Training Resource Material

Coastal and Marine Biodiversity and Protected Area Management

Module 7

Governance, law and policies for managing coastal and marine ecosystems, biodiversity and protected areas

For MPA Managers

भारतीय वन्यजीव संस्थान
Wildlife Institute of India

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

On behalf of:
Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
of the Federal Republic of Germany

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Summary

This module gives an outline of the governance, legal and policy framework for managing coastal and marine ecosystems, which has been presented in two sections. The first section presents 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.

Imprint

Training Resource Material:
Coastal and Marine Biodiversity and Protected Area Management
for MPA Managers

Module 1: An Introduction to Coastal and Marine Biodiversity
Module 2: Coastal and marine Ecosystem Services and their Value
Module 3: From Landscape to seascape
Module 4: Assessment and monitoring of coastal and marine biodiversity and relevant issues
Module 5: Sustainable Fisheries Management
Module 6: Marine and Coastal Protected Areas
Module 7: Governance, law and policies for managing coastal and marine ecosystems, biodiversity and protected areas
Module 8: Coasts, climate change, natural disasters and coastal livelihoods
Module 9: Tools for mainstreaming: impact assessment and spatial planning
Module 10: Change Management and connectedness to nature
Module 11: Communicating Coastal and Marine Biodiversity Conservation issues
Module 12: Effective management Planning of coastal and marine protected areas

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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
MoEFCC	Ministry of Environment, Forest and Climate Change, Government of India
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

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.
- 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 terrestrial issues and concerns.
- Involvement of local communities, civil society and media is crucial in implementation of and compliance with the legal provisions.

Section-I

Global conventions and guidelines relevant to coastal and marine biodiversity

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

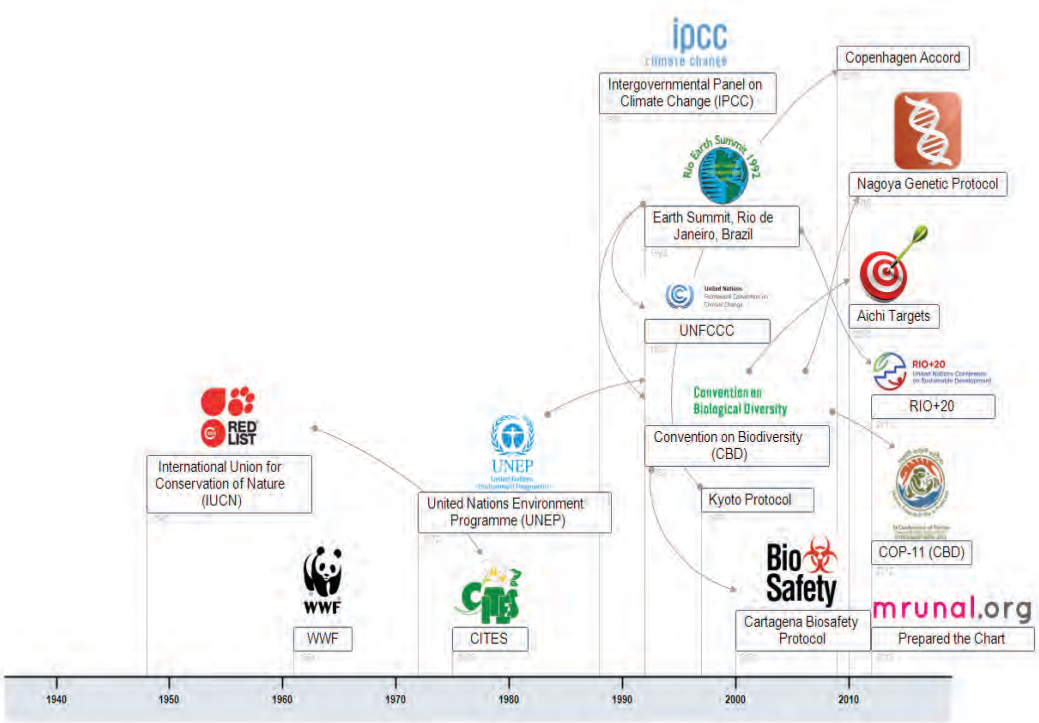
When it comes to finding sustainable solutions for coastal and marine biodiversity conservation and management, many natural resources and related environmental problems surpass national borders and therefore need international solutions.

These include 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 are 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.

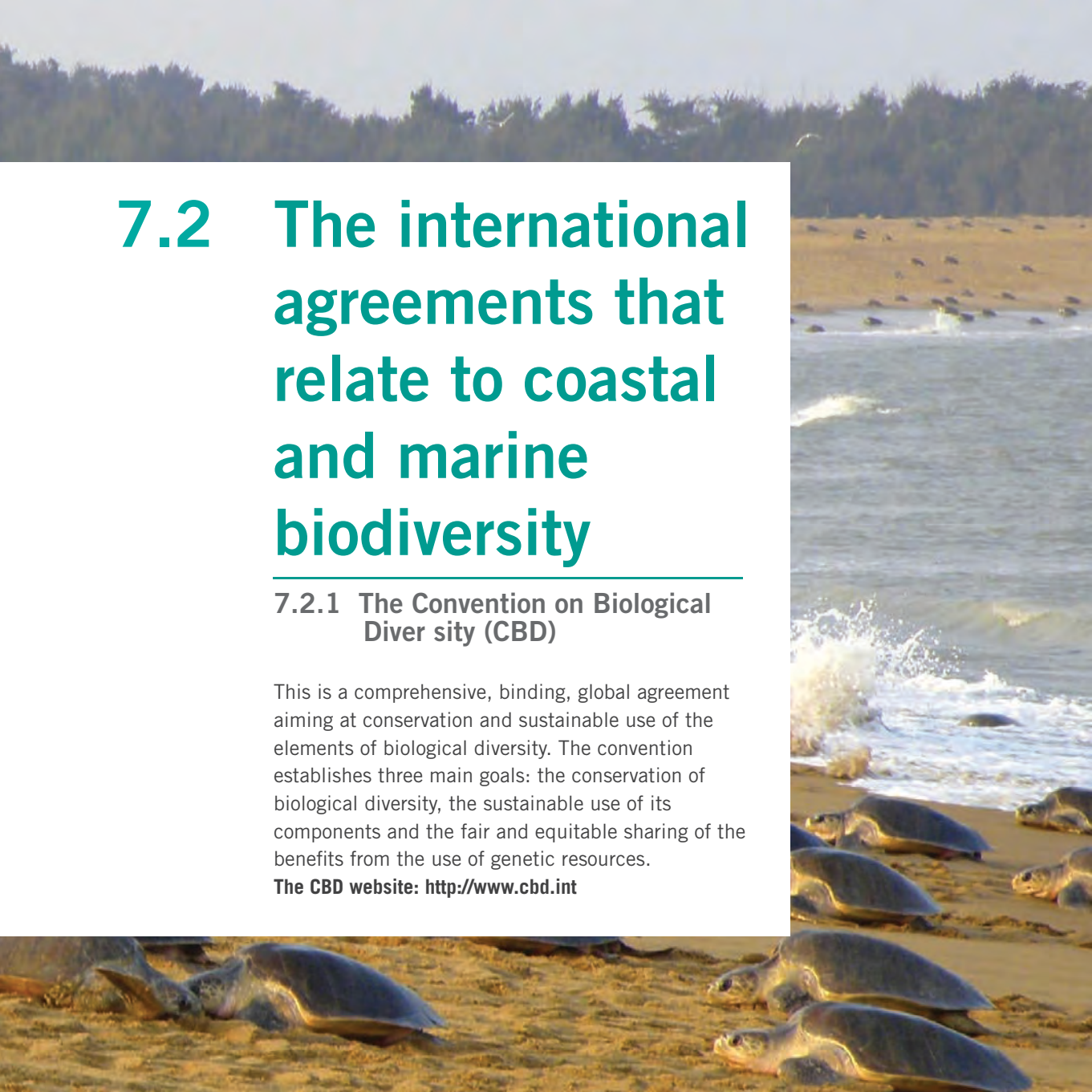
The problem is pronounced in the developing countries, where the poorest people largely depend on biodiversity for their very survival and livelihoods. Key development policy objectives in many countries therefore must address both: poverty reduction and the conservation of biodiversity and ecosystem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

India was one of the earliest countries to show interest in developing international conventions on the environment. In 1972, at the United Nations Conference on the Human Environment, also known as the Stockholm Summit, Indian Prime Minister Indira Gandhi was the only head of state to participate, other than Prime Minister Olof Palme of host country Sweden.

