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Curriculum on

Coastal and Marine Biodiversity and Protected Area Management

Module 5
Governance, Law and Policy Framework for Coastal and Marine Biodiversity and Protected Areas

For Field-Level MPA Managers

Imprint

Training Resource Material:

Coastal and Marine Biodiversity and Protected Area Management for Field-Level MPA Managers

Module 1: An Introduction to Coastal and Marine Biodiversity and Ecosystem Services
Module 2: Coastal and Marine Biodiversity and Ecosystems Services in the Overall Environment and Development Context
Module 3: Mainstreaming Coastal and Marine Biodiversity into Overall Development and Environmental Planning
Module 4: Coastal and Marine Protected Areas and Sustainable Fisheries Management
Module 5: Governance, Law and Policies for Managing Coastal and Marine Ecosystems, Biodiversity and Protected Areas
Module 6: Assessment and Monitoring of Coastal and Marine Biodiversity and Relevant Issues
Module 7: Effective Management Planning of Coastal and Marine Protected Areas
Module 8: Communicating Coastal and Marine Biodiversity Conservation and Management Issues

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Indo-German Biodiversity Programme
A-2/18, Safdarjung Enclave
New Delhi 110029, India
T +91-11-4949 5353
E biodiv.india@giz.de
W http://www.indo-germanbiodiversity.com

Wildlife Institute of India (WII)
P.O. Box 18, Chandrabani
Dehradun 248001
Uttarakhand, India
T +91-135-2640 910
E dwii@wii.gov.in
W www.wii.gov.in

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With guidance from:
Mr. Edgar Endrukaitis, Director, Indo-German Biodiversity Programme, GIZ India
Dr. V B Mathur, Director, Wildlife Institute of India
Dr. J. Michael Vakily, Team Leader, CMPA Project, Indo-German Biodiversity Programme, GIZ India

Compiled and edited by:
Dr. Neeraj Khera, Senior Advisor, Indo-German Biodiversity Programme, GIZ India
Dr. K. Sivakumar, Scientist E, Wildlife Institute of India
Dr. Sarang Kulkarni, Marine Biologist, Indian Institute of Scuba Diving and Aquatic Sports (IISDA)

Text and editing contributions from:

Dr. J.A. Johnson, Scientist D, Wildlife Institute of India; Dr. Ramesh Chinnasamy, Scientist C, Wildlife Institute of India; Dr. D. Adhavan, Project Associate, Wildlife Institute of India; Dr. Pradeep Mehta, Research and Programme Manager, Earthwatch Institute India; Mr. Luke Mendes, Writer, Filmmaker and Media Trainer, Mumbai; Mr. S. Gopikrishna Warrier, Regional Environment Manager, PANOS South Asia [Module 8]; Mr. Darryl D'Monte, Chairperson, Forum of Environmental Journalists of India (FEJI) [Module 8]; Dr. Dirk Asendorpf, Journalist and Media Trainer, Germany [Module 8]; Ms Atiya Anis, Communications Expert, Indo-German Biodiversity Programme, GIZ India; Mr. Sanjay Dave, Charkha and Mr. Bharat Patel, MASS Gujarat [case studies of turtle rescue and community plantation of mangroves]; Dr. R. Ramesh and team, NCSCM [ecosystem services, differences between terrestrial and coastal ecosystems, GIS]; Ms Helina Jolly [economic valuation methods and examples]; Ms Janki Teli [case study of Whale Shark];

Designed by:
Aspire Design, New Delhi

Photos by:
Neeraj Khera, unless credited otherwise.

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Curriculum on

Coastal and Marine Biodiversity and Protected Area Management

Module 5
Governance, Law and Policy Framework for Coastal and Marine Biodiversity and Protected Areas

For Field-Level MPA Managers

Summary

This module gives an outline and a brief history of the diverse governance, legal and policy frameworks for managing coastal and marine ecosystems. The governance, policies and laws have been presented in two sections. The first section deals with global conventions and guidelines that provide a framework to the maritime countries to draft national policies and legislation for conservation and management of coastal and marine habitats and species. The second section provides an overview of the major policies, law, rules and guidelines in India.

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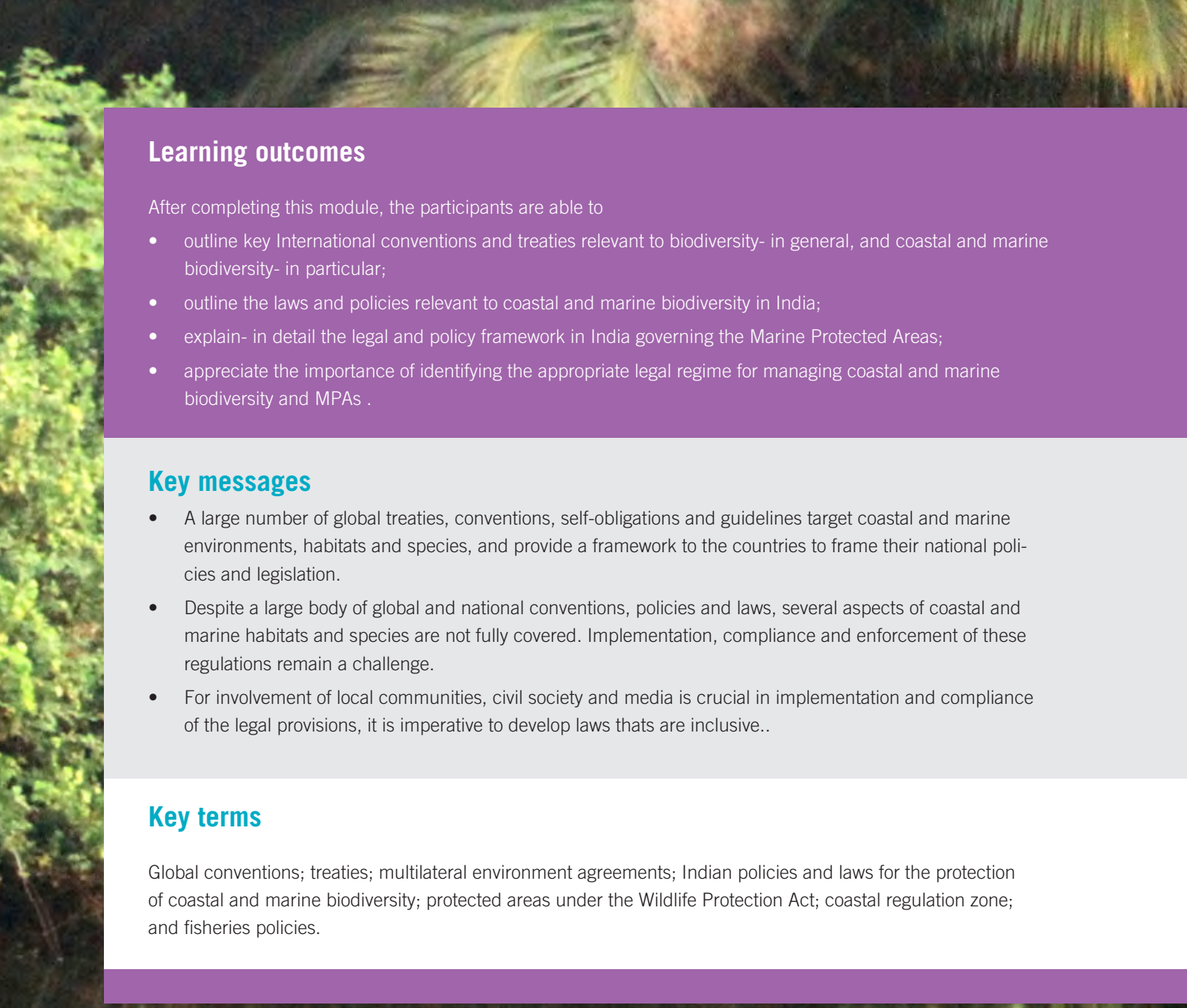
Acronyms

ASC	Aquaculture Stewardship Council
CBD	Convention on Biological Diversity
CCRF	Code of Conduct for Responsible Fisheries
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMPAs	Coastal and marine protected areas
CRZ	Coastal regulation zone
CZMA	Coastal Zone Management Authorities
DMS	Department of Merchant Shipping
DTEPA	Dahanu Taluka Environment Protection Authority
EEZ	Exclusive economic zone
EIA	Environmental impact assessment
EPA	Environment Protection Act
ESA	Ecologically sensitive area
FAO	Food and Agriculture Organization
FRA	Forest Rights Act
ICRW	International Convention for the Regulation of Whaling
ITPGR	International Treaty on Plant Genetic Resources for Food and Agriculture
MFRA	Marine Fishing Regulation Act
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
UNCCD	United Nations Convention to Combat Desertification
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WHC	World Heritage Convention
WWF	World Wide Fund for Nature



Learning outcomes

After completing this module, the participants are able to

- outline key International conventions and treaties relevant to biodiversity- in general, and coastal and marine biodiversity- in particular;
- outline the laws and policies relevant to coastal and marine biodiversity in India;
- explain- in detail the legal and policy framework in India governing the Marine Protected Areas;
- appreciate the importance of identifying the appropriate legal regime for managing coastal and marine biodiversity and MPAs .

Key messages

- A large number of global treaties, conventions, self-obligations and guidelines target coastal and marine environments, habitats and species, and provide a framework to the countries to frame their national policies and legislation.
- Despite a large body of global and national conventions, policies and laws, several aspects of coastal and marine habitats and species are not fully covered. Implementation, compliance and enforcement of these regulations remain a challenge.
- For involvement of local communities, civil society and media is crucial in implementation and compliance of the legal provisions, it is imperative to develop laws thats are inclusive..

Key terms

Global conventions; treaties; multilateral environment agreements; Indian policies and laws for the protection of coastal and marine biodiversity; protected areas under the Wildlife Protection Act; coastal regulation zone; and fisheries policies.

PART 1

Global governance of coastal and marine ecosystems and biodiversity

5.1 Why do we need global conventions, treaties and other processes?

The services provided by healthy, biodiversity-rich ecosystems are the foundation of human well-being. However, out of the 24 ecosystem services assessed by the Millennium Ecosystem Assessment (2005), 15 are in decline. These include the provision of freshwater, marine fishery production, the number and quality of places of spiritual and religious value, the ability of the atmosphere to cleanse itself of pollutants, natural hazard regulation, pollination and the capacity of agricultural ecosystems to provide pest control. There are a number of species that are on the verge of extinction, along with genetic erosion within many of the surviving species. In a scenario, when the population growth is enormous, a major part of the population depends on natural resources, and rapid urbanization and industrialization are taking place in a major part of the world, this unprecedented biodiversity loss poses a significant barrier not only to ecological security, but also to find ways to adapt to climate change and to achieve the United Nations Millennium Development Goals like poverty alleviation and ensure environmental sustainability.

When it comes to finding sustainable solutions, many natural resources and related environmental problems surpass national borders and therefore need international solutions. This includes cases of migratory species that are protected in one country and hunted in the other; transboundary protected areas; responsibility to conserve endemic species; utilization of medicinal plant products of one country in other countries; and the impacts of climate change on biodiversity, which is mainly caused by some industrialized countries while the sufferers are the poor countries that are rich in biodiversity. These examples clearly reflect the need for global decision-making forums, conventions and treaties to arrive at a consensus on finding solutions for biodiversity loss and joint conservation strategies.

The problem is pronounced in the developing countries, where the poorest people largely depend on biodiversity for their very survival and livelihoods. Key development policy objectives in many countries therefore must address both: poverty reduction and the conservation of biodiversity and ecosystem services.

India was one of the earliest countries to show interest in developing international conventions on the environment.

The 1992 United Nations Conference on Environment and Development held at Rio de Janeiro in Brazil (also known as the Rio Summit) was the landmark in international environmental agreements. This major conference was attended by 172 governments, including 116 heads of state. Three framework conventions that emerged from the Rio Summit have their relevance to coastal and marine biodiversity. They are the Convention on Biological Diversity (CBD), the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCCD).

After 20 years, the Rio+20 Summit was held in Rio de Janeiro in June 2012 to mark the 20th anniversary of the Rio Summit. The theme for the summit was 'the green economy in the context of sustainable development and poverty eradication.'

The Sources of International Law:

The sources of international law consist of 'hard law' and 'soft law'. 'Hard law' is basically the treaties (also known as conventions, protocols, and agreements), academic texts, judicial decisions, general principles of law which are legally binding obligations; whereas rules which are not formally binding per se but still play an important role in the field of international environmental law such as declarations, charters, etc. are known as 'soft law'. Soft law informally establishes the acceptable norms of behaviour. The traditional sources of international law, together with acts of international organizations and taking into account hard law and soft law, have given rise to a large body of international legal obligations which relate, directly or indirectly, to the protection of the environment.

How does the treaty/convention process work?

Once the countries agree upon a treaty or convention text, it is opened for signatures. However, signature itself is not consent by the countries to be bound by the treaty. The treaty becomes legally binding on the country when the party ratifies or accedes to the treaty. The states that had signed a treaty, when it was open for signature, can ratify it (ratification), whereas those states that had not signed the treaty during the time when it was open for signature can only accede to it (accession). This usually means that the parliament, senate/congress, or any other body that is the house of the people's representatives in the country gives assent to the government's decision to abide by the treaty or convention. This ensures support for the treaty or convention from all the political parties. Certain countries or organizations use the terms 'acceptance' or 'approval' rather than 'ratification' for purposes of participation in treaties. The legal incidents/implications of ratification, accession, acceptance and approval are the same. A treaty enters into force as per the provisions of the treaty, such as a minimum number of states ratifying the treaty .

5.2 The Global agreements that relate to coastal and marine biodiversity

5.2.1 The Convention on Biological Diversity (CBD)

This is a comprehensive, binding, global agreement aiming at conservation and sustainable use of the elements of biological diversity. The convention establishes three main goals: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the use of genetic resources.[1] A detailed overview of this convention is provided in section 5.3.

1 The CBD website: http://www.cbd.int

5.2.2 The Convention on the Conservation of Migratory Species of Wild Animals (CMS—also known as the Bonn Convention)

This aims to conserve terrestrial, aquatic and avian migratory species throughout their range, which often cross several national borders. It is an intergovernmental treaty, concluded under the aegis of the United Nations Environment Programme (UNEP), concerned with the conservation of wildlife and habitats on a global scale[2]. A secretariat, in Bonn, Germany, under the auspices of UNEP, provides administrative support to the convention. The decision-making organ of the convention is the Conference of the Parties (CoP). A standing committee provides policy and administrative guidance between the regular meetings of the CoP. The scientific council, consisting of experts appointed by individual member states and by the CoP, gives advice on technical and scientific matters. The Wadden Sea Seal Agreement between Germany, Denmark and the Netherlands is a prime example of how the CMS can work.[3] Since its conclusion in 1990, the population of the common seal has more than quadrupled from the estimated 5000 individuals left in 1989.

