

Effects of Climate Change on Indian Oceans: Concepts, Approaches and Applications of Integrated Coastal Zone Management in Planning and Management of Indian Coastal Zone of India



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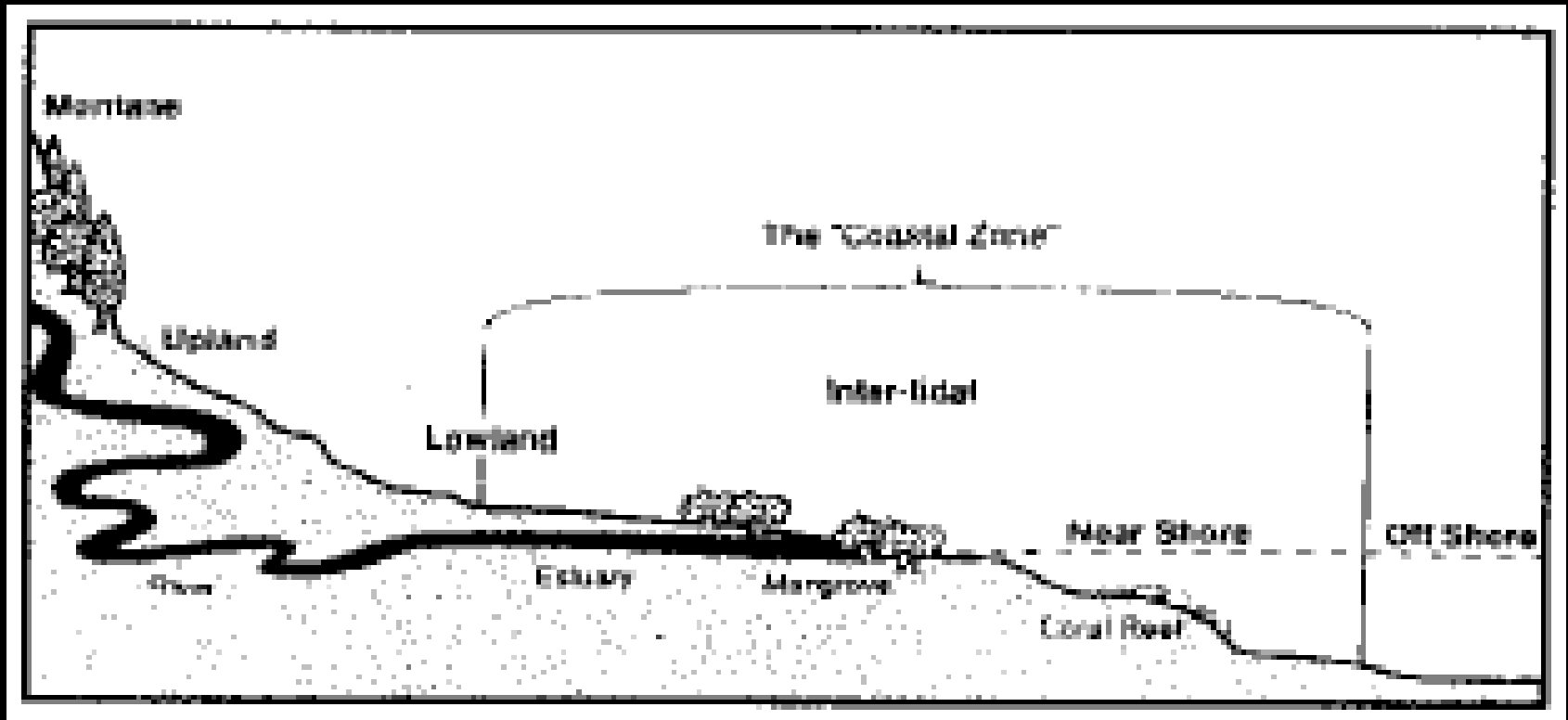
Outline of Presentation

- Introduction
- Objectives of ICZM (Integrated Coastal Zone Management)
- Current Scenario
- Issues: Initiation of ICZM Programs of India
- Future Options
- Conclusion



Introduction

Coastal Zone is the transitional area between land and sea influenced by both terrestrial and marine environment