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 are relevant 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). The figure on the next page (sourced from www.mrunal.org) provides a snapshot of the time-line of key conventions and protocols.



[Source: http://mrunal.org/2012/11/enb-convention-on-biodiversity-cbd-prologue-to-cartagena-nagoya-aichi-cop-11.html



7.2 The international agreements that relate to coastal and marine biodiversity

7.2.1 The Convention on Biological Diver sity (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.

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

7.2.2 The Convention on the Conservation of Migratory Species of Wi 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. 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. Since its conclusion in 1990, the population of the Common Seal has more than quadrupled from the estimated 5000 individuals left in 1989.
The CMS website: http://www.cms.int

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

This is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. 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 have 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.
The CITES website: http://www.cites.org

7.2.4 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.The treaty protects farmers' rights, including traditional knowledge and the right to participate equitably in benefit sharing and in national decision-making about plant genetic resources.
The ITPGR website: http://www.planttreaty.org

7.2.5 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. 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 as fish ponds, rice paddies, reservoirs and salt pans. The convention secretariat is located in Gland, Switzerland.
Website: http://www.ramsar.org

7.2.6 The World Heritage Convention (WHC)

This recognizes the way in which people interact with nature, as well as the fundamental need to preserve the balance between the two. It came into force in 1971 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.
The WHC website: http://whc.unesco.org/en/convention/

7.2.7 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. Its sister Rio Conventions are the Convention on Biological Diversity (CBD) and the United Nations Convention to Combat Desertification (UNCCD). The UNFCCC came into force in 1994 and currently has 197 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.
The UNFCCC website: http://www.unfccc.int

7.2.8 United Nations Convention to Combat Desertification (UNCCD)

Established in 1994, UNCCD, with 196 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 decisionmaking 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.

Website of UNCCD: http://www2.unccd.int/

7.2.9 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 (insert a footnote here: 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).

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

7.2.10 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. It enshrines the notion that all problems of ocean space are closely interrelated and need to be addressed as a whole. UNCLOS came into force in 1994. 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.

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

7.2.11 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. It is related to the conservation and management of straddling fish stocks and highly migratory fish stocks.It sets out a precautionary approach to the preservation and

management of rapidly dwindling fisheries resources by regulating catches of deep-water and migratory species, including tuna, swordfish and cod.
Website: http://www.un.org/depts/los/fish_stocks_conference/fish_stocks_conference.htm

7.2.12 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. 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.
Website: http://www.imo.org/en/OurWork/Environment/LCLP/Pages/default.aspx

7.2.13 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 waste. 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.
Website: http://www.basel.int/theconvention/overview/tabid/1271/default.aspx

7.2.14 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. 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.
Website: http://www.fao.org/docrep/005/v9878e/v9878e00.htm

7.2.15 International Principles for Responsible Shrimp Farming

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 were 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 fish meal 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.

Website: http://www.enaca.org/uploads/international-shrimp-principles-06.pdf

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

One international convention that 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 over-fishing 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.

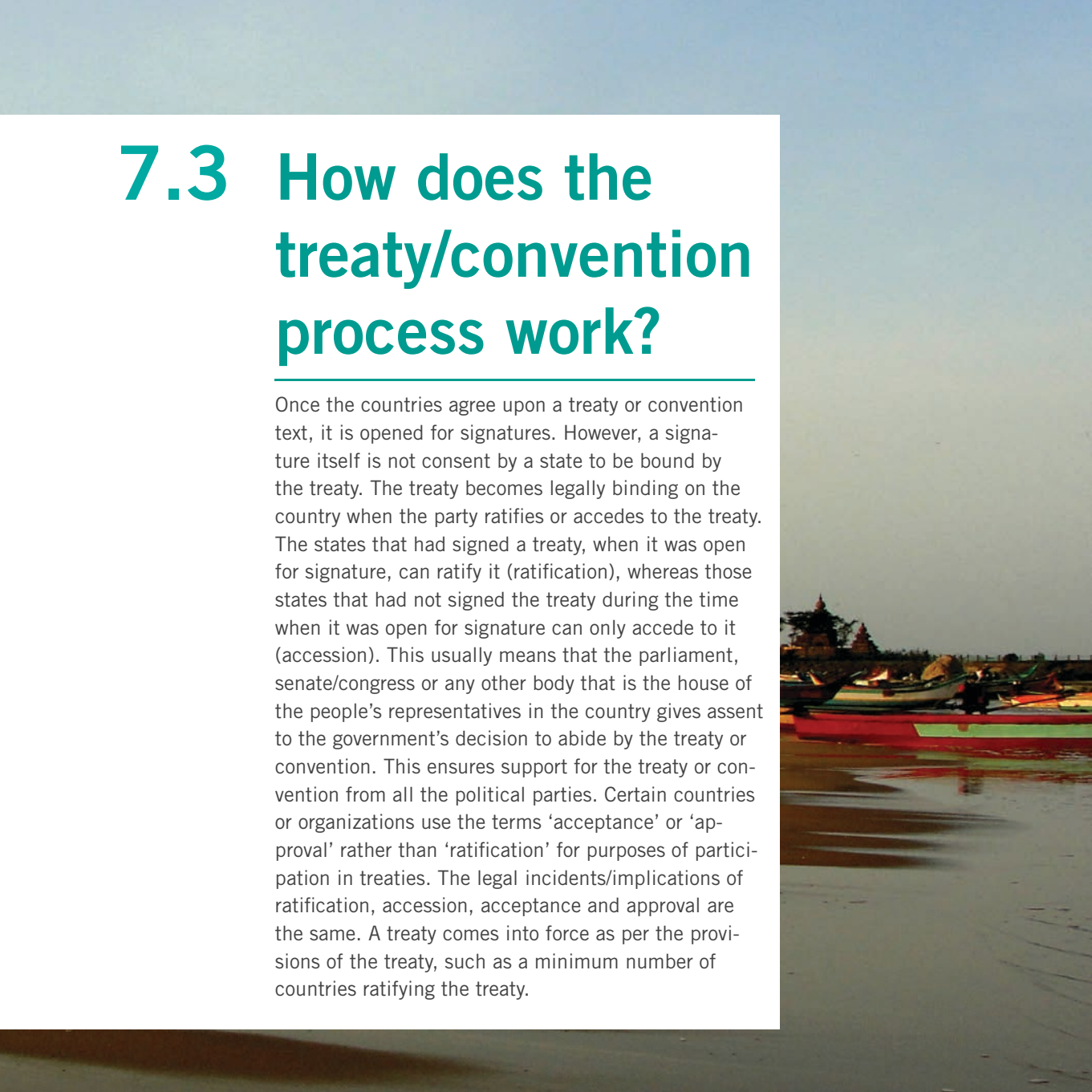
The main objective of the convention is to protect all species of whales from over-fishing and safeguard for future generations the great natural resources represented by whale stocks. It also aims to establish a system of international regulation for whale fisheries to ensure proper conservation and 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.
Website: https://iwc.int/convention