5.2.3 The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.[4] CITES works by subjecting international trade in specimens of selected species to certain controls. All import, export, re-export and introduction from the sea of species covered by the convention has to be authorized through a licensing system. Each party to the convention must designate one or more management authorities in charge of administering that licensing system and one or more scientific authorities to advise them on the effects of trade on the status of the species. The CITES secretariat is administered by UNEP and is located at Geneva, Switzerland.

5.2.4 The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR)

This aims at recognizing the enormous contribution of farmers to the diversity of crops that feed the world, establishing a global system to provide farmers, plant breeders and scientists with access to plant genetic materials, and ensuring that recipients share benefits they derive from the use of these genetic materials with the countries where they have originated.[5] The treaty protects Farmers' Rights, which include the protection of traditional knowledge and the right to participate equitably in benefit sharing and in national decision-making about plant genetic resources.

5.2.5 The Ramsar Convention or the Convention on Wetlands of International Importance

This is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.[6] The Ramsar Convention is the only global environmental treaty that deals with a particular ecosystem. The treaty was adopted in the Iranian city of Ramsar in 1971. The convention uses a broad definition of the types of wetlands covered in its mission, including lakes and rivers, swamps and marshes, wet grasslands and peatlands, oases, estuaries, deltas and tidal flats, near-shore marine areas, mangroves and coral reefs, and human-made sites such

2 The CMS website: http://www.cms.int

3 http://www.waddensea-secretariat.org/management/seal-management

4 The CITES website: http://www.cites.org

5 The ITPGR website: http://www.planttreaty.org

6 The Ramsar Convention website: http://www.ramsar.org

as fish ponds, rice paddies, reservoirs, and salt pans. The convention secretariat is located in Gland, Switzerland.

5.2.6 The World Heritage Convention (WHC)

This recognizes the way in which people interact with nature, and the fundamental need to preserve the balance between the two.[7] It came into force in 1972 and concerns itself with the Protection of the World Cultural and Natural Heritage developed from the merging of two separate movements, the first focusing on the preservation of cultural sites, and the other dealing with the conservation of nature. The most significant feature of WHC is that it links the concepts of nature conservation and the preservation of cultural properties in a single document. The convention defines the kind of natural or cultural sites which can be considered for inscription on the World Heritage List, and stipulates the obligation of States Parties to report regularly to the World Heritage Committee on the state of conservation of their World Heritage properties.

5.2.7 The United Nations Framework Convention on Climate Change (UNFCCC)

Also known as the Climate Change Convention, the UNFCCC is a 'Rio Convention,' one of three adopted at the 'Rio Earth Summit' in 1992.[8] Its sister Rio Conventions are the Convention on Biological Diversity (CBD) and the United Nations Convention to Combat Desertification (UNCCD). The UNFCCC entered into force in 1994 and currently has 195 countries as parties. Preventing 'dangerous' human interference with the climate system is the overarching aim of the UNFCCC. The ultimate decision-making body of the convention is the CoP, which meets annually to review the implementation of the convention.

Climate change has direct impact on coastal and marine biodiversity. Change in the ambient temperature of the coastal region and the water in the sea can affect the coastal and marine biodiversity. On the other hand, the diversity of species of flora and fauna in the coasts and the seas gives stability to the ecosystem, thereby preventing climate change (climate change mitigation) and also making it more robust to deal with climate change (climate change adaptation).

The Principle of Common But Differentiated Responsibilities: UNFCCC

The principle of 'common but differentiated responsibility' evolved from the notion of the 'common heritage of mankind' and is a manifestation of general principles of equity in international law. The principle recognises historical differences in the contributions of developed and developing States to global environmental problems, and differences in their respective economic and technical capacity to tackle these problems. Despite their common responsibilities, important differences exist between the stated responsibilities of developed and developing countries. The Rio Declaration states: "In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities.

The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command." Similar language exists in the Framework Convention on Climate Change; parties should act to protect the climate system "on the basis of equality and in accordance with their common but differentiated responsibilities and respective capabilities." The principle of common but differentiated responsibility includes two fundamental elements. The first concerns the common responsibility of States for the protection of the environment, or parts of it, at the national, regional and global levels. The second concerns the need to take into account the different circumstances, particularly each State's contribution to the evolution of a particular problem and its ability to prevent, reduce and control the threat.

[Source: http://cisdl.org/public/docs/news/brief_common.pdf]

7 The WHC website: http://whc.unesco.org/en/convention/

8 The UNFCCC website: http://www.unfccc.int

5.2.8 United Nations Convention to Combat Desertification (UNCCD)

Established in 1994, UNCCD, with 195 parties, is the sole legally binding international agreement linking the environment and development to sustainable land management. The convention addresses specifically the arid, semiarid and dry subhumid areas, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found. The UNCCD is particularly committed to a bottom-up approach, encouraging the participation of local people in combating desertification and land degradation. The UNCCD secretariat facilitates cooperation between developed and developing countries, particularly around knowledge and technology transfer for sustainable land management.

As the dynamics of land, climate and biodiversity are intimately connected, the UNCCD collaborates closely with the other two Rio Conventions—the CBD and the UNFCCC —to meet these complex challenges with an integrated approach and the best possible use of natural resources. The CoP is established by the convention as the supreme decision-making body, and it comprises all parties to the convention. The CoP has two subsidiary bodies: the Committee on Science and Technology acting as a platform for scientific collaboration under the UNCCD, and the Committee for the Review of the Implementation of the Convention, which is a standing subsidiary body to assist in regularly reviewing the implementation of the convention. The 10-year strategy to enhance the implementation of the convention defines the focus areas of both subsidiary bodies for the period 2008–2018.

5.2.9 Hyogo and Sengai Frameworks for Actions (for Disaster Risk Management)

The Hyogo Framework for Action (HFA) addressed the challenges posed by natural and man-made disasters. It presented the priorities that the participating states to the Hyogo Conference in Japan should have developed and focused on for the years 2005 to 2015 with respect to disaster prevention and preparedness.

HFA proved effective in galvanizing and bringing together the many stakeholders in disaster risk reduction including national and local governments, parliamentary forums, inter-government organizations, non-government organizations, community-based organizations and practitioners, the private sector, academic and technical institutions, the media and international organizations, as well as to link disaster risk reduction to managing climate-related risks and climate change adaptation.[9]

Even though the current HFA substantively contributed to further disaster risk reduction, the goals and priorities for action were far from being achieved. Facilitation of the development of a post-2015 framework for disaster risk reduction was, therefore, conducted and is called as Sendai Framework.

Sendai Framework for Disaster Risk Reduction 2015-2030

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States on 18 March 2015 at the Third UN World Conference on Disaster Risk Reduction in Sendai City, Miyagi Prefecture, Japan. The Sendai Framework is the first major agreement of the post-2015 development agenda, with seven targets and four priorities for action.

Website: http://www.unisdr.org/we/coordinate/sendai-framework

9 (The Inter-governmental Panel on Climate Change Special Report on Managing the Risk of Extremes and Disasters (IPCC/SREX) demonstrates that many measures to address natural hazard risk such as good land use planning, environmental protection and preparedness and early warning systems are effective no-regret actions to adapt to climate change. Parties to the UN Framework Convention on Climate Change have also identified the HFA as a pillar of their efforts to adapt to climate change. Report available at https://www.ipcc.ch/pdf/special-reports/srex/SREX_Full_Report.pdf)

5.2.10 The United Nations Convention on the Law of the Sea (UNCLOS)

This convention lays down a comprehensive regime of law and order in the world's oceans and seas establishing rules governing all uses of the oceans and their resources.[10] It enshrines the notion that all problems of ocean space are closely interrelated and need to be addressed as a whole. UNCLOS entered into force in 1994 and has 162 parties as signatories. It deals with navigational rights, territorial sea limits, economic jurisdiction, legal status of resources on the seabed beyond the limits of national jurisdiction, passage of ships through narrow straits, conservation and management of living marine resources, protection of the marine environment, a marine research regime, and a binding procedure for settlement of disputes between states.

5.2.11 Agreement on straddling fish stocks and highly migratory fish stocks

This agreement is officially known as the Agreement for the implementation of the Provisions of the UNCLOS of 1992 related to the conservation and management of straddling fish stocks and highly migratory fish stocks.[11] It sets out a precautionary approach to the preservation and management of rapidly dwindling fisheries resources, by regulating the catch of deep-water and migratory species, including tuna, swordfish and cod stocks.

5.2.12 The London Convention or the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter

This is one of the first global conventions to protect the marine environment from human activities and has been in force since 1975.[12] It promotes the effective control of all sources of marine pollution and takes all practical steps to prevent pollution of the sea by dumping of wastes and other matter.

5.2.13 The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

This convention is considered to be the most comprehensive global environmental treaty on hazardous and other wastes.[13] It was adopted in 1989 in Basel, Switzerland. It aims to protect human health and the environment against the adverse effects resulting from the generation, management, transboundary movement and disposal of hazardous and other wastes.

5.2.14 The Food and Agriculture Organization (FAO) Code of Conduct for Responsible Fisheries (CCRF)

To promote long-term sustainable fisheries, more than 170 member countries of the FAO of the United Nations adopted the CCRF in 1995.[14] The code is voluntary and aims at everyone working in, and involved with, fisheries and aquaculture, irrespective of whether they are located in inland areas or in the oceans. The code of conduct consists of a collection of principles, goals and elements for action, and governments, in cooperation with their industries and fishing communities, have the responsibility to implement the code.

10 The UNCLOS website: http://www.un.org/depts/los/index.htm

11 http://www.un.org/depts/los/fish_stocks_conference/fish_stocks_conference.htm

12 The London Convention website: http://www.imo.org/About/Conventions/ListOfConventions/Pages/Convention-on-the-Prevention-of-Marine-Pollution-by-Dumping-of-Wastes-and-Other-Matter.aspx

13 http://www.basel.int

14 FAO CCRF website: http://www.fao.org/fishery/code/en

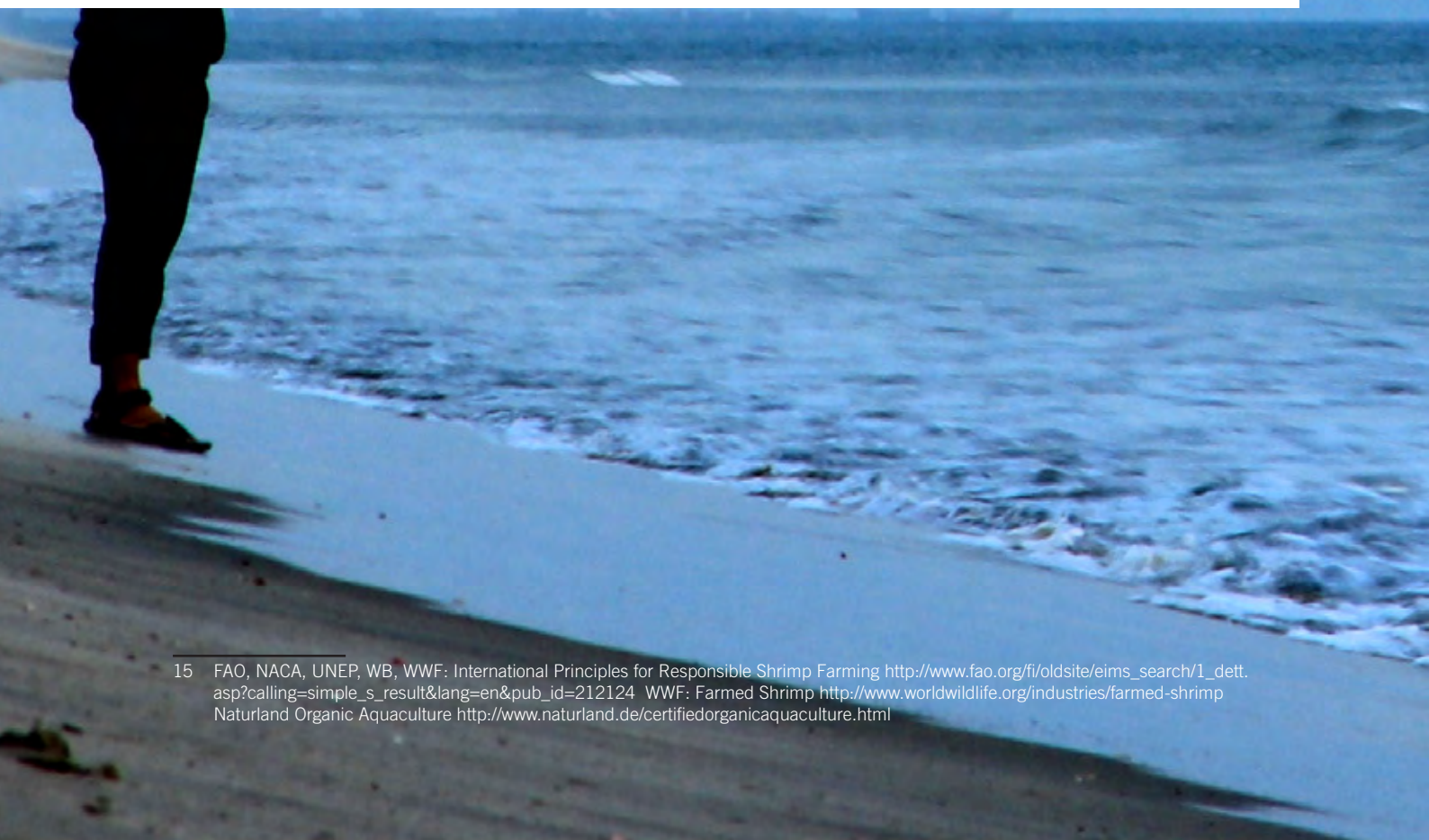
5.2.15 International Principles for Responsible Shrimp Farming[15]

The FAO of the United Nations, the World Bank, the Network of Aquaculture Centres of Asia Pacific, the UN Environment Programme and the World Wide Fund for Nature (WWF) have partnered to form the Shrimp Aquaculture and the Environment Consortium. After seven years, with the cooperation of more than 8000 participants and the publication of 40 case studies by 120 researchers, the consortium's International Principles for Responsible Shrimp Farming were adopted by the FAO's Committee on Fisheries and published in 2006.
These standards address wetland conversion and deforestation, antibiotic use and biodiversity issues. They also establish a maximum for the use of forage fish in dietary fishmeal use. For the first time in any aquaculture standards, they require periodic and well-documented community engagement workshops to address conflict resolution and focus on social impacts both on the farm and in the surrounding community.