Coastal Zone

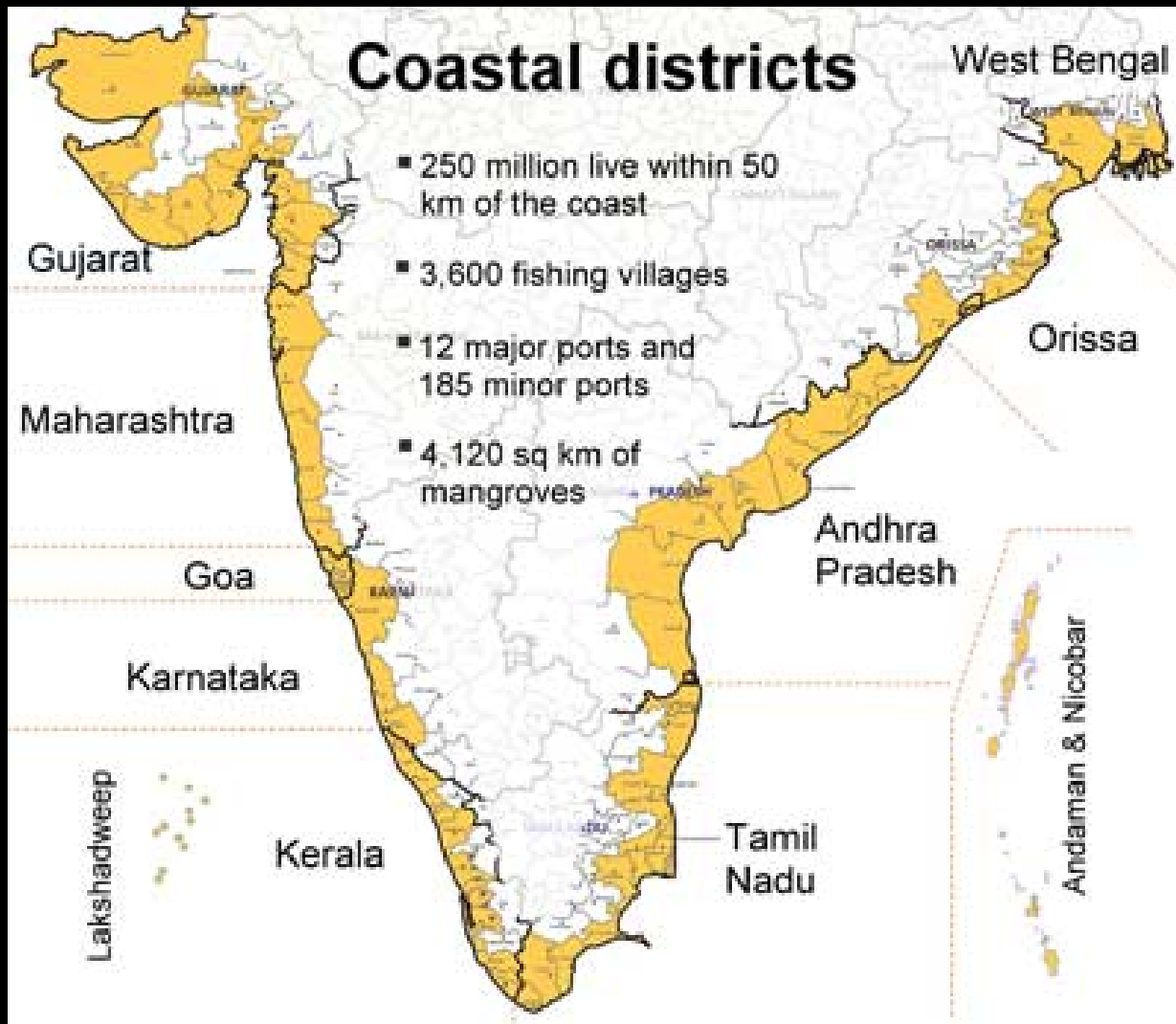


Introduction

- About **7500 km long Indian coastline** varies from open sea to semi closed coastal waters and shows significant diversity in environmental and demographic features.
- The **skewed growth in anthropogenic activities**, in the coastal areas has generated tremendous stress upon natural ecosystems and created problems for their proper management.
- In addition, Indian coastline needs to be **protected from natural hazards** such as beach erosion, sea level rise, storms, cyclones etc.



Introduction



Indian Coast Line



Introduction

- In recent years, the emphasis of **coastal planning and management** is on conservation of natural resources for which an **integrated approach** is essential in conjunction with sustainable use of coastal resources.
- The Integrated Coastal Zone Management (ICZM) is generally defined as a dynamic process in which a **coordinated strategy** is developed and implemented for the allocation of **environmental, social, cultural and Institutional resources** to achieve the conservation and sustainable multiple use of the coastal resources.



Indian Coastline and Demographic Features

State	Coastal Length in Kms	Coastal Population in Million	Growth in Every 10 Years
Gujrat	1214.7	32.78	20.80
Maharashtra	652.6	9.40	25.36
Karnataka	280.0	33.99	20.69
Goa		1.16	15.96
Kerala	569.7	23.69	13.98
Lakshadweep	132.0	0.051	28.47
Tamil Nadu	906.9	21.99	14.94
Pondicherry	30.6	0.80	30.60
Andhra Pradesh	973.7	28.65	23.82
Orissa	456.4	15.01	19.50
West Bengal	157.5	14.05	24.53
Andaman and Nicobar Island	1962.0	2.80	48.70
Daman and Diu		0.10	28.43
Total	7516.6	154.381	



Objectives of ICZM

The implementation of ICZM programmes is associated with the following objectives



- To develop the **national policy**, legislation and standards
- To ensure **integrated approaches to assess and evaluate to sustainability of development policies.**
- To create and implement the **state/district/taluk policies and plans**
- To develop the **local and/or special area management plans** that have local focus.
- To **improve planning and decision making by predicting impacts** on socioeconomic environments.
- To **identify the existing and projected uses of coastal areas and their interactions**



- To provide the **means of information necessary** for the reliable prediction of impacts understandable by policy makers.
- To **facilitate consideration of cumulative and delayed impacts** and
- To **enable the government** to enforce decision based on the results of Environment Impact Assessment (EIA) studies.