7.2.17 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.
Website: http://www.imo.org/en/about/conventions/listofconventions/pages/international-convention-for-the-prevention-of-pollution-from-ships-(marpol).aspx

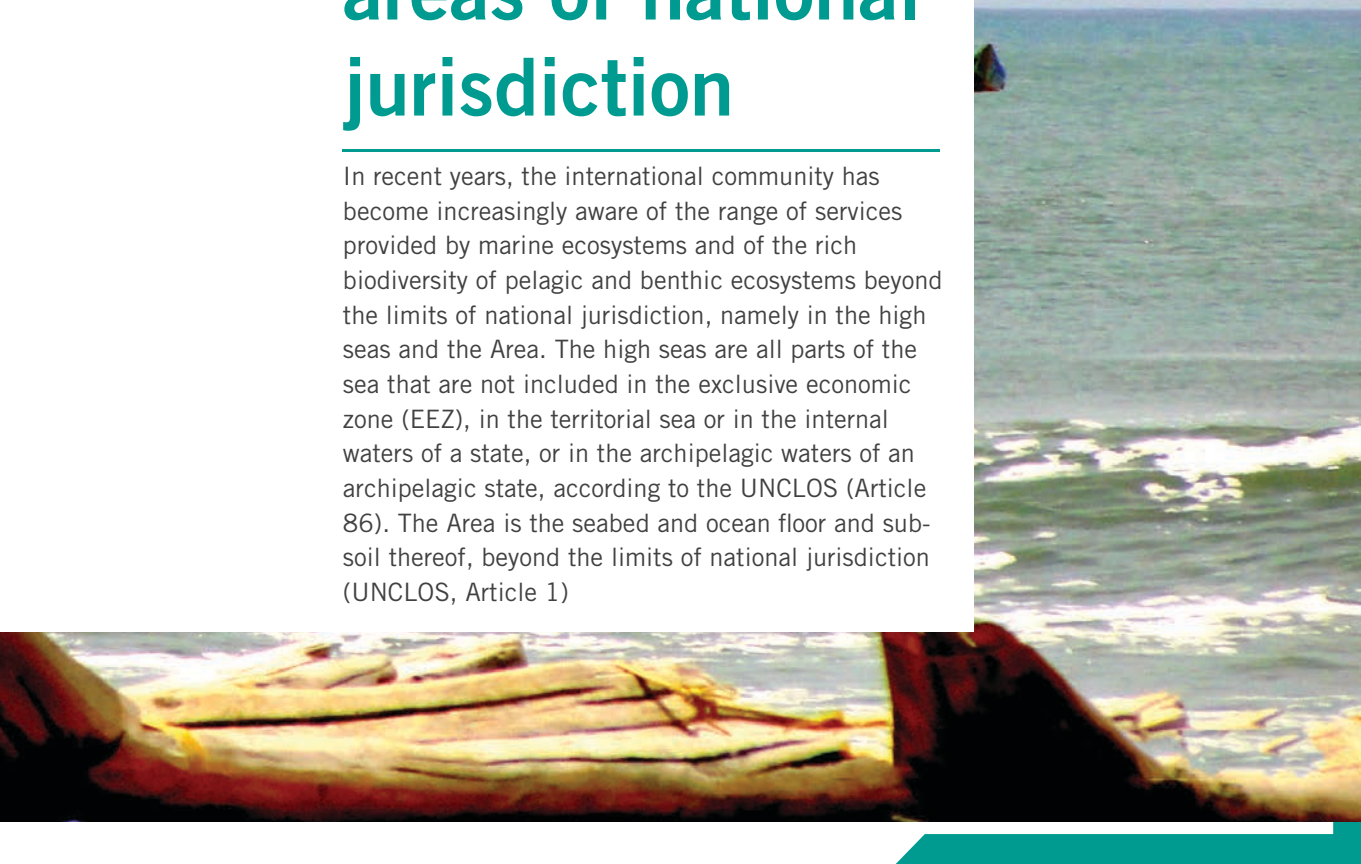
7.3 How does the treaty/convention process work?

Once the countries agree upon a treaty or convention text, it is opened for signatures. However, a signature itself is not consent by a state 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 comes into force as per the provisions of the treaty, such as a minimum number of countries ratifying the treaty.



7.4 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 percent of the surface of our oceans and provide over 90 percent of its volume. They comprise the water column beyond the 200-nautical-mile EEZ of coastal states (or the territorial sea in the case of a coastal state that 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; and deep sea habitats such as seamounts, cold-water coral formations and hydro- thermal 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 the sea for each state. These are:

- Baseline
- Internal water
- Territorial sea
- Contiguous zone
- Exclusive economic zone
- High sea
- Continental shelf

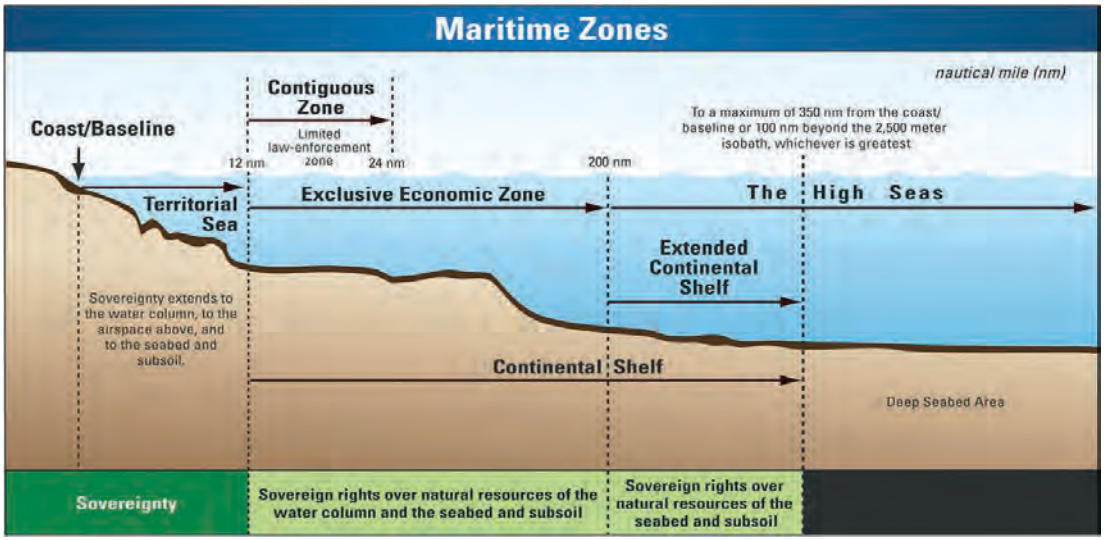
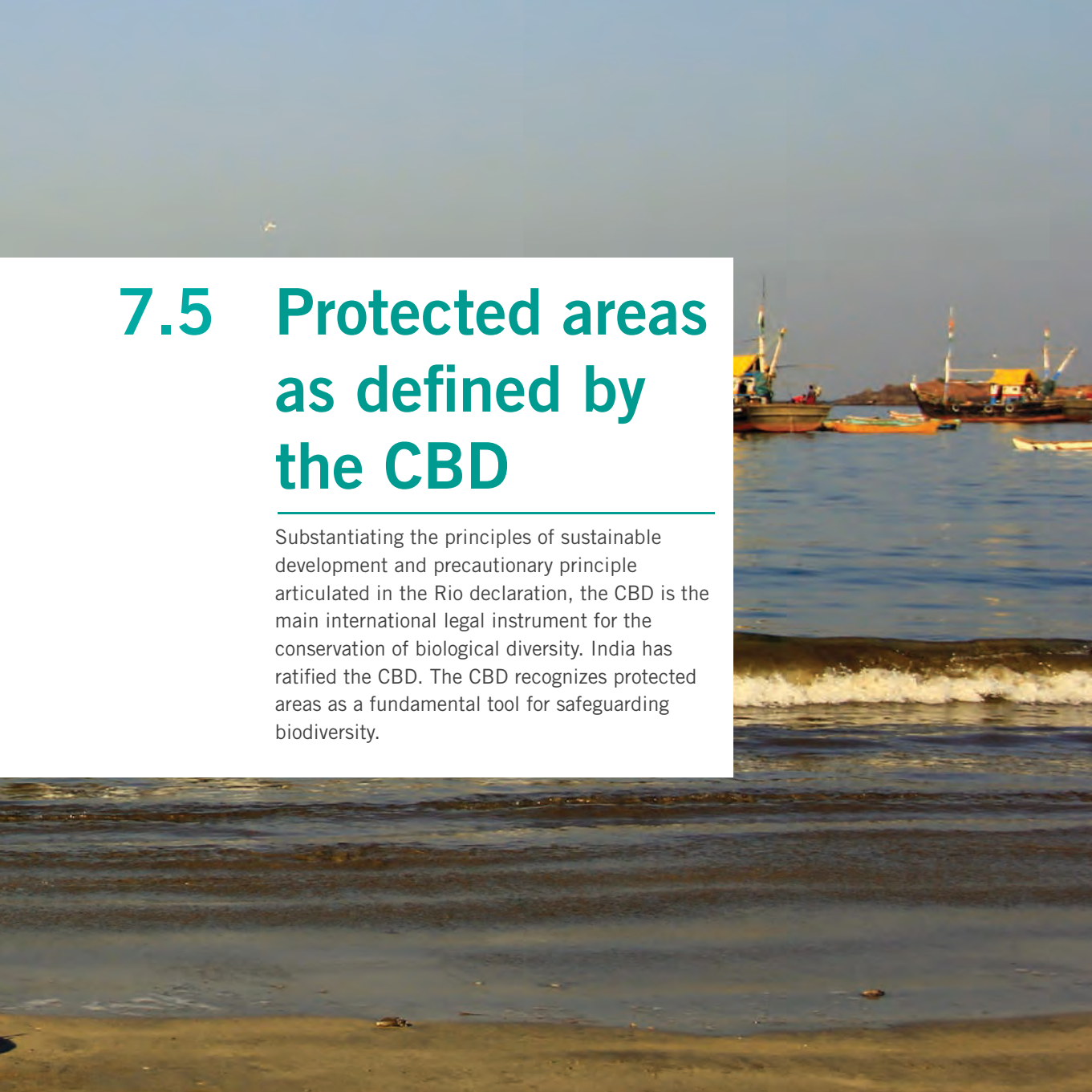