The principles are:

- Comply with all applicable national laws and local regulations
- Site farms in environmentally suitable locations while conserving local biodiversity, natural habitat and ecosystem function
- Develop and operate farms with consideration for surrounding communities
- Operate farms with responsible labour practices
- Manage shrimp health in a responsible manner
- Manage broodstock (mature fish for breeding) origin, stock selection and effects of stock management
- Use resources in an environmentally efficient and responsible manner

A shrimp aquaculture certification audit manual is now under development. Field testing of the standards will be undertaken before the standards and manual are handed over to the Aquaculture Stewardship Council (ASC). This extra step of field testing is necessary due to the widely diverse farm scale, ranging from farms owned by very small producers to multinational companies.



15 FAO, NACA, UNEP, WB, WWF: International Principles for Responsible Shrimp Farming http://www.fao.org/fi/oldsite/eims_search/1_dett.asp?calling=simple_s_result&lang=en&pub_id=212124 WWF: Farmed Shrimp http://www.worldwildlife.org/industries/farmed-shrimp Naturland Organic Aquaculture http://www.naturland.de/certifiedorganicaquaculture.html

Case Study: Mangrove ecosystem and shrimp aquaculture in Bangladesh

Coastal livelihoods in Southwest Bangladesh are largely dependent on its natural resources of mangrove forest (timber, wood fuel, honey, fish and other aquatic species) agriculture and marine fisheries. Following construction of the coastal embankment and other development investment, there have been drastic environmental changes. Loss of life in major flooding events has been reduced. However, this has not led to overall improvements in the living condition of the majority of people.

The issue of the emergence of shrimp farming, associated land-use changes (competition with paddy farming and encroachment upon mangrove areas), ecological changes and social contestation has been identified as an ongoing challenge for decision-making and policy formulation.

The question of how to mitigate negative impacts of shrimp farming on other kinds of livelihood, and obtain equitable benefits and alleviate poverty, should be understood as an intersection of individual, community and national-level decision-making. It must also be understood in the context of increasing pressure on resources, global market changes and climate change-related hazards.

Since the early 1990s, shrimp farming has surpassed marine shrimp harvesting due to rapid wild shrimp stock decline. The main driver behind the growth of shrimp cultivation is commercial, export-oriented business, which in two decades has displaced labour from other local agricultural activities. Although shrimp farming continues to grow, occupying a larger area over time (currently 90 per cent of the area), productivity has decreased in about 30 per cent due to virus attacks and an increase of salinity in water after the cyclone AILA affected the embankment and illegal construction of gates started in the 1990s by influential people at that time.

In 2009, a new regulation was introduced by the Bangladesh Water Development Board to close all illegal sluice gates and limit the boundaries of farming to reduce production loss. The former decision had positive effects on salinity control, although people started circulating saline water for shrimp farming over pipelines. The latter decision had positive impacts on people and on the shrimp resource. To complement and diversify shrimp farming, crab cultivation and collection has expanded rapidly in the area since the early 2000s supported by an increase in international demand accompanied with low production costs.

[Source: https://www.weadapt.org/knowledge-base/adaptation-decision-making/shrimp-aquaculture-in-bangladesh]

5.2.16 International Convention for the Regulation of Whaling (ICRW), 1946

One international convention which specifically addressed the whaling issue is the ICRW, 1946. The ICRW began as a whaling club, established 'to provide for the proper conservation of whale stocks and thus make possible the orderly development of the whaling industry,' whilst taking into account the need to safeguard whale resources from overfishing and achieve optimum level of whale stocks without causing widespread economic and nutritional distress in the context of an international system of regulation. The convention was adopted in 1946 and came into force in 1948. It was amended in 1956.

The main objective of the convention is to protect all species of whales from overfishing and safeguard for future generations the great natural resources represented by whale stocks. It also aims to establish a system of international regulation for whale fisheries to ensure proper conservation and development of whale stocks. It will also serve as an agency for the collection, analysis and publication of scientific information related to whales and whaling.

5.2.17: International Convention for the Prevention of Pollution from Ships (MARPOL)

The International Convention for the Prevention of Pollution from Ships (MARPOL) is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes.

The Convention includes regulations aimed at preventing and minimizing pollution from ships - both accidental pollution and that from routine operations - and currently includes six technical Annexes. Special Areas with strict controls on operational discharges are included in most Annexs.

MARPOL rules on garbage discharge from ships[16]

Regulation 8 of Annex V of MARPOL—the International Convention for the Prevention of Pollution from Ships—prohibits most garbage discharges from ships. To control this on the open seas is complicated, especially for small states offering cheap ship registers (Flags of Convenience). The Department of Merchant Shipping (DMS) in Cyprus, however, performs random inspections on all ships (national and foreign) within the port areas of Cyprus, as well as inspections of Cypriot ships abroad (a fleet of about 1000 foreign-going ships).

Practically, the officers check the ship's garbage management plan, the garbage record book and verify the existence of garbage disposal receipts from previous ports. They also check that garbage collected is stowed and segregated properly, and they verify that placards to notify the crew and passengers on the requirements for disposal of waste are displayed as required. The inspections are performed by Marine Surveyors of the DMS or by 14 independent Inspectors, who have been appointed in 12 ports around the world. Also small passenger ships engaged in coastal navigation are checked regularly for compliance with the applicable national requirements.

16 IMO http://www.imo.org/, MARLISCO http://www.marlisco.eu/bp36.en.html?articles=implementation-of-marpol-annex-v-in-cyprus-cyprus

Marine biological diversity beyond areas of national jurisdiction

In recent years, the international community has become increasingly aware of the range of services provided by marine ecosystems and of the rich biodiversity of pelagic and benthic ecosystems beyond the limits of national jurisdiction, namely in the high seas and the Area. The high seas are all parts of the sea that are not included in the exclusive economic zone (EEZ), in the territorial sea or in the internal waters of a state, or in the archipelagic waters of an archipelagic state, according to the UNCLOS (Article 86). The Area is the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction (UNCLOS, Article 1).

'Areas beyond national jurisdiction' (ABNJ) cover some 64 per cent of the surface of our oceans and provide over 90 per cent of its volume. They comprise the water column beyond the 200-nautical-mile EEZ of coastal states (or its territorial sea if a coastal state has not exercised its right to an EEZ), i.e., the high seas, but also include areas of the deep seabed, ocean floor and subsoil that are not subject to national jurisdiction (defined as 'the Area' by the UNCLOS).

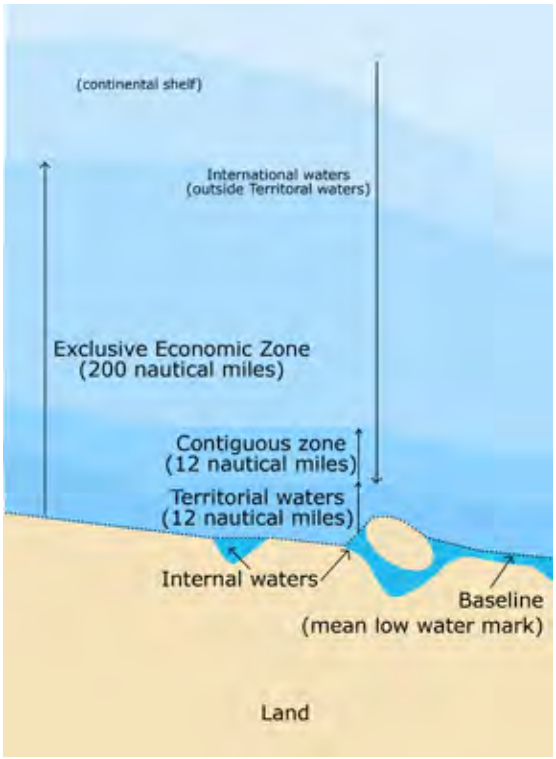
UNCLOS has been ratified by most UN member states. The United States of America as well as important fishing nations Peru and Venezuela, however, have not yet joined.

The establishment of Marine Protected Areas (MPAs), where human activities are severely limited, is an important measure for protecting and conserving the oceans. Marine species depend on complex relationships with other species and their habitats; deep sea habitats such as seamounts, cold-water coral formations and hydrothermal vents hold large reservoirs of unknown biodiversity and support highly migratory fish stocks and marine mammals. In ABNJ—where often little is known about the specific features and functioning of ecosystems—MPAs can be an important safeguard against irreversible biodiversity loss. Here MPAs can provide a mechanism for protecting not just what is known at present to be important, but what may turn out to be important in the future.

According to the UNCLOS III of 1982, the sea is divided into the following sectors to define the definite areas of sea for each state. These are:

1. Baseline
2. Internal water
3. Territorial sea
4. Contiguous zone
5. Exclusive economic zone
6. High sea
7. Continental shelf

The Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, as the secretariat of UNCLOS and the substantive entity servicing the General Assembly in its consideration of the law of the sea and ocean affairs, has a mandate to provide a range of legal and technical services, such as information, advice and assistance as well as conducting research and preparing studies with a view to promoting a better understanding of UNCLOS and the implementing Agreements, their wider acceptance, uniform and consistent application and effective implementation, including in relation to marine biodiversity beyond areas of national jurisdiction.



Source: https://upload.wikimedia.org/wikipedia/commons/7/7d/Zonmar-en.svg

5.3 Convention on Biological Diversity: An overview

5.3.1 About the convention

The convention reaffirmed that states (countries) have sovereign right over their biological resources. The objectives of the CBD, to be pursued in accordance with its relevant provisions, are

1. conservation of biological diversity;
2. sustainable use of its components; and
3. fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

A total of 196 countries are parties to this convention. Being a party to the convention brings certain obligations, such as that each party must develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, *inter alia*, the measures set out in this convention relevant to the Contracting Party concerned, and integrate, as far as possible and as appropriate, the conservation and sustainable use of biological—diversity into relevant sectoral or cross-sectoral plans, programmes and policies.

5.3.2 Convention protocols

Cartagena Protocol on Biosafety to the Convention on Biological Diversity

On 29 January 2000, the Conference of the Parties to the Convention on Biological Diversity adopted a supplementary agreement to the convention known as the Cartagena Protocol on Biosafety. The protocol seeks to protect biological diversity from the potential risks posed by living modified organisms (LMOs) resulting from modern biotechnology, by establishing a procedure to ensure that countries are provided with the information necessary to make informed decisions before importing LMOs. To facilitate the exchange of information on LMOs and to assist countries in the implementation of the protocol, the protocol also establishes a biosafety clearing-house.

Nagoya protocol on access and benefit sharing

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the CBD is a supplementary agreement to the CBD. It provides a transparent legal framework for the effective implementation of the third objective of the CBD, 'the fair and equitable sharing of benefits arising out of the utilization of genetic resources.' The Nagoya Protocol on ABS was adopted on 29 October 2010 in Nagoya, Japan, and came into force in October 2014.[17]

5.3.3 Mechanism for implementation

There are various ways and means, for implementing the convention. These mechanisms include National Biodiversity Strategies and Action Plans prepared and implemented by each party for mainstreaming biodiversity in sectoral policies and programmes. Each party submits national reports to provide information on the measures taken for the implementation of the convention. The clearing-house mechanism seeks to support the convention's thematic and cross-cutting programmes of work (PoWs) by promoting cooperation, exchanging information and developing a network of partners.

Since the CBD is a framework international convention, to make it legally effective in the member countries, there is need to have a national legislation for conservation of biological diversity. India was the first country to develop and enact such a legislation. The Biological Diversity Act of 2002 was enacted to make the principles of CBD legally effective in India.

5.3.4 Strategic plan and programmes

Triggered by the unprecedented loss of biodiversity and emerging appreciation of the urgency with which the issue needs to be addressed, heads of states, at the CoP of the CBD in the year 2002, committed 'to achieve, by 2010, a significant reduction of the current rate of biodiversity loss at the global, regional and national level, as a contribution to poverty alleviation and to the benefit of all life on Earth' with the aim of reaching this objective by 2010. This commitment is known as the biodiversity 2010 target. However, in 2010, the global community acknowledged that it had failed to achieve the target.

17 Closing remarks by the Executive Secretary of CBD at CoP-12, held at Pyeongchang, Republic of Korea, 17 October 2014. Available at http://www.cbd.int/doc/speech/2014/sp-2014-10-17-cop12-npmop1-en.pdf

A new strategic plan, therefore, has been adopted in the CBD CoP-10 in Japan, which also includes the Aichi Biodiversity targets. The findings and recommendations of the third edition of the Global Biodiversity Outlook (2010) have contributed to the formulation of the elements of the strategic plan (2011–2020).

The strategic plan adopts five strategic goals and 20 headline Aichi biodiversity targets for 2020 as organized below

Strategic goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Target 1 : By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Target 2 : By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Target 3 : By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the convention and other relevant international obligations, taking into account national socioeconomic conditions.

Target 4 : By 2020, at the latest, governments, businesses and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Strategic goal B: Reduce the direct pressures on biodiversity and promote sustainable use

Target 5 : By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Target 6 : By 2020, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and by applying ecosystem-based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Target 7 : By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Target 8 : By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 9 : By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

Target 10 : By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Strategic goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 11 : By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are

conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Target 12 : By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

Target 13 : By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socioeconomically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Strategic goal D: Enhance the benefits to all from biodiversity and ecosystem services

Target 14 : By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Target 15 : By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Target 16 : By 2015, the Nagoya Protocol on ABS is in force and operational, consistent with national legislation.

Strategic goal E: Enhance implementation through participatory planning, knowledge management and capacity building

Target 17 : By 2015, each party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Target 18 : By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the convention with the full and effective participation of indigenous and local communities, at all relevant levels.

Target 19 : By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

Target 20 : By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011–2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by parties.

Parties to the convention are invited to set their own targets within this flexible framework, taking into account national needs and priorities, while also bearing in mind national contributions to the achievement of the global targets, and report thereon to the 11th meeting of the CoP. Parties are also invited to incorporate this information in their national biodiversity strategy and action plan.

The CoP has established seven thematic PoWs, which correspond to some of the major biomes on the planet. Each programme establishes a vision for, and basic principles to guide, future work. They also set out key issues for consideration, identify potential outputs, and suggest a timetable and means for achieving these. Implementation of the work programmes depends on contributions from parties, the secretariat, relevant intergovernmental and other organizations. Periodically, the CoP and the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) review the state of implementation of the work programmes. These seven PoWs are agricultural biodiversity, dry and sub-humid lands biodiversity, forest biodiversity, inland waters biodiversity, island biodiversity, marine and coastal biodiversity, and mountain biodiversity.