However, under the existing political, economic and social situations, proper implementation of ICZM seems to be difficult



Current Scenario



Well intended **efforts to develop** and diversify the economic activities of coastal areas often inadvertently create new problems, such as

- **Inappropriate land use and management** resulting in large scale erosion and sedimentation.
- **Improper setting of Industries** and other types of development in coastal areas causing loss of critical habitats.
- **Pollution** from domestic, industrial. Agriculture and aquaculture sources.



Issues: Initiation of ICZM Programs of India



Motivating Factors, largely responsible for initiation of ICZM Programs

Impact Problem

- Coastal Erosion
- Sea Level Rise and
- The discharge of polluted domestic or industrial sewage are the major impact problems



Organizational Problems

- Lack of cohesive interaction between administration and legal Institutions
- Scientific and Management Agencies
- Absence of skilled personal
- Lack of awareness on the intrinsic and interdependent relationship between the hinterland and coastal zone

Lack of Recognition of the Issues

- Complex interaction of factors and activities
- Not considered from an integral or system point of view.
- Inherent complexity generated by diverse ecosystems



Diversion of Resources

- Economic and political compulsions to satisfy personal and group interests.
- Neglecting the long term strategic values of the coastal environments.

Inadequate Information

- Lack of scientific information on coastal zone comes in the way of implementing the management program.
- It is important to link the administrative measures to rigorous scientific investigations.



Thus, it is obvious that, the enforcement of existing legislation on coastal management is often beset with problems without public participation

As ICZM is built upon five major management elements (IPCC 1994)

- Integration
- Coordination
- Processes
- Issues and Management
- Interactive coordination amongst government officials, environmentalists, economic planners and public will minimise the problems.



Future Options



- An integrated coastal zone management system is considered effective as it leads to **better decision making** about the utilisation, preservation and maintenance of coastal regions as well as using its resources in a planned manner.
- The ideal integrated infrastructure planning is one of the **strongest environmental management tools** in the jurisdiction of Central Government that will provide adequate environmental protection while minimising the adverse economic impacts of public policies.



- The following three basic integrated approaches may be adopted.
 1. A set of public policies
 2. A framework of procedures for carrying out these policies
 3. A set of organisations or agencies which implement these policies
- Under the ICZM scheme, it should be made possible to achieve coordination in coastal management through improved and focussed communication and application of existing powers within already recognised boundaries.



- The **ability of government to influence offshore activities** depends primarily on their integrated management plans, which involves the basic decision on land use, site selection and environmental risk by comprehensive planning and assessment.
- The ICZM will be helpful in solving some of the important issues like conflicts between the environmentalists and the economic developers.



Conclusions



The crucially important aspect of all efforts in integrated coastal area management is the need for good communication among the participating agencies and the public, consensus building, information transfer and public education are, therefore, important ingredients for the success of any coastal zone program.



- To make the coastal management program **effective and efficient**, it must be issue based.
- The coastal management program in India will have the **first opportunity to test its applicability through the experience gained** from similar program proposals implemented by other nations.

However, information on the following topics will make the program implementation easier.

- A study of **coastal states on the distribution of existing and projected human population and changing Patterns of their activities** as well as the impacts of those activities upon living and nonliving resources.
- The **economic and environmental relationship** of the coastal states to the existing larger ecosystems.

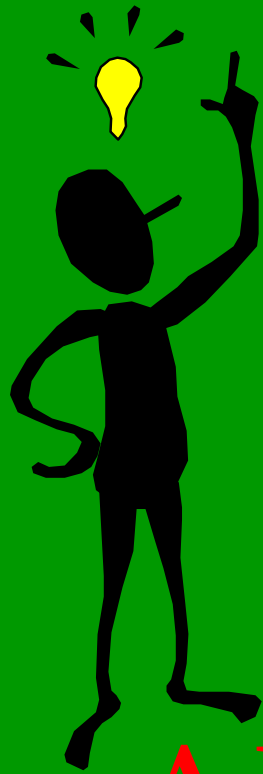


- The **environmental characteristics** of the state including climate, soils, vegetation and fresh water quantity and quality.
- **Known resources of states and their potential economic significance** and
- **Anticipated long term and short term** developments plans

The integrity of the entire ICZM process depends on the equitable balancing of views of government officials and the coastal residents.

The **crucial point** to be recognized is that the issues of ICZM programs are to be addressed primarily by social, political and economic forces, rather than by technical solutions alone.





THINK TODAY

TO ENSURE

A BETTER TOMMOROW



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THANK YOU

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