Figure 7.1: Areas of the sea (Source: http://www.lynceans.org/category/geography/)

7.5 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.

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 at https://www.cbd.int/marine/resources.shtml**

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 at https://www.cbd.int/programmes/

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.

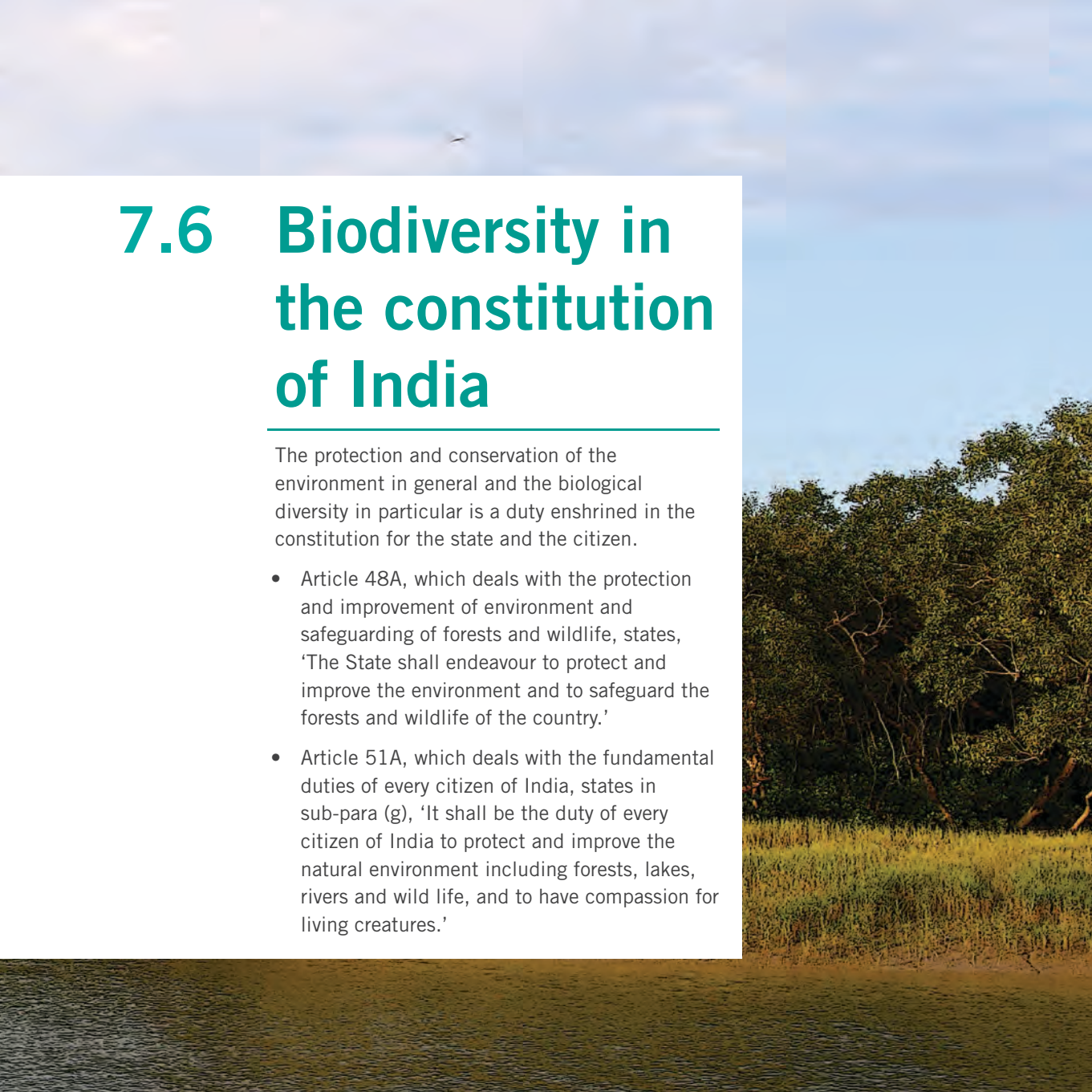
Section-II

Law and policies relevant to coastal and marine biodiversity in India

7.6 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 sub-para (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.'



National Biodiversity Targets for India By 2020[1]

- 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 wellbeing.
- 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 area-based 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.