5.3.5 Programme of Work (PoW) on coastal and marine biodiversity

Marine and coastal biological diversity was an early priority for the CoP, when on the request of CBD CoP-1, SBSTTA produced recommendation I/8 on scientific, technical and technological aspects of the conservation and sustainable use of marine and coastal biological diversity in its first meeting. At CBD CoP-2, the Ministerial Statement on the Implementation of the Convention on Biological Diversity referred to the new global consensus on the importance of marine and coastal biological diversity as the 'Jakarta Mandate on Marine and Coastal Biological Diversity.' The PoW aims to assist the implementation of the Jakarta mandate at national, regional and global levels. More details on this PoW are given here.

As part of its Jakarta mandate on marine and coastal biodiversity, the CBD is committed to a series of specific goals including the development of a global system of marine and coastal protected areas, the establishment and implementation of a global programme of making fisheries and mariculture sustainable, blocking the pathways of invasions of alien species, increasing ecosystem resilience to climate change, and developing, encouraging and enhancing the implementation of wide-ranging integrated marine and coastal area management (IMCAM) that includes a broad suite of measures at all levels of society.

Apart from the thematic programme areas, there are other cross-cutting issues that are of relevance to all thematic areas such as climate change, tourism, communication, education and public awareness, invasive alien species, protected areas and other important issues, details of which can be found here.

Protected areas as defined by the CBD

Substantiating the principles of sustainable development and precautionary principle articulated in the Rio declaration, the CBD is the main international legal instrument for the conservation of biological diversity. India has ratified the CBD. The CBD recognizes protected areas as a fundamental tool for safeguarding biodiversity.

The term 'protected area' is defined in Article 2 of the CBD as 'a geographically defined area, which is designated or regulated and managed to achieve specific conservation objectives.'

Article 8 contains specific references to protected areas by encouraging parties to

- Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity;
- Develop, where necessary, guidelines for the selection, establishment and management of protected areas or areas where special measures need to be taken to conserve biological diversity;
- Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use;
- Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas;
- Cooperate in providing financial and other support for in-situ conservation, particularly to developing countries.

While the definition of 'protected areas' is applicable for both terrestrial and marine areas, the legal tools and techniques for marine biodiversity conservation are much less advanced than for terrestrial environments. This is despite the fact that the oceans make up about 70 per cent of our world in terms of surface area, and comprise more than 90 per cent of the planet's biologically useful habitat. In addition, oceans perform vital ecosystem functions. Further, these ecosystems are under ever-increasing threat from activities within and outside these ecosystems. The Millennium Ecosystem Assessment, the first global assessment of the health of the planet's ecosystems, found that marine and coastal systems are among the most threatened on the planet.

PART 2

Indian laws and policies that relate to coastal and marine biodiversity

5.4 Biodiversity in the constitution of India

The protection and conservation of the environment in general and the biological diversity in particular is a duty enshrined in the constitution for the state and the citizen.

- Article 48A, which deals with the protection and improvement of environment and safeguarding of forests and wildlife, states, 'The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country.'
- Article 51A, which deals with the fundamental duties of every citizen of India, states in subpara (g), 'It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures.'

5.5 National Environment Policy

The National Environment Policy, announced by the Indian government in 2006, has the following objectives[18]:

1. **Conservation of critical environmental resources.** To protect and conserve critical ecological systems and resources, and invaluable natural and man-made heritage, which are essential for life support, livelihoods, economic growth and a broad conception of human well-being.

2. **Intragenerational equity: livelihood security for the poor.** To ensure equitable access to environmental resources and quality for all sections of society, and in particular, to ensure that poor communities, which are most dependent on environmental resources for their livelihoods, are assured secure access to these resources.

18 http://envfor.nic.in/sites/default/fi les/introduction-nep2006e.pdf

3. **Intergenerational equity.** To ensure judicious use of environmental resources to meet the needs and aspirations of the present and future generations.

4. **Integration of environmental concerns into economic and social development.** To integrate environmental concerns into policies, plans, programmes, and projects for economic and social development.

5. **Efficiency in environmental resource use.** To ensure efficient use of environmental resources in the sense of reduction in their use per unit of economic output to minimize adverse environmental impacts.

6. **Environmental governance.** To apply the principles of good governance (transparency, rationality, accountability, reduction in time and costs, participation, and regulatory independence) to the management and regulation of use of environmental resources.

7. **Enhancement of resources for environmental conservation.** To ensure higher resource flows, comprising finance, technology, management skills, traditional knowledge, and social capital, for environmental conservation through mutually beneficial multistakeholder partnerships between local communities, public agencies, the academic and research community, investors, and multilateral and bilateral development partners.

The concept of 'protected areas' has been traditionally developed and applied in the context of terrestrial areas. The scientific understanding about the operation of marine ecosystems is in its infancy, and the legal framework for MPAs in many countries continues to be dispersed and fragmented. The need for protected areas in the marine and coastal context, developed in the context of specific, scientific knowledge and management challenges has been recognized by the international community.

National Biodiversity Targets for India

By 2020

- By 2020, a significant proportion of the country's population, especially the youth, is aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.
- By 2020, values of biodiversity are integrated in national and state planning processes, development programmes and poverty alleviation strategies
- Strategies for reducing rate of degradation, fragmentation and loss of all natural habitats are finalized and actions put in place by 2020 for environmental amelioration and human well-being.
- By 2020, invasive alien species and pathways are identified and strategies to manage them developed so that populations of prioritized invasive alien species are managed
- By 2020, measures are adopted for sustainable management of agriculture, forestry and fisheries.
- Ecologically representative areas under terrestrial and inland water, and also coastal and marine zones, especially those of particular importance for species, biodiversity and ecosystem services, are conserved effectively and equitably, based on protected area designation and management and other areabased conservation measures and are integrated into the wider landscapes and seascapes, covering over 20% of the geographic area of the country, by 2020.
- By 2020, genetic diversity of cultivated plants, farm livestock, and their wild relatives, including other socioeconomically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.
- By 2020, ecosystem services, especially those relating to water, human health, livelihoods and well-being, are enumerated and measures to safeguard them are identified, taking into account the needs of women and local communities, particularly the poor and vulnerable sections.
- By 2015, Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization as per the Nagoya Protocol are operational, consistent with national legislations.
- By 2020, an effective, participatory and updated national biodiversity action plan is made operational at different levels of governance
- By 2020, national initiatives using communities' traditional knowledge relating to biodiversity are strengthened, with the view to protecting this knowledge in accordance with national legislations and international obligations.
- By 2020, opportunities to increase the availability of financial, human and technical resources to facilitate effective implementation of the Strategic Plan for Biodiversity 2011-2020 and the national targets are identified and the Strategy for Resource Mobilization is adopted.

5.6 Wildlife (Protection) Act, 1972 (WPA) in the context of MPAs[19]

The WPA lays down the overall regime of identifying and notifying areas as 'protected areas.' The need to protect marine flora and fauna was specifically recognized and reflected in the statement of objects and reasons of the Wildlife (Protection) Amendment Act, 1991 (Mehra 2012).

The amendment of the Wildlife Protection Act in 2002, introduced the definition of 'protected area' through the inclusion of Section 2(24). Under the definition, a 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.' The first point to take note of is that the definition is not an inclusive definition. Rather, it specifies only four categories of protected areas, which are specifically defined under the act—national parks, sanctuaries, conservation reserves and community areas.

The procedural requirements for declaration, governance structures, entailing rights, restrictions and obligations for each category are outlined in the Wildlife (Protection) Act, 1972 Protection Act. In this section, each category of 'Protected Areas,' and their implications and applicability are examined in the context of marine areas.

19 Text in the sections 5.6 to 5.9 and 5.13 is sourced and adapted from a technical report "Review of Legal Framework with Respect to the Conservation of the Coastal and Marine Environment of India" prepared by 'Lawyers Initiative for Forest and Environment' on behalf of the CMPA project, GIZ India. Contributions from the authors of the report are gratefully acknowledged.

5.6.1 Sanctuaries[20]

Areas of 'adequate ecological, faunal, floral, geomorphological, natural or zoological significance' can be declared as sanctuaries for the purpose of protecting, propagating or developing wildlife or its environment.

Under Chapter IV of the Wildlife Protection Act, there is a set of procedures for areas falling within any reserve forest[22] or territorial waters,[23] and a separate procedure for all other areas. In terms of procedural requirements for the declaration of sanctuaries, they have been broadly classified and discussed as under.

- **Areas not comprising territorial waters (and reserve forests).** Section 18(1) of the Wildlife Protection Act states, 'The State Government may, by notification, declare its intention to constitute any area other than an area comprised within any reserve forest or the territorial waters as a sanctuary.' For such areas, the state government first declares its intention to notify an area as a sanctuary. Thereafter, the district collector is responsible for determining the existence, nature and extent of rights claimed by any person in or over the notified area, and accepts, rejects or compensates for the claims.

  The act also includes provisions for adequate notice in regional languages, so that the affected people can meaningfully assert their claims. The act clearly requires that the collector has to pass an order in respect of every claim raised—whether it admits or rejects the claim. Further, the state government also has the responsibility for making alternate arrangements of fuel, fodder and other forest produce in the interim period, till the final settlement of claims.

  Sanctuaries can be declared by the state government or by the central government in respect of any land transferred to it by the state government. The procedure for declaration as well as the implications of such declaration are the same.[19]

- **Areas comprising territorial waters.** For a sanctuary comprising these areas, only a summary procedure under subsection (b) of Section 26A is provided. For such areas, the state government can issue a notification specifying the limits of the area and declare it to be a sanctuary from a specific date. For territorial waters, the state government is required to obtain the prior concurrence of the central government.

  Section 26, states that 'the limits of the territorial waters to be included in the sanctuary shall be determined … after taking adequate measures to protect the occupational interests of the local fishermen.' However, there is no requirement of publication of any declaration of the intention to notify a marine area as a sanctuary, or consultation with local communities before declaring an area as a sanctuary.

5.6.2 National Parks[24]

Areas of ecological, faunal, floral, geomorphological or zoological association or importance may be declared as national parks for protecting, propagating or developing wildlife, or its environment.

20 A sanctuary is defined under Section 2(26) as 'an area declared as a sanctuary by notification under the provisions under Chapter IV of this Act and shall also include a deemed sanctuary under subsection (4) of section 66.'

21 Section 38(1) of the WPA.

22 'Reserve forest' as declared by state governments under the Indian Forest Act, 1927.

23 Territorial waters' as defined under Section 3 of the Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976.

24 A national park is defined under Section 2(21) of the Wildlife Protection Act as an area declared, whether under Section 35 or Section 38, or deemed, under subsection (3) of Section 66, to be declared a national park.

The proviso to subsection (1) of Section 35 states that where any part of the territorial waters is proposed to be included in a national park, only the provisions of Section 26A will apply. For other areas, subsection (1) of Section 35 outlines the ordinary procedure for declaring the intention of the state government to demarcate an area as a national park, and subsection (3) states that the procedure for determination and settlement of existing rights applicable for sanctuaries under Sections 19–26A would apply to national parks as well.

Therefore, the same issues identified in the process of declaring territorial waters as sanctuaries are applicable for national parks as well. This is further clarified in subsection (3) of Section 35, which mentions that when an area is intended to be declared as a national park, the provisions of the procedure for determination and settlement of existing rights are applicable only 'in relation to any land in such area.'

The primary difference between sanctuaries and national parks is that in the case of national parks, all rights in respect of lands proposed to be included in the national park have to be vested in the state government. In a sanctuary, on the other hand, a collector may allow, in consultation with the Chief Wildlife Warden, the continuance of any right of any person in or over any land within the limits of the sanctuary.[25]

A national park can be declared by the state government, or by the central government in respect of any land transferred to it by the state government. The procedure for declaring an area as a national park by a state government is provided under Section 35. Section 38(2), applicable for a national park declared by the central government, refers to the same provisions. The procedure for the declaration of a national park is substantially similar to the procedure relating to sanctuaries, and follows a similar differentiation between areas comprising reserve forests and territorial waters and all other areas.

5.6.3 Conservation reserve

The concepts of conservation reserves and community reserves were introduced through the amendment of the Wildlife Protection Act in 2003. Both aimed at twin objectives of improving the socioeconomic conditions of people as well as conservation of wildlife. Conservation reserves are areas which are owned by the state government and are adjacent to, or link, too protected areas.

Since the criteria indicate that a conservation reserve can be 'any area,' and that the purpose is to protect 'landscapes, seascapes, flora, fauna and their habitat,' a conservation reserve could technically include a coastal and marine area.

For the purpose of administration of such areas, the act provides that the state government is to constitute a conservation reserve management committee, which includes representation of the village panchayats of the affected areas and non-governmental organizations.

Subsection (1) of section 36A provides for consultation with local communities for such a declaration. Further, the implications of declaration of an area as a conservation reserve are far less stringent than for a sanctuary or a national park in terms of the restrictions on permissible activities. It mostly relates to responsible and ecologically benign behaviour within the area, rather than a restriction of rights.

The state government may notify any private or community land as a community reserve where individuals or any community volunteers to protect the flora and fauna, traditions, cultures and practices related to the area. The act provides for the constitution of a Community Reserve Management Committee for the administration of such areas.

25 This is permissible under Section 24(2)(c) of the Wildlife Protection Act, which has been specifically excluded in Section 35 in respect of national parks.

