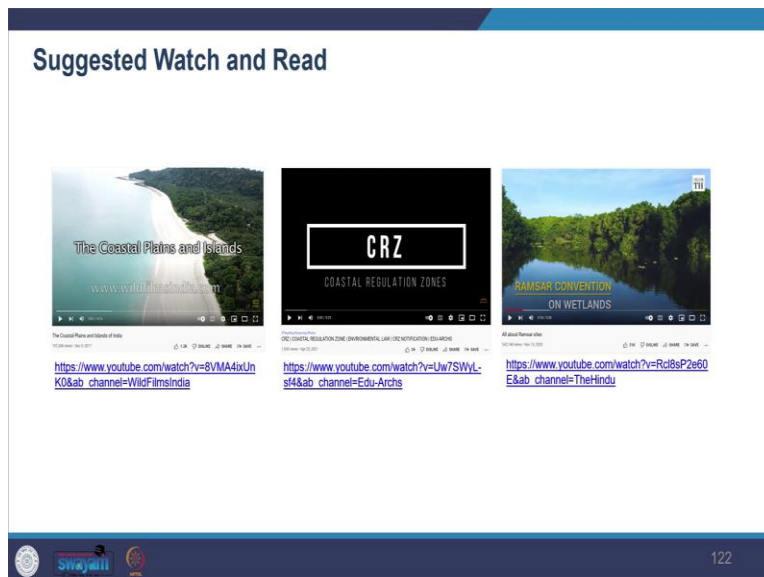
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References

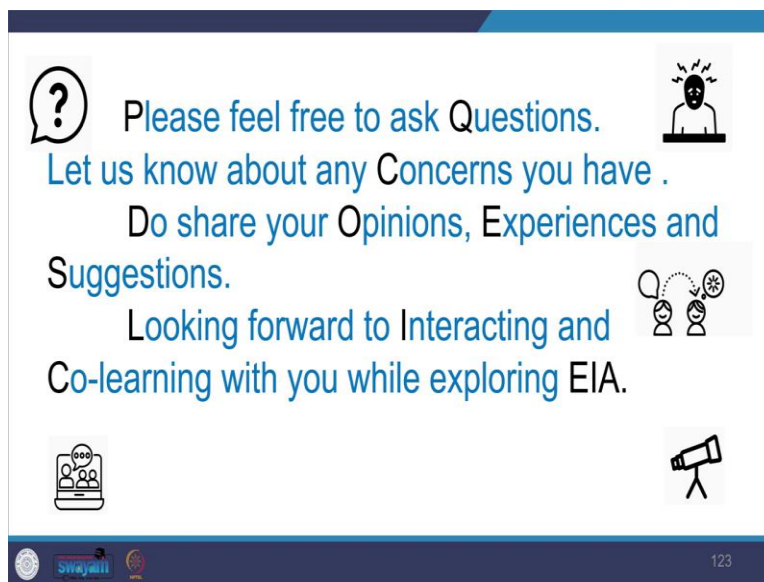
- 1 Therivel, R., & Wood, G. (2018). Methods of Environmental and Social Impact Assessment. <https://lccn.loc.gov/2017010184>
- 2 Training Resource Material, Coastal and Marine Biodiversity and Protected Area Management for Field-Level MPA Managers; October 2015; Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and Wildlife Institute of India (WII); ISBN 978-81-933282-1-7. https://www.indo-germanbiodiversity.com/userfiles/GIZ-WII_Field-level_MPA_Module_5_Coastal_Law_Policies.pdf
- 3 Annual Report, 2019-20; Ministry of Environment, Forest and Climate Change, New Delhi-110003; <http://moef.gov.in/wp-content/uploads/2017/06/ENVIRONMENT-AR-ENGLISH-2020.pdf>

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These were our key references which we had used for this particular session. So those are the suggested watch and read. Our coverage is very limited in terms of what we can cover a lot of acts and other things we have mentioned, but not covered in detail. So, you can also look at some of the detailed reviews and other things which have been given to you.

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So please, winding up here please feel free to ask questions, let us know about any concerns you have, do share your opinion, experiences and suggestions, looking forward to interacting and co-learning with you while exploring EIA. Thank you.