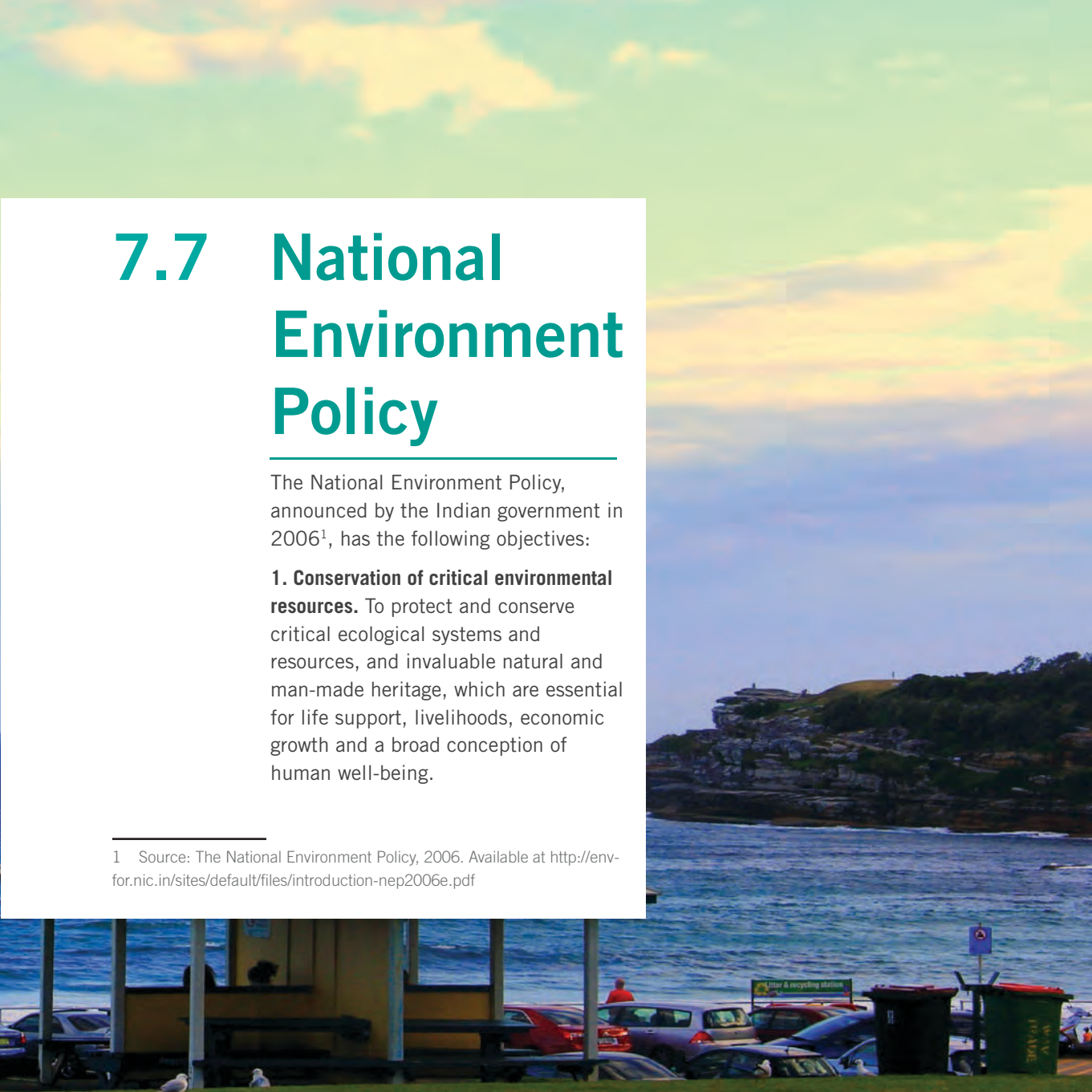
1 Source: http://nbaindia.in/uploaded/Targets/ExplanatoryNoteonNationalTargets.pdf

7.7 National Environment Policy

The National Environment Policy, announced by the Indian government in 2006[1], has the following objectives:

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.

1 Source: The National Environment Policy, 2006. Available at http://env-for.nic.in/sites/default/files/introduction-nep2006e.pdf



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.

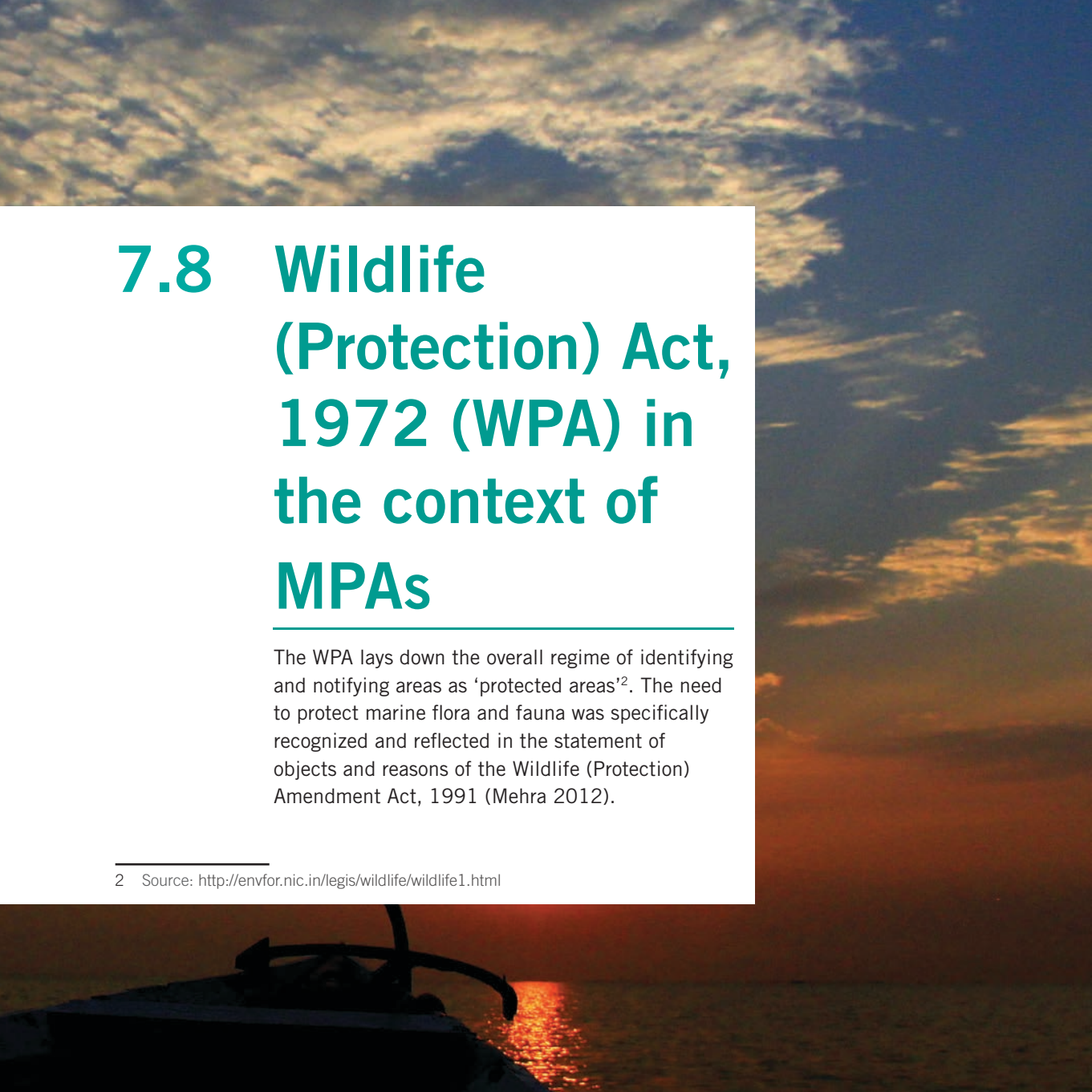
3. Intergenerational equity. To ensure judicious use of environmental resources to meet the needs and aspirations of the present and future generations.

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.



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

The WPA lays down the overall regime of identifying and notifying areas as 'protected areas'[2]. 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).

2 Source: http://envfor.nic.in/legis/wildlife/wildlife1.html

The procedural requirements for declaration, governance structures, entailing rights, restrictions and obligations for each category, in the context of marine areas, are as follows.