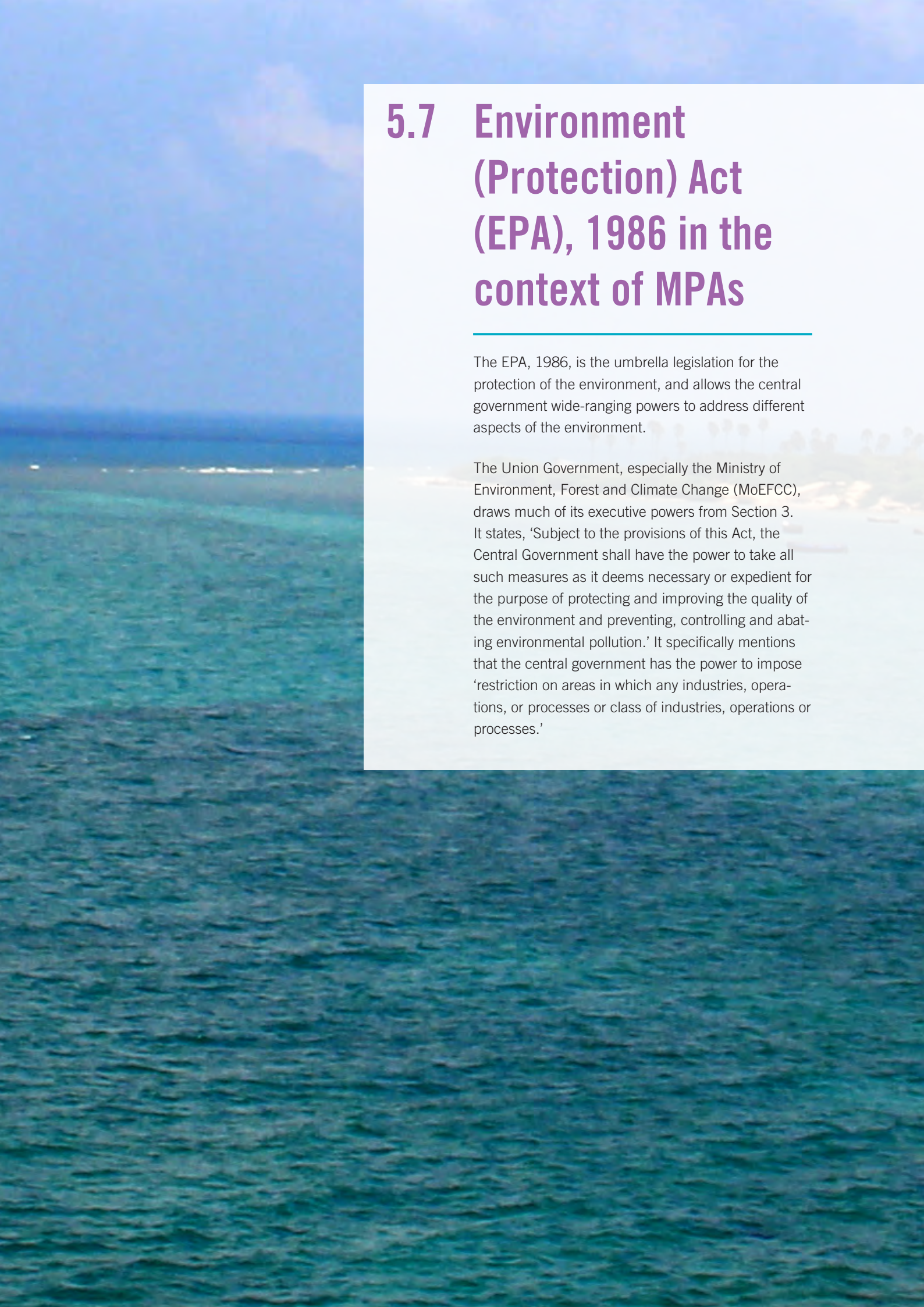
5.6.4 Community Reserve

Community reserve, also a recently introduced concept, pertains only to land. However, the concept of community reserves is related to land, and marine areas would not be included within the scope of community reserves.

5.6.5 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



5.7 Environment (Protection) Act (EPA), 1986 in the context of MPAs

The EPA, 1986, is the umbrella legislation for the protection of the environment, and allows the central government wide-ranging powers to address different aspects of the environment.

The Union Government, especially the Ministry of Environment, Forest and Climate Change (MoEFCC), draws much of its executive powers from Section 3. It states, 'Subject to the provisions of this Act, the Central Government shall have the power to take all such measures as it deems necessary or expedient for the purpose of protecting and improving the quality of the environment and preventing, controlling and abating environmental pollution.' It specifically mentions that the central government has the power to impose 'restriction on areas in which any industries, operations, or processes or class of industries, operations or processes.'

The Environment (Protection) Rules, 1986, further elaborate the power of the central government to impose prohibitions and restrictions. Under Rule 5, the central government may take into consideration the following factors while prohibiting or restricting the location of industries and carrying on of processes and operations in different areas. They are

- The biological diversity of the area, which, in the opinion of the central government needs to be preserved.
- Net adverse environmental impact likely to be caused by an industry, process or operation proposed to be prohibited or restricted.
- Proximity to a protected area under the Ancient Monuments and Archaeological Sites and Remains Act, 1958, or a sanctuary, national park, game reserve or closed area notified as such under the WPA, or places protected under any treaty, agreement or convention with any other country or countries or in pursuance of any decision made in any international conference, association or other body.
- Any other factor as may be considered by the central government to be relevant to the protection of the environment in an area.

The government of India has specific criteria for declaration of Eco-Sensitive Areas (ESAs). These are areas where there are imminent possibilities of permanent and irreparable loss of extant life forms from the world, or significant damage to the natural processes of evolution and speciation.

There are 13 principal parameters for assessing ecological sensitivity, which are categorized in three broad ways. They are

- Species based
  1. Endemism
  2. Rarity
  3. Endangered species
  4. Centres of evolution of domesticated species

- Ecosystem based
  5. Wildlife corridors
  6. Specialized ecosystems
  7. Special breeding site/area
  8. Areas with intrinsically low resilience
  9. Sacred groves
  10. Frontier forests

- Geomorphological features based
  11. Uninhabited islands in the sea
  12. Steep slopes
  13. Origins of rivers

The MoEFCC has declared ESAs under the EPA, 1986. One of the first instances of the use of these legal provisions by the central government was Murud-Janjira, a coastal village in Raigad District of Maharashtra, in 1989. The notification currently prohibits the location of industries in the region (except industries linked with tourism, for which environmental impacts are to be assessed) to preserve the mangrove ecosystem of Murud. However, the specific term ‘ESA’ was not used in that notification.

The second ESA in Maharashtra is Dahanu. In 1988, the Mumbai Suburban Electric Supply Limited proposed to set up a 500-MW thermal power plant in Dahanu Taluka of Maharashtra. Alarmed by its environmental consequences, the residents of Dahanu filed a writ petition in the Mumbai high court. The Mumbai high court and later the supreme court permitted the setting up of the thermal power plant in their respective orders. However, local groups like the Dahanu Taluka Environment Protection Group with assistance from groups like the Mumbai Environmental Action Group lobbied for the declaration of the area as an ESA. The notification was issued in 1991, but only after the thermal power plant was permitted; also it was the first time that the term 'ecologically fragile area' was used in such a notification.

However, it took a supreme court order in 1996 to finally constitute the Dahanu Taluka Environment Protection Authority (DTEPA) to monitor the compliance of the Dahanu ESA Notification. The DTEPA has actively examined the environmental impact of proposed development projects in the region, and has ensured the installation of a flue gas de-sulphurization plant in the thermal power plant and prevented the establishment of a port in Dahanu. The DTEPA's role may have been facilitated by the fact that it has executive powers to safeguard Dahanu—it is not under governmental control and is answerable only to the Supreme Court (Kapoor et.al 2009).

The notification of ESAs is an important conservation tool. However, ESAs cannot be termed as protected areas in view of the fact that only limited numbers of activities are prohibited in such areas. Nevertheless, the option of ESAs is worth exploring for the following reasons:

- The process of declaration is much simpler and quicker as compared to declaration of national parks and wildlife sanctuaries.
- The specific threats in a particular area can be identified and only appropriate restrictions imposed rather than prohibiting all kind of activities.
- They have a limited adverse impact on livelihoods in view of the fact that virtually no restrictions are imposed on the nonindustrial or construction activities.
- The areas adjoining national parks and sanctuaries can be declared as ESAs. This in turn will help create a buffer zone around the protected areas, thus providing an additional layer of protection.
- The existing rights of local residents are largely untouched.

India has very limited undisturbed coastal stretches, and each day more and more projects are being approved in the sensitive zones. In situations where declaration of national parks and sanctuaries under the WPA, is not possible, it is essential that the relatively softer option of ESA be seriously explored.

5.8 Biological Diversity Act, 2002 in the context of MPAs

The Act parliament of India enacted the Biological Diversity Act, 2002, to meet its obligations under the CBD. The act contains provisions aimed at the preservation of biological diversity in India, and establishing a mechanism for equitable sharing of benefits arising out of the use of traditional biological resources and knowledge.

'Biological diversity' has been defined as 'the variability among living organisms from all sources and the ecological complexes of which they are part, and includes diversity within species or between species and of eco systems' (Section 2(b)).

In terms of delineating protected areas, the act gives powers to the state government under Section 37 to establish Biodiversity Heritage Sites. This can be done by issuing a notification in consultation with the local bodies. Further, the state government can frame schemes for compensating or rehabilitating any person or section of people economically affected by such notification, and also frame rules for the management and conservation of the heritage sites.

According to the factsheet on the status of implementation of the Biological Diversity Act, as on December 2011, four Biodiversity Heritage Sites have been notified.[26]

The Biodiversity Act also provides for the constitution of local-level Biodiversity Management Committees (BMCs) for, inter alia, promoting conservation and sustainable use of biological diversity.[27] India has 32,796 BMCs.

26 Biodiversity—future secured. Report of the National Biodiversity Authority. Available at http://nbaindia.org/uploaded/pdf/Fact%20Sheets.pdf

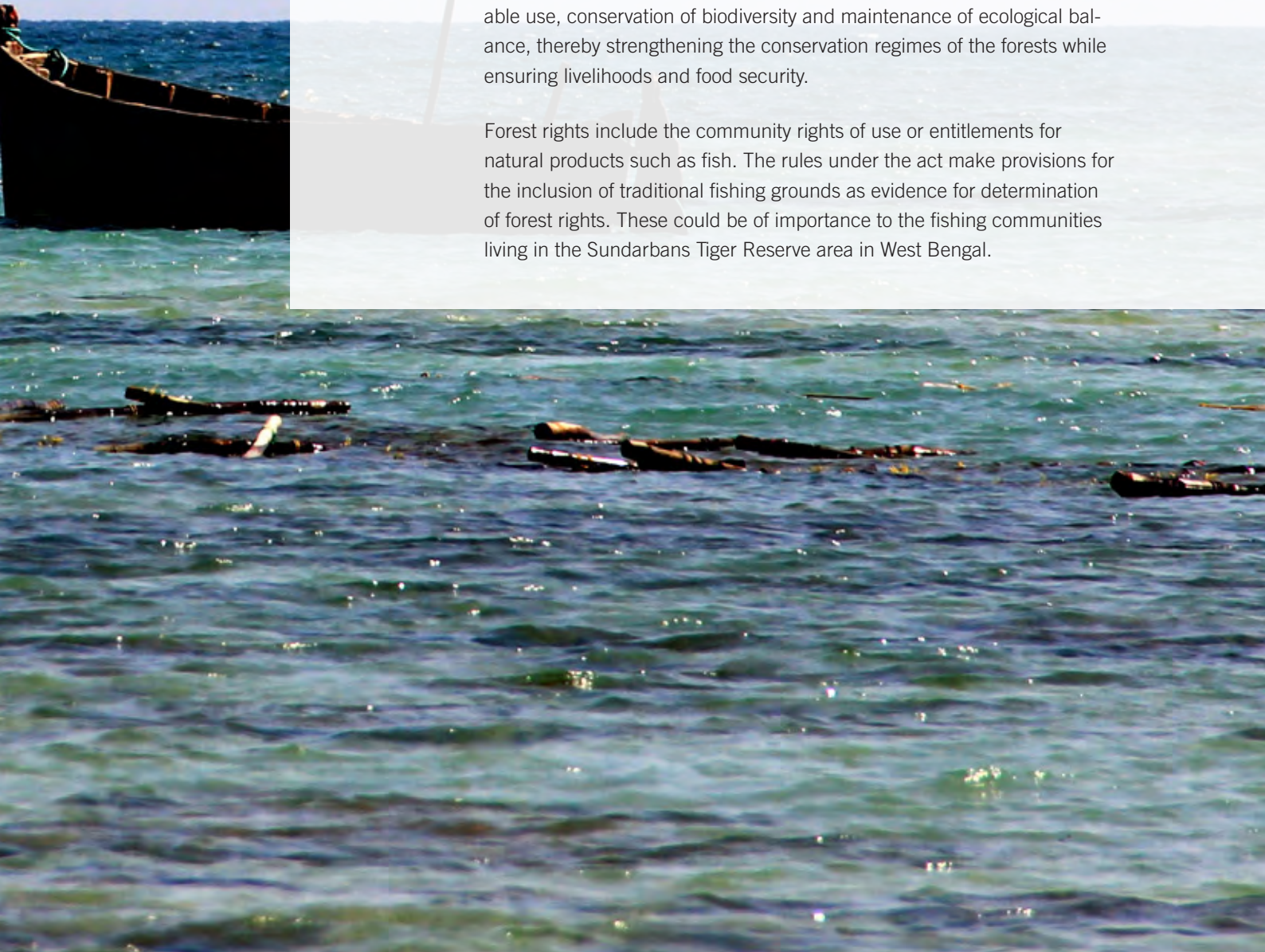
27 Section 41, Biodiversity Act.

5.9 Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 in the context of MPAs

The recently enacted Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, or FRA, is a landmark legislation, in that it recognizes and vests forest rights and occupation in forest land on forest-dwelling Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for generations but whose rights could not be recorded.

It also provides for a framework for recording forest rights. The recognized rights under the act include the responsibility and authority for sustainable use, conservation of biodiversity and maintenance of ecological balance, thereby strengthening the conservation regimes of the forests while ensuring livelihoods and food security.

Forest rights include the community rights of use or entitlements for natural products such as fish. The rules under the act make provisions for the inclusion of traditional fishing grounds as evidence for determination of forest rights. These could be of importance to the fishing communities living in the Sundarbans Tiger Reserve area in West Bengal.



Biosphere Reserves

In addition to the types of protected areas under the legal provisions, India has also announced 'Biosphere Reserves.' UNESCO in its Man and Biosphere programme initiated the concept of biosphere reserves. These are representative parts of natural and cultural landscapes extending over large areas of terrestrial or coastal/marine ecosystems or a combination of the two. Biosphere reserves do not have a separate legal status. It is viewed in the broader approach of resource management and development planning from the perspective of conservation of biodiversity. India recognizes coasts as one of its 10 biogeographic zones.[28]

A Case of Gulf of Mannar National Park (GOMNP) and Biosphere Reserve

There are instances where a national park or a sanctuary is part of a larger biosphere reserve. An example of this is the Gulf of Mannar National Park. In 1986, the Gulf of Mannar region was declared as a marine national park by a Government of Tamil Nadu notification under the Wildlife Protection Act. The area of the GOMNP is 560 sq km. It includes 21 islands, bordering the districts of Tuticorin and Ramanathapuram. The example of this national park highlights issues of rights and access of fishworkers to their traditional fishing grounds and the problems that arise in the declaration of an area as a marine national park. The park and its 10-km buffer zone were declared a biosphere reserve in 1989.