Sanctuaries

Areas of 'adequate ecological, faunal, floral, geomorphological, natural or zoological significance' can be declared 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[3] or territorial waters[4], 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.'
- **Areas comprising territorial waters**
  For a sanctuary comprising these areas, only a summary procedure under sub-section (b) of Section 26A is provided. For such areas, the state government can merely 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. 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.

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

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

National parks

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

The provison to sub-section (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, sub-section (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 sub-section (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 sub-section (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.'

Conservation and community reserve

The 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, two 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 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 nongovernmental organizations.

Kadalundi Vallikunnu community reserve:

The Kadalundi estuary is located at the mouth of the river Kada-lundi that drains into the Arabian Sea on the west coast of Kerala. Considering its importance in terms of diversity of wetland birds and heavy anthropogenic pressures, the estuary has been officially declared as the Kadalundi Vallikunnu community reserve.

Find details of this community reserve on these weblinks:

http://kerenvis.nic.in/Database/Community%20Reserve%20_1941.aspx

http://udinikkara.blogspot.in/2016/08/kadalundi-vallikunnu-community-reserve.html

Table 7.1: Matrix of coastal marine livelihood activities that may be appropriate for MPAs under the WPA

Activity type	National park	Sanctuary	Community reserve	Conservation reserve
Research: non-extractive	Y (with permission)	Y	Y	Y
Non-extractive traditional use	N	N	Y	
Non-extractive 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

Coastal and Marine species protected by the Wildlife Protection Act, 1972:

SCHEDULE 1

Schedule I and part II of Schedule II provide absolute protection - offences under these are prescribed the highest penalties.

1. Dugong (Dugong dugon)
2. Little Indian Porpoise (Neomeris phocenoides)
3. Snubfin Dolphin (Oreaella brevezastris)
4. Crocodiles (including the Estuarine or salt water crocodile) *(Crocodilus porosus* and *Crocodilus palustris*)
5. Green Sea Turtle *(Chelonia Mydas)*
6. Hawksbill Turtle *(Eretmochelys imbricata inlscata)*
7. Logger Head Turtle *(Caretta caretta)*
8. Olive Ridley Turtle *(Lepidochelys olivacea)*
9. Leatherback sea turtle *(Dermochelys coriacea)*
10. Whale Shark *(Rhincodon typus)*
11. Shark and Ray
12. Reef Building Coral *(All Scleractinians)*
13. Black Coral *(All Antipatharians)*
14. Organ Pipe Coral *(Tubipora musica)*
15. Fire Coral *(All Millipora Species)*
16. Sea Fan *(All Gorgonians)*
17. *Cassis cornuta*
18. *Charonia tritonis*
19. *Conus milneedwardsi*

20. *Cypraecassis rufa*
21. *Hippopus hippopus*
22. *Nautilus pompilius*

SCHEDULE 3

Species listed in Schedule III and Schedule IV are also protected, but the penalties are much lower

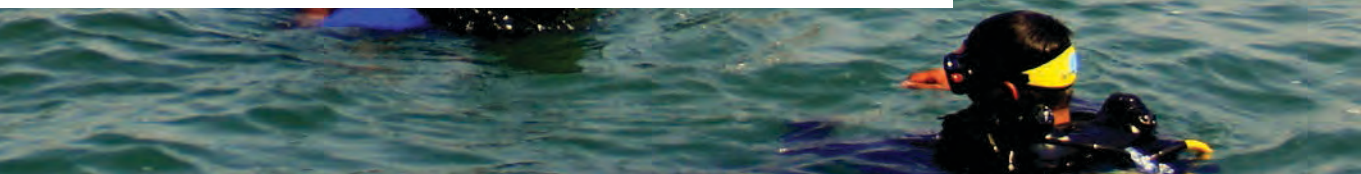
1. Sponges (all calcareans)

SCHEDULE 4

1. *Cypraea lamacina*
2. *Cypraea mappa*
3. *Cypraea talpa*
4. *Fasciolaria trapezium*
5. *Harpulina arausiaca*
6. *Lambis chiragra*
7. *Lambis chiragra arthiritica*
8. *Lambis crocea*
9. *Lambis millepeda*
10. *Lambis scorpious*
11. *Lambis truncata*
12. *Placenta placenta*
13. *Strombus plicatus sibbaldi*
14. *Trochus niloticus*
15. *Turbo marmoratus*

7.9 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.'



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

From time to time, the central government, through the MoEFCC, has notified 'Eco- Sensitive Areas (ESAs).' In declaring an area an ESA, a draft notification is published inviting objections and suggestions from all persons likely to be affected by the notification. The government of India has specific criteria for declaration of 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:

- **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 notification of ESAs is an important conservation tool. However, ESAs cannot be termed 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:

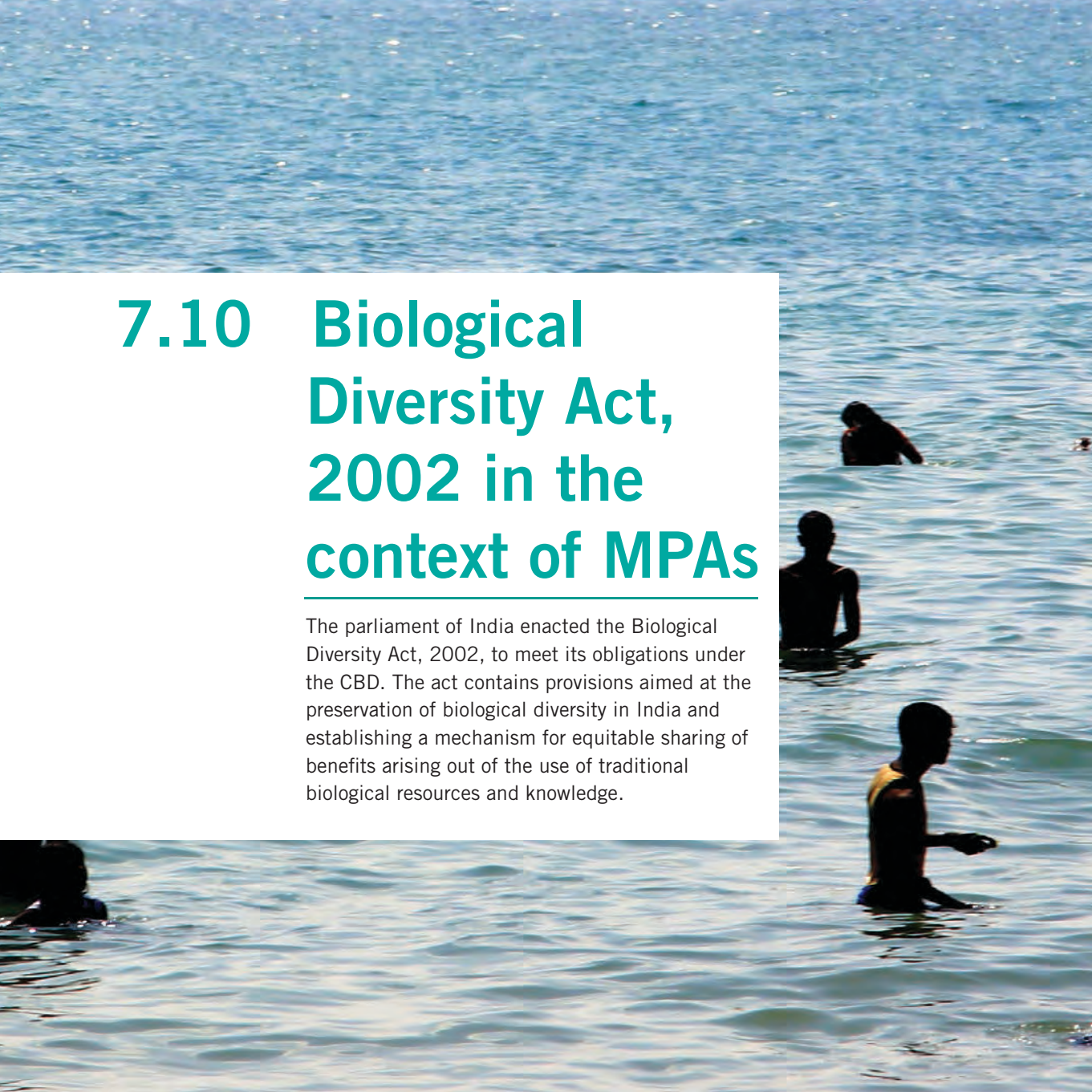
- The process of declaration is much simpler and quicker compared with the declaration of national parks and wildlife sanctuaries.
- The specific threats in a particular area can be identified and only appropriate restrictions imposed rather than prohibiting all kind of activities.
- They have a limited adverse impact on livelihoods in view of the fact that virtually no restrictions are imposed on the non-industrial or construction activities.
- The areas adjoining national parks and sanctuaries can be declared 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 ESAs be seriously explored.