Although the national park was declared 20 years ago, there was no restriction on fishing until recently. It is only since 2002 that restrictions on accessing fishing grounds have been put in place and enforced by the forest department (Rajagopalan 2008). Demarcation buoys were deployed in 2006 around the islands, and fishworkers are now not allowed to fish inside the waters demarcated by the buoys. For the fishing community here, this has meant denial of access to their primary fishing grounds. This has led to regular confrontation and conflicts between the fishing community and forest guards.

The fishing community around the national park have from time to time implemented self-regulation, demonstrating that there is knowledge of the declining health of the marine ecosystem, such as a ban on collection of turtle eggs and a restriction on the number of days when seaweeds can be collected. These regulations are enforced by a guard from within the community, appointed by the villagers. The regulations are being strictly observed, especially as there are penalties for violation, including handing over of violators to the forest guards.

While fishing is considered as one of the major threats to the marine resources of the GOM area, there are other developmental activities that pose threats to the biodiversity of the area, such as the upcoming Sethusamudram canal project, and other industrial projects on the Tuticorin coast. These development structures may be outside of the protected area but pose a threat to the coral reefs and seagrass ecosystem of the park.

If we look from the conservation point of view, biosphere reserves serve as a limited conservation tool in view of the fact that they have no legal backing. In addition, unlike tiger reserves and other protected areas, financial support from the central government is also very limited.

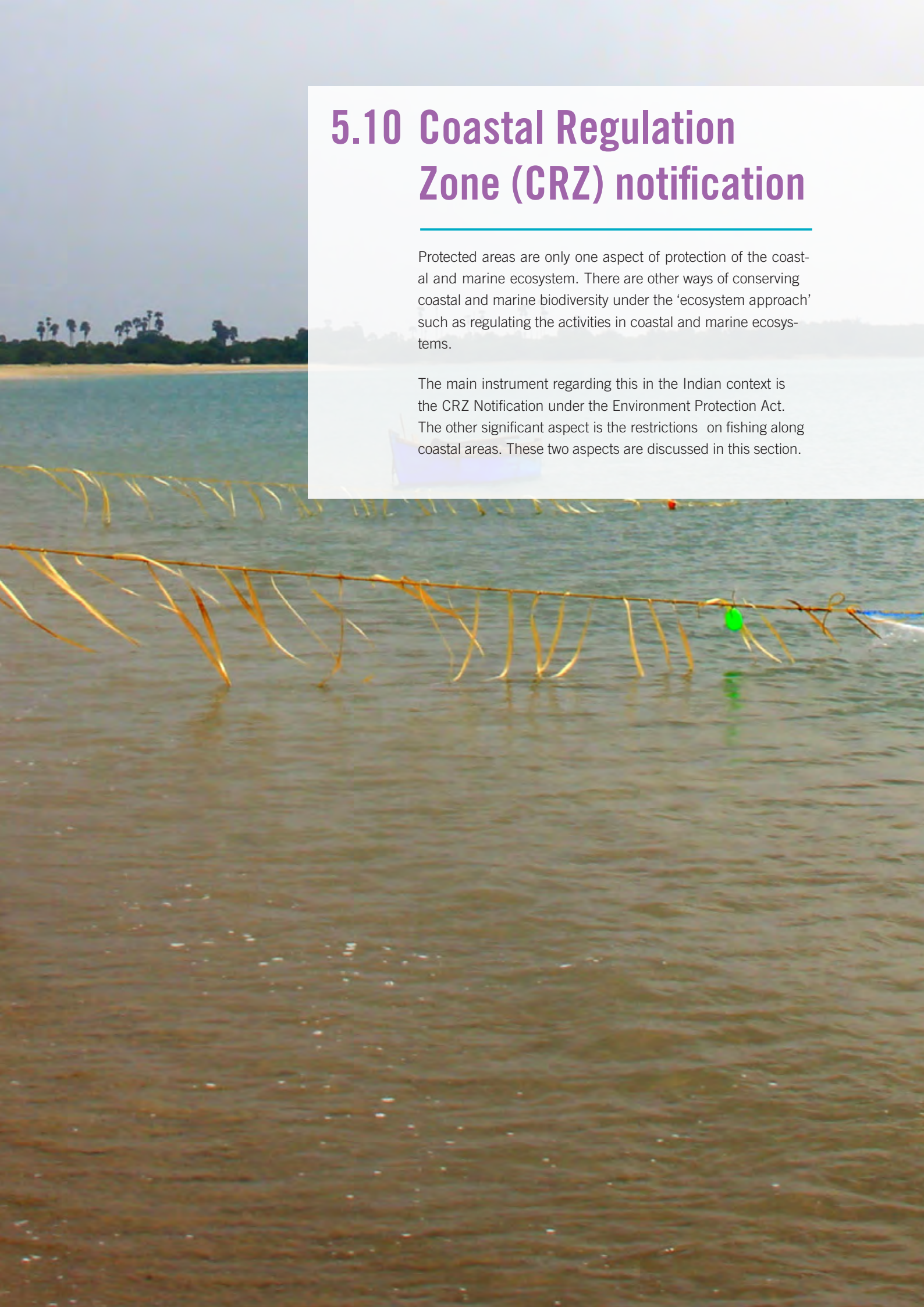
[Source: The International Collective in Support of Fishworkers (ICSF) http://www.icsf.net/]

28 Protection, development, maintenance and research in biosphere reserves in India. Guidelines issued by the Ministry of Environment and Forests (2007). Available at envfor.nic.in/divisions/csurv/BR_Guidelines.pdf

5.10 Coastal Regulation Zone (CRZ) notification

Protected areas are only one aspect of protection of the coastal and marine ecosystem. There are other ways of conserving coastal and marine biodiversity under the 'ecosystem approach' such as regulating the activities in coastal and marine ecosystems.

The main instrument regarding this in the Indian context is the CRZ Notification under the Environment Protection Act. The other significant aspect is the restrictions on fishing along coastal areas. These two aspects are discussed in this section.



5.10.1 CRZ Notification, 2011

Source: http://www.moef.nic.in/downloads/public-information/CRZ-Notification-2011.pdf

The CRZ Notification, 2011, issued under the provisions of the EPA, 1986, supersedes the CRZ Notification of 1991. The CRZ Notification, 2011, was an outcome of detailed deliberation and consultation. The CRZ Notification has specific provisions with respect to protection of marine areas. The CRZ Notification is based on the classification of coastal areas into different categories. It is not a hierarchical classification, but rather a classification based on the geographical locations. One of the stated objectives of the CRZ Notification is to 'conserve and protect coastal stretches, its unique environment and its marine areas.' Further, it is stated that the purpose is to ensure livelihood security to the fisher communities and other local communities in coastal areas.

The main objectives of the CRZ Notification, 2011, are

- To ensure livelihood security to the fishing communities and other local communities living in the coastal areas;
- To conserve and protect coastal stretches; and
- 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.

The CRZ Notification imposes a range of restrictions and regulations in relation to various activities in the various categories. The CRZ Notification can be viewed as a significant legal instrument that provides for restrictions on the setting and expansion of industries, operations and processes in coastal stretches including creeks and the landward sides of the creek.

The CRZ Notification requires that the high tide line (HTL) be demarcated throughout the country by a demarcating authority which is authorized by the MoEFCC.

The CRZ Notification essentially regulates construction activities in the CRZ areas.

5.10.2 General prohibitions under CRZ

The general prohibition and regulations are mentioned in para 3 of the notification. It specifically prohibits the setting up of new industries and expansion of existing industries. However, the prohibition is not absolute, and certain industries and activities are allowed in CRZ. These include projects of the Department of Atomic Energy, power generation by nonconventional energy sources and setting up of desalination plants in areas other than CRZ.

In addition, reconstruction, repair works of dwelling units of local communities including fisher communities, fish drying and setting up hatchery are allowed. However, setting up and expansion of fish processing units including warehousing is specifically prohibited. Further, there is a restriction on reclamation, bunding or disturbing the natural course of seawater. However, there are exceptions to this rule, and construction and modernization of ports, harbours, jetties, sea link, etc., is permissible. Similarly, based on Environmental Impact Assessment (EIA) studies, measures for control of erosion, clearing of waterways, etc., are also allowed. Mining of sand, rock and substrata material is prohibited. However, extraction of rare minerals not available outside CRZ areas as well as oil and natural gas extraction is allowed.

5.10.3 General regulation under CRZ

The CRZ Notification stipulates that clearance 'shall' be given for any activity within the CRZ only if it requires waterfront and foreshore facilities.

5.10.4 Coastal Zone Management Plan (CZMP)

The CRZ Notification provides for the preparation of a CZMP. It is specifically provided that all coastal states and union territories shall by January 2013 prepare a CZMP identifying and classifying CRZ areas in their respective territories.[29] All developmental activities mentioned in the CRZ Notification shall be regulated by the state government, union territory administration, local authority or the concerned coastal zone management authority within the framework of the approved CZMPs.

5.10.5 Implementation of the CRZ Notification

Violations of the CRZ Notification and compliance-related issues will attract the provisions of the EPA, 1986.

The enforcement of the notification shall be the primary responsibility of the state government or union territory coastal zone management authority.

29 Para 5 (vi) of the EIA Notification, 2011.

5.10.6 Identification and classification of CRZ areas under the 2011 notification

1. CRZ-I (ECOLOGICALLY SENSITIVE)

Ecologically sensitive areas and the geomorphological features that play a primary role in maintaining the integrity of the coast

i. Mangroves, in case mangrove area is more than 1000 square metres, a buffer area of 50 metres shall be provided

ii. Corals and coral reefs and associated biodiversity

iii. Sand dunes

iv. Mudflats which are biologically active

v. National parks, marine parks, sanctuaries, reserve forests, wildlife habitats and other protected areas under the provisions of WPA, the Forest (Conservation) Act, 1980, or the EPA, 1986, including biosphere reserves encompassing

- Salt marshes
- Turtle nesting grounds
- Horseshoe crabs habitats
- Seagrass beds
- Nesting grounds of birds
- Areas or structures of archaeological importance and heritage sites

vi. The area between the low tide line (LTL) and the HTL.

2. CRZ-II (BUILT-UP AREA)

Areas which are developed up to or close to the shoreline and falling within municipal limits.

3. CRZ-III (RURAL AREA)

CRZ-III areas are those areas that are relatively undisturbed and do not fall under either category I or II and also include rural and urban areas that are not substantially developed.

4. CRZ-IV (WATER AREAS UPTO THE TERRITORIAL WATERS AND THE TIDAL-INFLUENCED WATER BODIES)

The aquatic area from the LTL up to territorial limits is classified as CRZ-IV including the area of the tidal-influenced water body.

Activities permitted in different zones

CRZ-I

1. No new construction shall be permitted in CRZ-I except
   - Projects relating to the Department of Atomic Energy; pipelines, conveying systems including transmission lines;
   - Facilities that are essential for activities permissible under CRZ-I;
   - Installation of weather radar for monitoring of cyclone movement and prediction by the Indian Meteorological Department;

- Construction of trans-harbour sea link and roads on stilts or pillars without affecting the tidal flow of water, between LTL and HTL;
- Development of a greenfield airport already permitted at only Navi Mumbai.

2. Between LTL and HTL in areas which are not ecologically sensitive, the following may be permitted
    - Exploration and extraction of natural gas;
    - Construction of dispensaries, schools, public rain shelter, community toilets, bridges, roads, jetties, water supply, drainage, sewerage which are required to meet the needs of traditional inhabitants living within the biosphere reserves after obtaining approval from the concerned Coastal Zone Management Authority (CZMA);
    - Salt harvesting by solar evaporation of seawater;
    - Desalination plants;
    - Storage of nonhazardous cargo such as edible oil, fertilizers and foodgrain within notified ports;
    - Construction of trans-harbour sea links, roads on stilts or pillars without affecting the tidal flow of water.

CRZ-II

Buildings are permissible on the landward side of the existing road, authorized structure or hazard line where there are no authorized structures. Other activities such as desalination plants and storage of nonhazardous cargo are also permissible. The floor space index and floor area ratio for construction projects shall be as on February 1991 except for those specified in the CRZ Notification, 2011, which is mainly for slum redevelopment and redevelopment of dilapidated structures.

CRZ-III

All permissible activities for CRZ-III as listed in the CRZ Notification, 1991, are retained in the notification. Between 0 and 200 metres from HTL is a No Development Zone (NDZ) where no construction shall be permitted. Only certain activities relating to agriculture, horticulture, gardens, pasture, parks, playfield, forestry, projects of Department of Atomic Energy, mining of rare minerals, salt manufacture from seawater, facilities for receipt, storage, regasification of petroleum products and liquefied natural gas, facilities for generating power by nonconventional energy sources and certain public facilities may be permitted in this zone.

Between 200 and 500 metres of HTL, construction and repair of houses of local communities, tourism projects including a greenfield airport at Navi Mumbai, facilities for receipt, storage, degasification of petroleum products and liquefied natural gas, storage of nonhazardous cargo, desalination plants, and facilities for generating power by nonconventional energy sources are permissible.

CRZ-IV

In CRZ-IV areas, there is no restriction on the traditional fishing and allied activities undertaken by local communities. However, no untreated sewage, effluents or solid waste shall be let off or dumped in these areas. A comprehensive plan for treatment of sewage generated from the city must be formulated within a period of one year from the date of issue of this notification and be implemented within two years thereafter.

A separate draft Island Protection Zone Notification has been issued for protection of the islands of Andaman & Nicobar and Lakshadweep under EPA, 1986.

With respect to MPAs, the CRZ categories which are relevant are CRZ-I and CRZ-IV. In addition, new categories such as 'Critical Vulnerable Coastal Area' are also relevant.

5.10.7 New provisions contained in the 2011 notification to benefit the fisherfolk community

Since the fishing communities traditionally live in the coastal areas, they have been given primary importance when drafting the CRZ Notification, 2011. One of the stated objectives of the notification is 'to ensure livelihood security to the fisher communities and other local communities, living in the coastal areas … and to promote development through sustainable manner based on scientific principles taking into account the dangers of natural hazards in the coastal areas, sea level rise due to global warming.'

Greater Mumbai: For the traditional fishing communities (viz., the Kolis) living in *Koliwadas* in Greater Mumbai, a provision has been made available, wherein the area concerned shall be mapped and declared as CRZ-III, and development including construction and reconstruction can be taken up as per local town and country planning regulations.

The following are the provisions in the 2011 notification that address the issues relating to fishermen community:

1. Water area up to 12 nautical miles and the tidal-influenced water bodies have been included under the CRZ areas in order to

    - Control the discharge of untreated sewage and effluents and the disposal of solid wastes as such activities endanger the fish and their ecosystem

    - Conserve and protect habitats in the marine area such as corals and coral reefs and associated biodiversity, marine sanctuaries and biosphere reserves, and seagrass beds, which act as spawning, nursery and rearing grounds for fish and fisheries

    - Regulate activities in the marine and coastal waters such as dredging, sand mining, discharge of waste from ships, construction like groynes (barriers in the sea to prevent erosion), breakwaters, etc., including reclamation which have serious impacts on fishing and allied activities

    - Enable studies of the coastal and marine waters with regard to the impact of climate change and the occurrence of disasters which have serious impacts on the livelihood and property of the fisherfolk communities. It may be noted that no restrictions are being imposed on any fishing activities and allied activities of the traditional fishing communities in this area.

2. At several coastal stretches of the country, the fishermen and their dwelling units are in danger due to erosion which is occurring primarily due to man-made activities. The development of such man-made foreshore activities shall be regulated after identifying and demarcating the coast as falling in the high eroding category, the medium eroding category or the stable sites category.

3. While preparing the CZMPs, the infrastructures essential for fishing communities must be clearly demarcated and fishing zones in the water bodies and the fish breeding areas shall also be clearly marked.

Goa : As per the CRZ Notification, 1991, expansion/reconstruction/repair of dwelling units of local communities in CRZ areas was viewed as violations of the notification if the requisite permission had not been taken from the authorities. The government of Goa is required to survey and map the fishing villages all along the Goa coast and all facilities required for fishing and allied activities shall be provided. Such units (approx.. 5000) were ordered to be demolished by the Hon'ble High Court of Mumbai. However, the 2011 notification provides that reconstruction and repair of the structures of local communities shall also be permissible in CRZ areas.

4. The 2011 notification requires the Coastal Zone Management

5. Authorities to invite comments on the draft CZMP from stakeholders. This will ensure that for the first time, local communities, including fishermen communities, will have a say in the preparation of the CZMPs.

6. The notification allows infrastructural facilities for the local fishing communities to be constructed in the CRZ-III area.

7. Reconstruction and repair works of dwelling units of local communities including fisheries in accordance with local Town and Country Planning Regulations have been made permissible.

8. In CRZ-III areas where 0–200 metres is a NDZ, to meet the demands of dwelling units of traditional coastal communities including fisherfolk, the NDZ has been reduced to 100 metres. Hence, dwelling units of such communities can be constructed 100–200 metres from the HTL along the seafront with the approval of the state government and the MoEFCC.

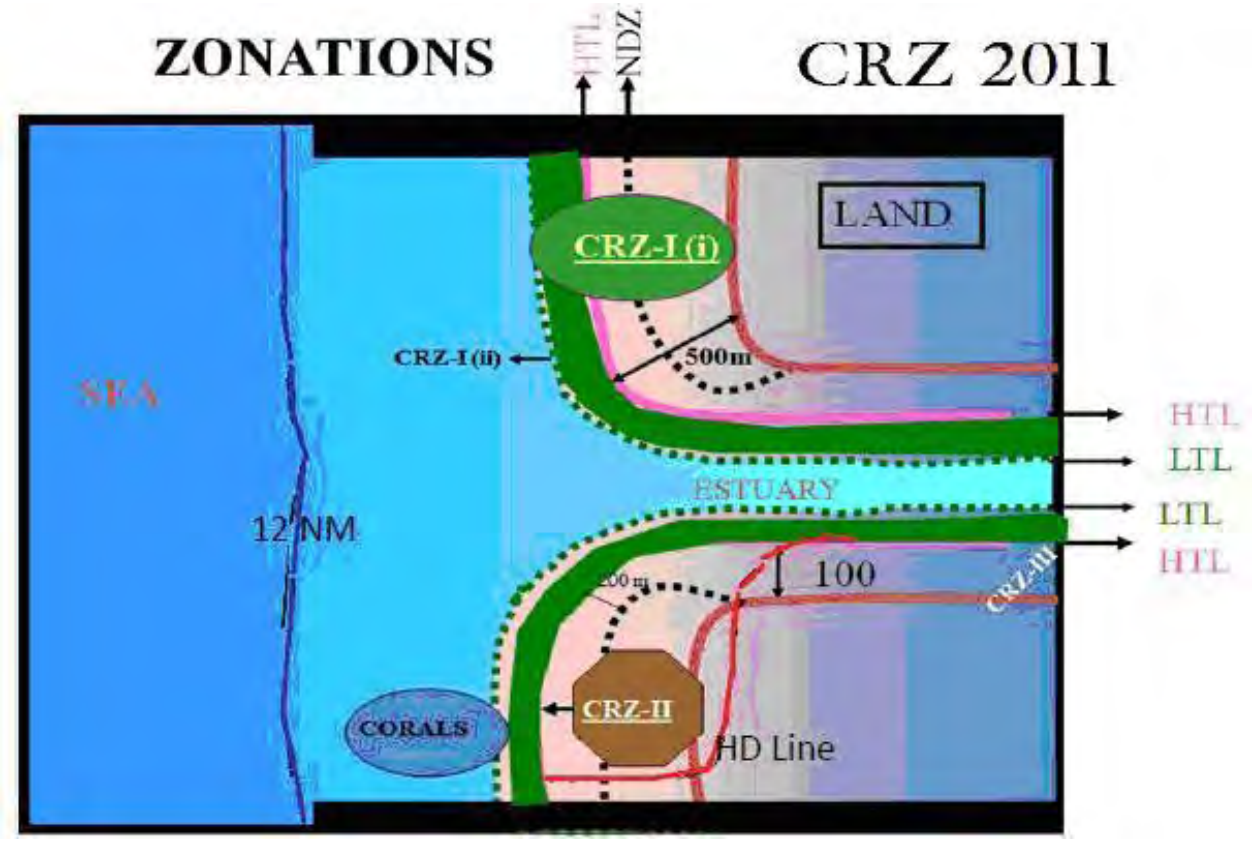


Figure 1: Different CRZ ZONES along the coast
(Source: http://www.kadamenviro.com/CRZ-Clearance.html)

5.11 Environmental Impact Assessment (EIA) Notification, 1994

EIA is an important management tool for ensuring optimal use of natural resources for sustainable development. A beginning in this direction was made in our country with the impact assessment of river valley projects in 1978–79, and the scope has subsequently been enhanced to cover other developmental sectors such as industries, thermal power projects and mining schemes. To facilitate collection of environmental data and preparation of management plans, guidelines have been evolved and circulated to the concerned central and state government departments. EIA has now been made mandatory under the EPA, 1986, for 29 categories of developmental activities involving investments of Rs. 50 crores and above.

5.12 Wetlands (Conservation and Management) Rules, 2010

Wetlands are areas of land where the water level remains near or above the surface of the ground for most of the year. The association of human and wetlands is ancient, with the first signs of civilization originating in wetland habitats such as the flood plains of the Indus, the Nile Delta and the Fertile Crescent of the Tigris and Euphrates rivers. Wetlands cover about 6% of the earth's land surface[30]. There are several kinds of wetlands such as marshes, swamps, lagoons, bogs, fens and mangroves. They are home to some of the richest, most diverse and fragile of natural resources. As they support a variety of plant and animal life, biologically they are one of the most productive ecosystems.

India has a wealth of wetland ecosystems distributed in different geographical regions. Most of the wetlands in India are directly or indirectly linked with major river systems such as the Ganges, Cauvery, Krishna, Godavari and Tapti. India has totally 27, 403 wetlands, of which 23,444 are inland wetlands and 3,959 are coastal wetlands. According to the Directory of Asian Wetlands (1989), wetlands occupy 18.4% of the country's area (excluding rivers), of which 70 % are under paddy cultivation. In India, out of an estimated 4.1 mha (excluding irrigated agricultural lands, rivers, and streams) of wetlands, 1.5 mha are natural, while 2.6 mha are manmade[31]. The coastal wetlands occupy an estimated 6,750 sq km, and are largely dominated by mangrove vegetation. About 80% of the mangroves are distributed in the Sunderbans of West Bengal and the Andaman and Nicobar Islands, with the rest in the coastal states of Orissa, Andhra Pradesh, Tamil Nadu, Karnataka, Kerala, Goa, Maharashtra and Gujarat.

India's wetlands are generally differentiated into 8 categories depending on their regional presence (Scott, 1989[32]):

- The reservoirs of the Deccan Plateau in the south, together with the lagoons and other wetlands of the southwest coast
- The vast saline expanses of Rajasthan, Gujarat and the Gulf of Kutch
- The freshwater lakes and reservoirs from Gujarat eastwards through Rajasthan (Keoladeo Ghana National Park) and Madhya Pradesh
- The delta wetlands and lagoons of India's east coast (Chilka Lake)
- The freshwater marshes of the Gangetic Plains and the floodplains of the Brahmaputra
- The marshes and swamps in the hills of northeast India and the Himalayan foothills
- The lakes and rivers of the mountain region of Kashmir and Ladakh
- The mangroves and other wetlands of the Andaman and Nicobar Islands.

30 Bateman, I. J., C. Folke., I-M. Gren., and R. K. Turner (1992). Wetland Ecosystems: Primary and Secondary Values for Sustainable Management. Second Conference on the Ecology and Economics of Biodiversity Programme, Stockholm: Beijer International Institute for Ecological Economics, Royal Swedish Academy of Sciences.

31 http://www.pib.nic.in/newsite/feacontent.aspx?relid=103462

32 Scott, D. A. (1989). Design of Wetland Data Sheet for Database on Ramsar Sites. Gland, Switzerland: Ramsar Convention Bureau. Mimeo.

Many people consider wetlands as unproductive areas and hence destroy or drain them for developmental activities. However, the importance and usefulness of wetlands was first brought to the notice of the world through a Convention on Wetlands held at the Iranian city Ramsar, in the year 1971.

'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[33], 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, that is to say the drainage area or catchment region of the wetlands as determined by the authority, but does not include main river channels, paddy fields and the coastal wetland covered under the notification of the Government of India in the Ministry of Environment and Forests, dated February 1991.

Based on the significance of the functions performed by the wetlands for overall well-being of the people and for determining the extent and level of regulation, the following wetlands shall be regulated under these rules, namely

- wetlands categorized as Ramsar Wetlands of International Importance under the Ramsar Convention as specified in the schedule
- wetlands in areas that are ecologically sensitive and important, such as national parks, marine parks, sanctuaries, reserved forests, wildlife habitats, mangroves, corals, coral reefs, areas of outstanding natural beauty or historical or heritage areas and the areas rich in genetic diversity
- wetlands recognized as or lying within a UNESCO World Heritage Site
- high-altitude wetlands or high-altitude wetland complexes at or above an elevation of 2500 metres with an area equal to or greater than five hectares
- wetlands or wetland complexes below an elevation of 2500 metres with an area equal to or greater than 500 ha
- any other wetland as so identified by the authority and thereafter notified by the central government under the provisions of the act for the purposes of these rules.

The Wetlands (Conservation and Management) Rules, 2010 is a positive step towards conservation of wetlands in India. The Ministry of Environment and Forests, recognising the importance of having a legal framework for the preservation and management of wetlands in India, drew up a draft Regulatory Framework drawing upon the recommendation of a wide spectrum of experts and stakeholders. The draft was also made available for public comment on the Ministry's website and all comments and suggestions received from the general public with regard to the draft framework were considered, and where possible, included in the Wetland Rules.Under the Rules, wetlands have been classified for better management and easier identification. Central Wetland Regulatory Authority has been set up to ensure proper implementation of the Rules and perform all functions for management of wetlands in India. Apart from necessary government representatives, the Authority shall have a number of expert members to ensure that wetland conservation is carried out in the best possible manner.In order to ensure there is no further degradation of wetlands, the Rules specify activities which are harmful to wetlands such as industrialisation, construction, dumping of untreated waste, reclamation etc. and prohibit these activities in the wetlands. Other activities such as harvesting, dredging etc may be carried out in the wetlands but only with prior permission from the concerned authorities (MoEF & IWP, 2010).

33 An Introduction to the Convention on Wetlands (previously The Ramsar Convention Manual). Ramsar Convention Secretariat, Gland, Switzerland. Available from http://www.ramsar.org/sites/default/files/documents/library/handbook1_5ed_introductiontoconvention_e.pdf

Case Study: Integrated management planning for Chilika Lake

Chilika Lake provides a range of ecosystem services which form the base of ecological security of the entire region and livelihoods of dependent communities. Being a dynamic ecosystem, the wetland is also subject to influence from various natural as well as human factors. Integrated management of Chilika and its catchments is crucial for maintaining the rich biological diversity and productivity of the wetland ecosystem as well as to achieve wise use of resources by communities.

Chilika was designated as a Wetland of International Importance under the Ramsar Convention in 1981. This designation marks the commitment of the Government of India to undertake measures for ensuring its wise use. Wise use of wetlands is 'the maintenance of their ecological character, achieved through implementation of ecosystem approaches, within the context of sustainable development'. Ecological character is 'the combination of ecosystem components, processes and benefits / services that characterize the wetland at any given point of time'. Subsequent to its designation as a Ramsar site, Chilika was included in the Montreaux Record in 1993. Montreaux Record is the list of Ramsar sites where change in ecological character has occurred, is occurring, or is likely to occur as a result of technological development, pollution, or other human interference. This inclusion was due to the rapid degradation of the lake since the 1950s which led to major decline in fisheries, invasive weeds proliferation and an overall shrinkage in area and volume, ultimately impacting the livelihoods of dependent communities. Realizing the problems of Chilika Lake, Government of Orissa created the Chilika Development Authority (CDA) in 1992 for restoration of the ecosystem. CDA undertook several measures for lake remediation, most important of which was a major hydrological intervention in the form of a opening a new mouth to the lake in 2000. This helped improve salinity levels, enhance fish landing, decrease of invasive species and improve livelihoods of communities dependant on its resources for sustenance. Chilika was removed from the Montreaux Record in 2001 and the restoration recognized with a Ramsar Award to the CDA in 2002.

The Ramsar Advisory Mission recommended formulation of a single management plan with widely agreed goals and objectives to restore ecological character of the lake while providing economic benefits to the local communities. Similar recommendations were also given by the Governing Body of CDA. Wetlands International - South Asia (WISA) was entrusted with the task of development of an integrated management planning framework of Chilika through financial support under the Small Grants Fund (SGF) for Wetland Conservation and Wise Use of the Ramsar Convention. WISA developed a draft framework which was presented at a consultation workshop held on 23-24 October 2009 at Bhubaneswar, Orissa. Several constructive comments were received by the stakeholders on the draft framework. This article summarizes the framework for integrated management planning of Chilika Lake.

[Source: Kumar and Pattnaik 2010]

5.13 Fisheries regulation in India

Fisheries management in India can be categorized into management of fisheries in the EEZ and in the territorial waters. According to the Constitution of India, the central government has jurisdiction over the fisheries in the EEZ, while the state governments have jurisdiction over fisheries in the territorial waters.

The central government has jurisdiction over fisheries in the EEZ. Marine fisheries contribute to food security and provide direct employment to over 1.5 million fishworkers besides others indirectly dependent on the sector. Fishing is an important sector in India. It provides employment to millions of people and contributes to food security of the country. With a coastline of 7500 km, an EEZ of over 2 million sq km, and with extensive freshwater resources, fisheries play a vital role.

5.13.1 Important union-level legal and policy frameworks for fisheries management

Comprehensive Marine Fishing Policy, 2004

The Comprehensive Marine Fishing Policy, 2004, seeks to bring the traditional and coastal fishermen in focus together with stakeholders in the deep-sea sector so as to achieve harmonized development of marine fishery both in the territorial and extraterritorial waters of our country.

The policy objectives are:

(1) to augment marine fish production of the country up to the sustainable level in a responsible manner so as to boost export of seafood from the country and also to increase per capita fish protein intake of the masses,

(2) to ensure socioeconomic security of the artisanal fishermen whose livelihood solely depends on this vocation and

(3) to ensure sustainable development of marine fisheries with due concern for ecological integrity and biodiversity.

The main aim of the policy is to ensure sustainable development of marine fisheries with due concern for ecological integrity and biodiversity. The policy calls for adopting fisheries management regimes such as registration of fishing vessels, observation of closed fishing seasons, proscription of destructive fishing methods, implementation of mesh size regulations, reduction of bycatch and discards and establishing an effective monitoring, control and surveillance mechanism. The guideline specifically calls for compliance with the CCRF and other international rules and regulations in the management of fish stocks. Besides these, a uniform fishing holiday is declared every year in the EEZ along east and west coasts. A national committee has also been constituted to effectively implement the provisions of the 1995 CCRF.

Fisheries development and planning is undertaken through the Five-Year Plans formulated by the government since 1951. The initial Five-Year Plans, starting from the 1950s, focused more on the 'development' of the sector, and on increasing production, while it was only in the ninth and tenth Five-Year Plan period that the need for conservation and management was explicitly recognized.

Guidelines for fishing operations in Indian EEZ

The Department of Animal Husbandry, Dairying and Fisheries under the Ministry of Agriculture vide Public Notice in 2006 decided to allow the operation of Deep Sea Fishing Vessels in Indian Exclusive Economic Zone under Joint Venture. For this the proposals are subjected to certain guidelines which shall be considered merit-wise by the Inter-Ministerial Empowered Committee on Marine Fisheries.

Other Indian Legal Instruments at central level, relevant and important for fisheries and fisheries management, are

- Indian Fisheries Act 1897
- Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981, and the Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Rules, 1982
- Coastal Aquaculture Authority Act 2005
- Marine Products Export Development Authority Act, 1972
- Merchant Shipping Act 1958
- The Territorial Waters, Continental Shelf, Exclusive Economic Zone And Other Maritime Zones Act 1976

5.13.2 State-level fisheries management

At the state level, fisheries management is undertaken mainly through licensing, prohibitions on certain fishing gear, regulations on mesh size and establishment of closed seasons and areas, under the Marine Fishing Regulation Act (MFRA).

Zones are demarcated by each state based on distance from the shoreline (from 5 km to 10 km) or on depth. These inshore zones, where trawling and other forms of mechanized fishing are not permitted, are perhaps the most important space-based fisheries management measure in place.

Fisheries within the 12-mile territorial limits are managed under the MFRA of the maritime states of India. Some of the important management measures adopted under the MFRA are prohibitions on certain fishing gear, regulations on mesh size, establishment of closed seasons and areas, demarcations of zones for no-trawling, besides other measures such as use of turtle excluder devices, and designation of no-fishing areas.

5.14 Institutional framework

The MoEFCC is the nodal agency at the central level responsible for biodiversity and wildlife conservation and preservation. The Coast Guard (Department of Defence, Ministry of Defence) is responsible for enforcement of some of the regulations in MPAs, especially in territorial waters. There are other research institutes under the Ministry of Science and Technology, and the Ministry of Agriculture, that are also responsible for undertaking research activities on coastal and marine ecosystems. At the state level, the Department of Forests is the nodal agency under the MoEFCC, responsible for managing protected areas (PAs).

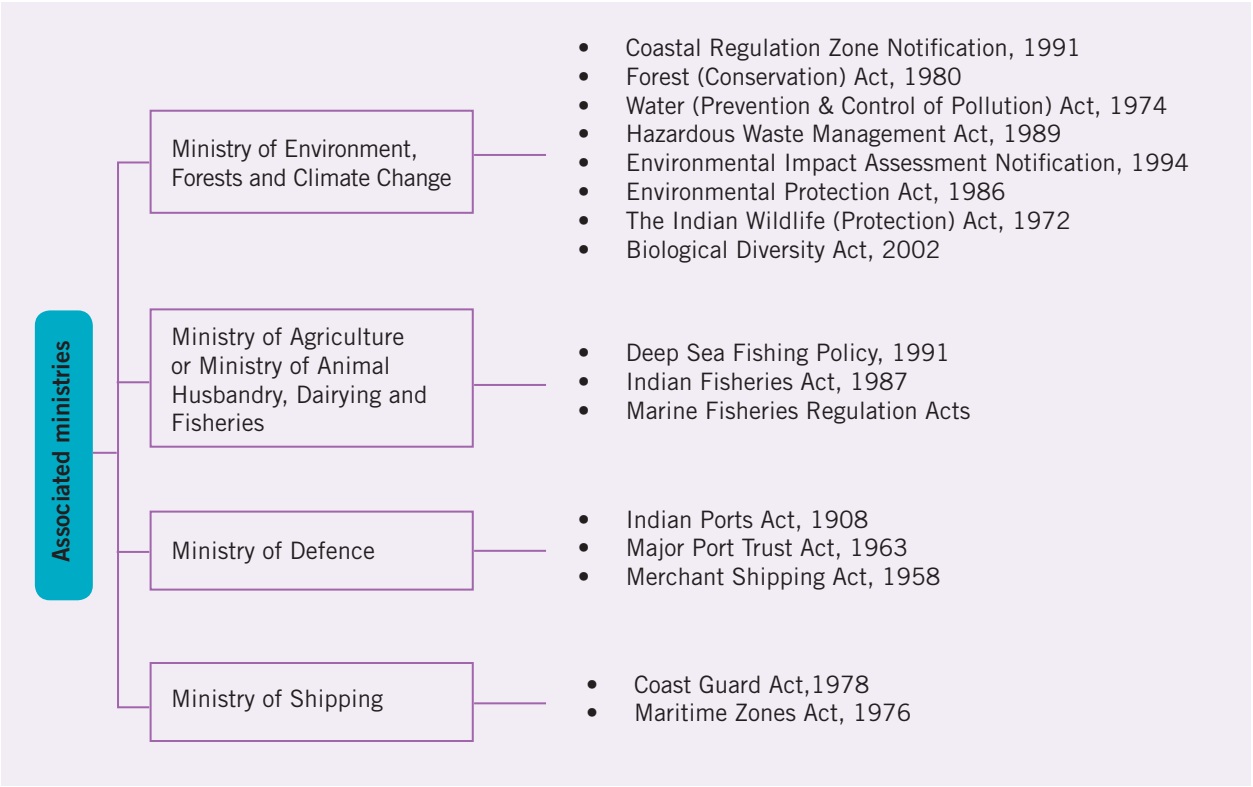


Figure 2: Laws under the purview of different ministries in India

The departments of Fisheries, under various state governments, are responsible for managing fisheries resources through enacting legislation and regulations, and are also responsible for the welfare of fishing communities. As seen in the case of the Gahirmatha (Marine) Wildlife Sanctuary, Odisha, the State Fisheries Department has, since 2003, been bringing out regulations every year, notifying the closed areas and periods for fishing, to protect turtle-congregation areas.

It is worth noting the role that the Supreme Court of India plays in ensuring implementation of the legislation discussed earlier. Some important supreme court case judgements are primarily concerned with the implementation of the WPA and the Forest (Conservation) Act, 1980, especially relating to the settlement of rights and activities permitted in PAs. The supreme court has also set up new authorities and committees such as the Central Empowered Committee (CEC).

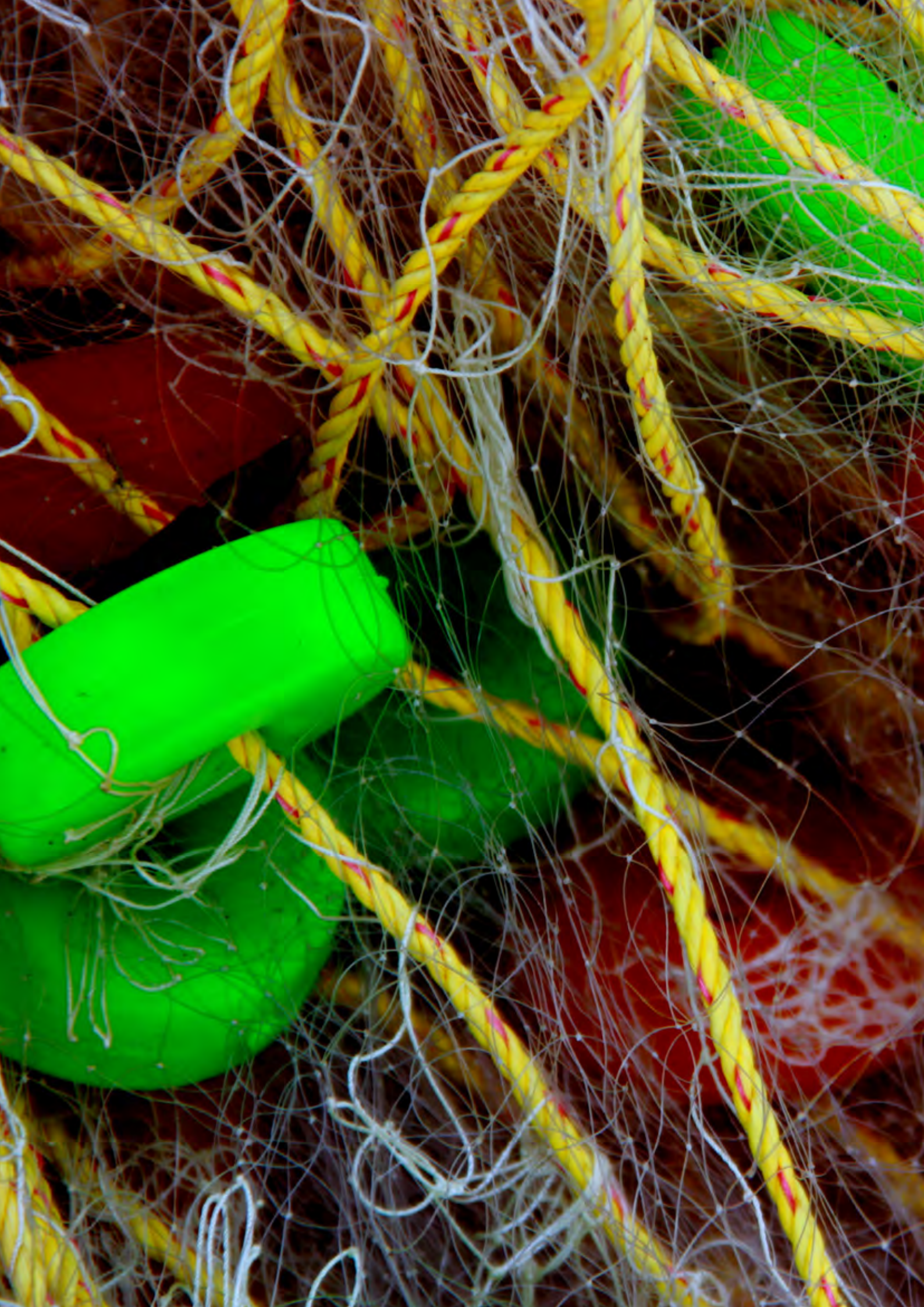
Notable for fishing communities is the CEC's 2004 report on protection of Olive Ridley sea turtles in Odisha, and the interim order issued by the supreme court regarding non-forestry use of the reserved forest in Jambudwip island in the Bay of Bengal (Rajagopalan 2008).

The legal instruments and tools available for creation and protection of marine areas are diverse. The wildlife, coastal, environment, forest and the fisheries laws afford different levels of protection and conservation to marine areas. However, no single instrument on its own can ensure effective protection. A lot depends on the local situation, i.e., the nature of threats, the perception of the communities living in and around the existing and proposed marine areas. The tendency to create MPAs, without effective ground-level assessment, will be counterproductive.

The fact is that coastal areas are under increased threat on account of massive industrialization; coastal communities are already struggling to ensure the protection and access to traditional fishing grounds. Port projects, petrochemical complexes, power projects and tourism projects, among a range of other commercial activities, have created a challenging environment for those who depend on the marine areas for their livelihood. Any policy to create new MPAs and strengthen new MPAs must be alive to this reality in the coastal areas.

The coastal and marine areas prove to be challenging areas to apply conventional conservation laws and policy in view of the fact that wildlife conservation laws have been framed keeping in view the terrestrial issues and concerns. As is evident in the case of the WPA, the act as well as its various provisions are geared to the creation of protected areas within terrestrial landscape. Through subsequent amendments, certain provisions have been incorporated to include coastal and marine areas within its scope. However, treating marine areas as equivalent to Reserve Forest is problematic both from the perspective of community rights as well as long-term conservation goals. The CRZ Notification offers some degree of protection to coastal and marine areas. The provisions of the EPA, 1986, and specifically the power to declare areas as ESAs, offer scope since its adverse impact on livelihood needs to traditional communities is minimal while at the same time achieving broad biodiversity conservation goals.

In addition to the creation of MPAs and declaration of ESAs, there should be an effective focus on empowering citizens so that compliance with the law is enhanced. At the end of the day, unless local and other concerned citizens and groups take an active and vigilant role in conserving coastal and marine biodiversity, new legal and policy measures are unlikely to bear positive results. There is thus a need for engaging local communities and media for building awareness on existing policy and legal regime.



Food for thought:

- What are the most relevant biodiversity conventions and treaties for Indian coastal areas?
- Which Indian law/policy/guideline is the most crucial for your state?
- How good is the coordination between different conventions and treaties, when it comes to their implementation at the national level?
- Do you see any need for special policy framework for supporting conservation of coastal and marine biodiversity?

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