Eco-Sensitive Zones under the EPA:

With the basic aim of regulating certain activities around National Parks and Wildlife Sanctuaries so as to minimize the negative impacts of such activities on the fragile ecosystem encompassing the protected areas, the Ministry has issued guidelines for declaring areas around the PAs as 'Eco-Sensitive Zones or Ecologically Fragile Areas (EFA)'.

The detailed guidelines can be found here: http://www.moef.gov.in/sites/default/files/1%20Guidelines%20for%20Eco-Sensitive%20Zones%20around%20Protected%20Areas.pdf



7.10 Biological Diversity Act, 2002 in the context of MPAs

The 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.

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 information on the website of the National Biodiversity Authority, seven Biodiversity Heritage Sites have been notified so far. See further details here: http://nbaindia.org/content/106/29/1/bhs.html.

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. India has 32,796 BMCs.est rights. The recognized rights under the act include the responrest 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.

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

The 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.

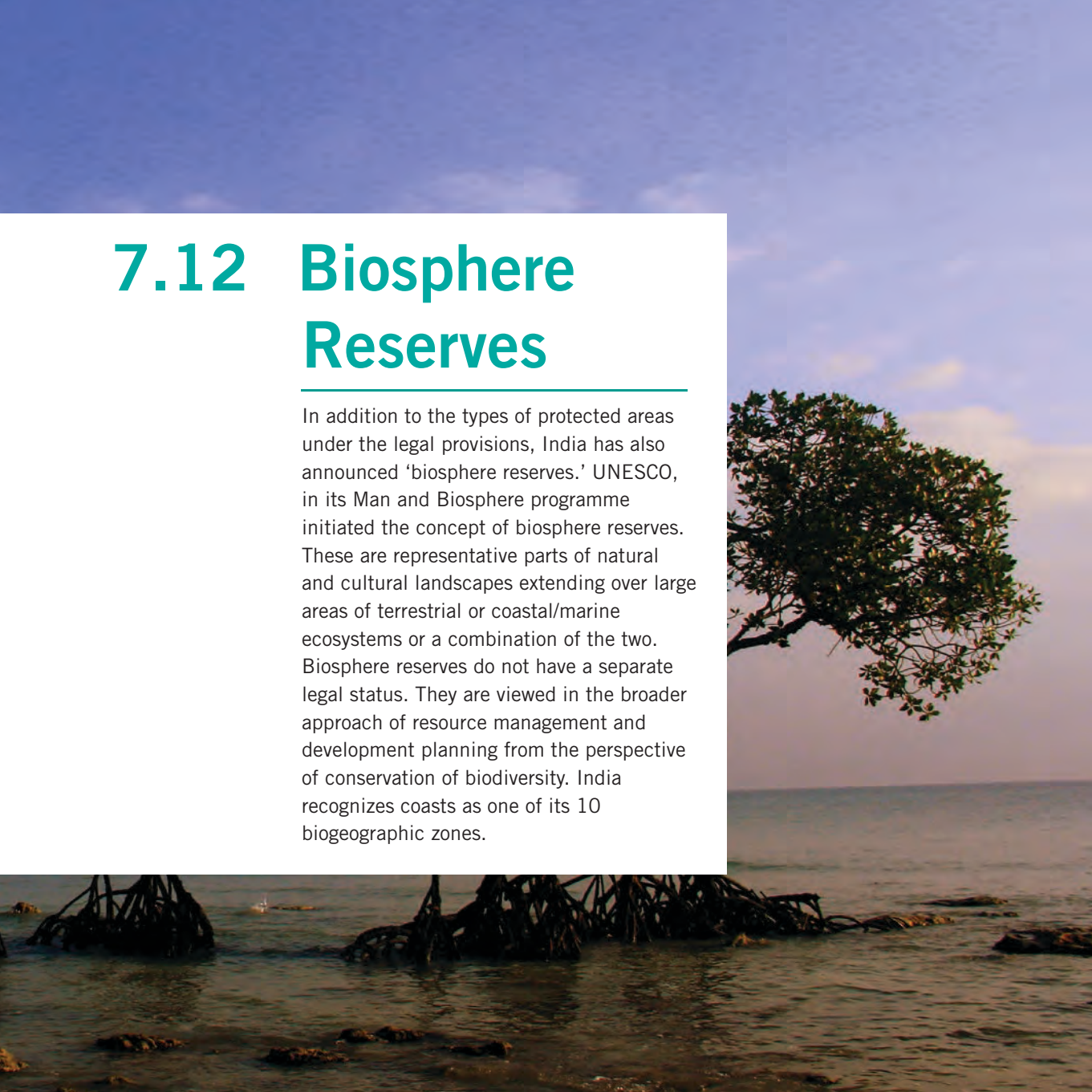
It also provides for a framework for recording forest rights. The recognized rights under the act include the responsibility and authority for sustainable use, conservation of biodiversity and maintenance of ecological balance, thereby strengthening the conservation regimes of the forests while ensuring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

7.12 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. They are 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.



See more details: 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

Status of Marine Biosphere Reserve in India:

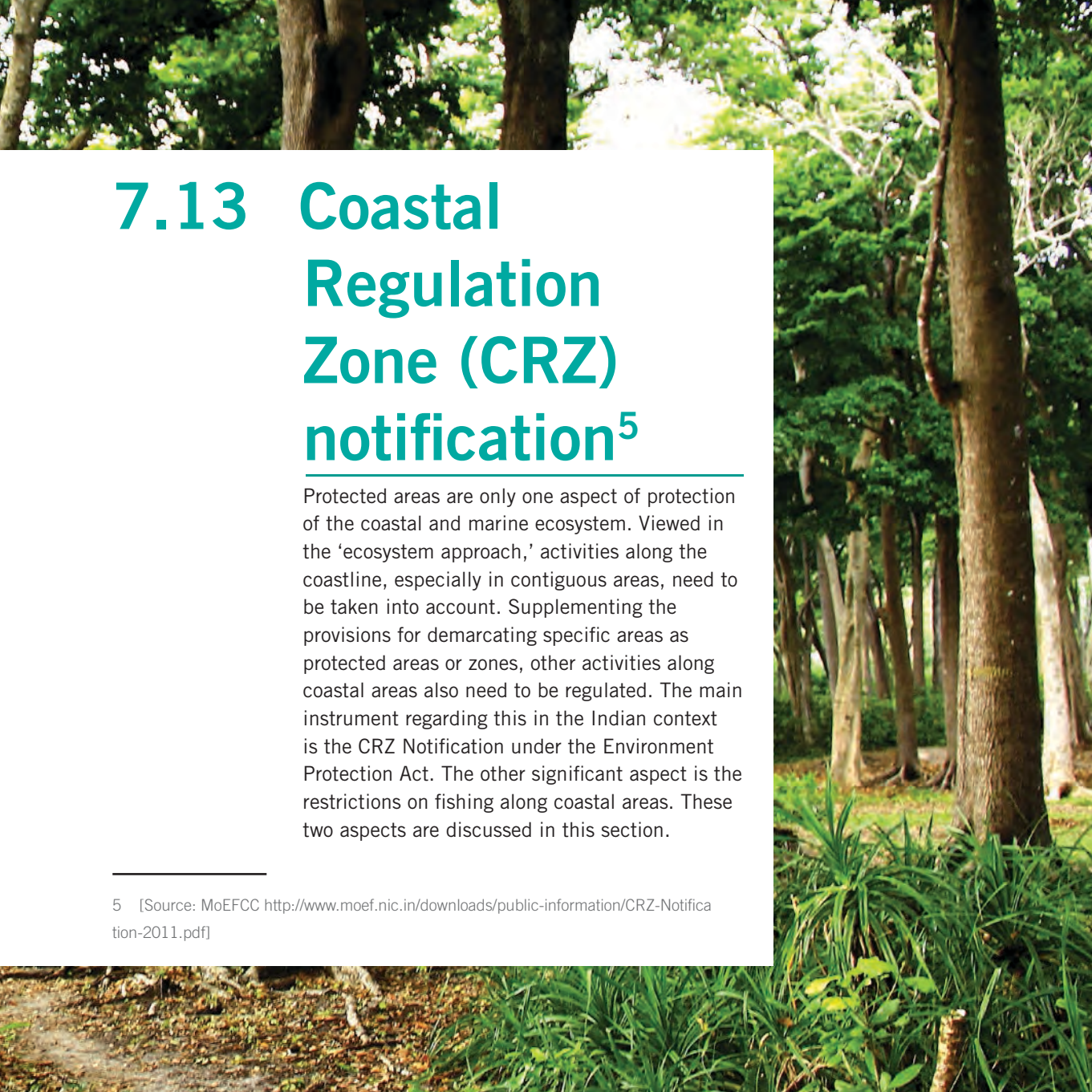
In order to preserve and protect the unique and ecologically important plant and animal species, attempts are being made to conserve some of the vulnerable areas along the Indian coast line as Biosphere Reserve. Th Indian National Man and Biosphere Reserve Committee constituted a core committee in 1974 to identify areas for Biosphere Reserves. As per the guidelines the committee identified fourteen sites as potential Biosphere Reserves out of which five are Marine Biosphere Reserves. They are :

- Gulf of Mannar Biosphere Reserve (Tamil Nadu)
- Sunderbans Biosphere Reserve (West Bengal)
- Great Nicobar iosphere Reserve (Andaman and Nicobar Islands)
- North Andaman Biosphere Reserve (Andaman and Nicobar Islands)
- Little Rann of Kuchchh Reserve (Gujarat)

Apart from these five declared Marine Biosphere Reserves some more areas along the Indian coast line have been identified. These are as follows :

- Malvan Biosphere Reserve
- Gulf of Khambat Biosphere Reserve
- Chilka Lake Biosphere Reserve
- Lakshadweep Biosphere Reserve
- Bhitarkanika Biosphere Reserve

[Source: The National Institute of Oceanography (NIO): Biosphere Reserves of India. http://www. niobioinformatics.in/mangroves/MANGCD/bios1.htm]



7.13 Coastal Regulation Zone (CRZ) notification[5]

Protected areas are only one aspect of protection of the coastal and marine ecosystem. Viewed in the 'ecosystem approach,' activities along the coastline, especially in contiguous areas, need to be taken into account. Supplementing the provisions for demarcating specific areas as protected areas or zones, other activities along coastal areas also need to be regulated. 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 [Source: MoEFCC http://www.moef.nic.in/downloads/public-information/CRZ-Notification-2011.pdf]

CRZ Notification, 2011

The CRZ Notification, 2011, came into effect from January. The notification, 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

- 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 up and expansion of industries, operations and processes in coastal stretches including creeks and the landward sides of creeks.

The CRZ Notification requires that the high tide line (HTL) be demarcated throughout the country by a demarcating authority that is authorized by the Ministry of Environment and Forest.

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

GENERAL PROHIBITIONS UNDER CRZ

The general prohibitions 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 of hatcheries 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., are 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.

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.

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. 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.

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.

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 that 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 that 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 UP TO 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

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; and
- Development of a greenfield airport already permitted at only Navi Mumbai.

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 that 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 food-grain within notified ports; and
- 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 non-hazardous 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, playfields, forestry, projects of Department of Atomic Energy, mining of rare minerals, salt manufacture from seawater, facilities for receipt, storage and 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 and 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 that are relevant are CRZ-I and CRZ-IV. In addition, new categories such as ‘Critical Vulnerable Coastal Area’ are also relevant.

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

Since the fishing communities traditionally live in 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.'

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

- 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 of 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 that 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.

- 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.

Greater Mumbai: For the traditional fishing communities (viz., the Kolis) living in Koliwadas Greater Mumbai, a provision has been provided, 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.

- 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.
- The 2011 notification requires the Coastal Zone Management 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.
- The notification allows infrastructural facilities for the local fishing communities to be constructed in the CRZ-III area.
- 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.
- 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.

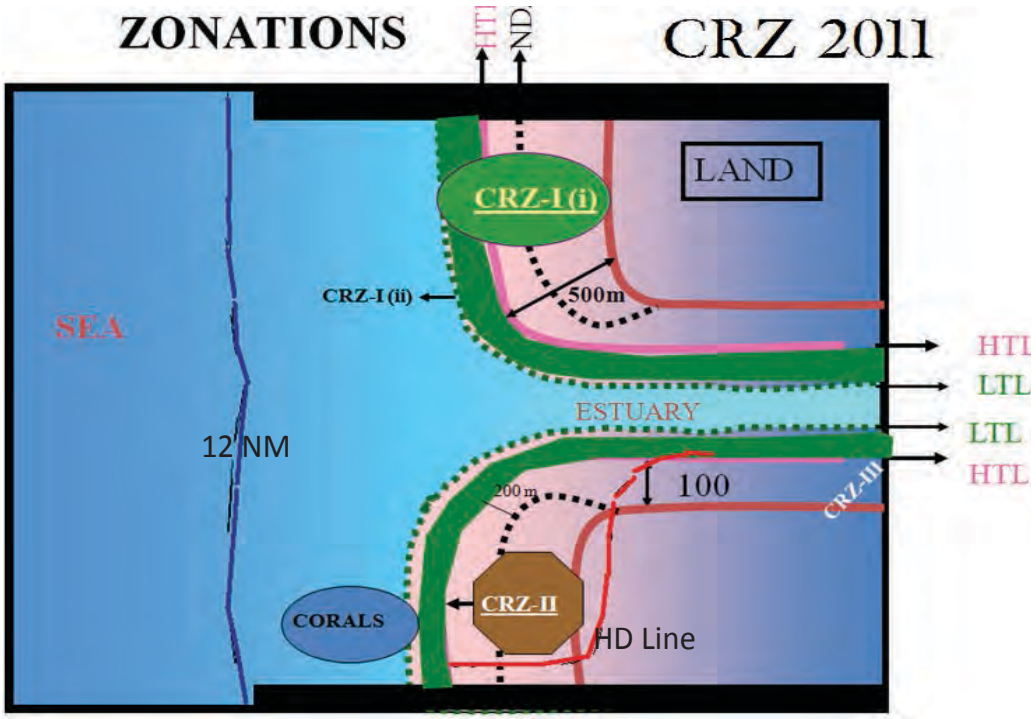
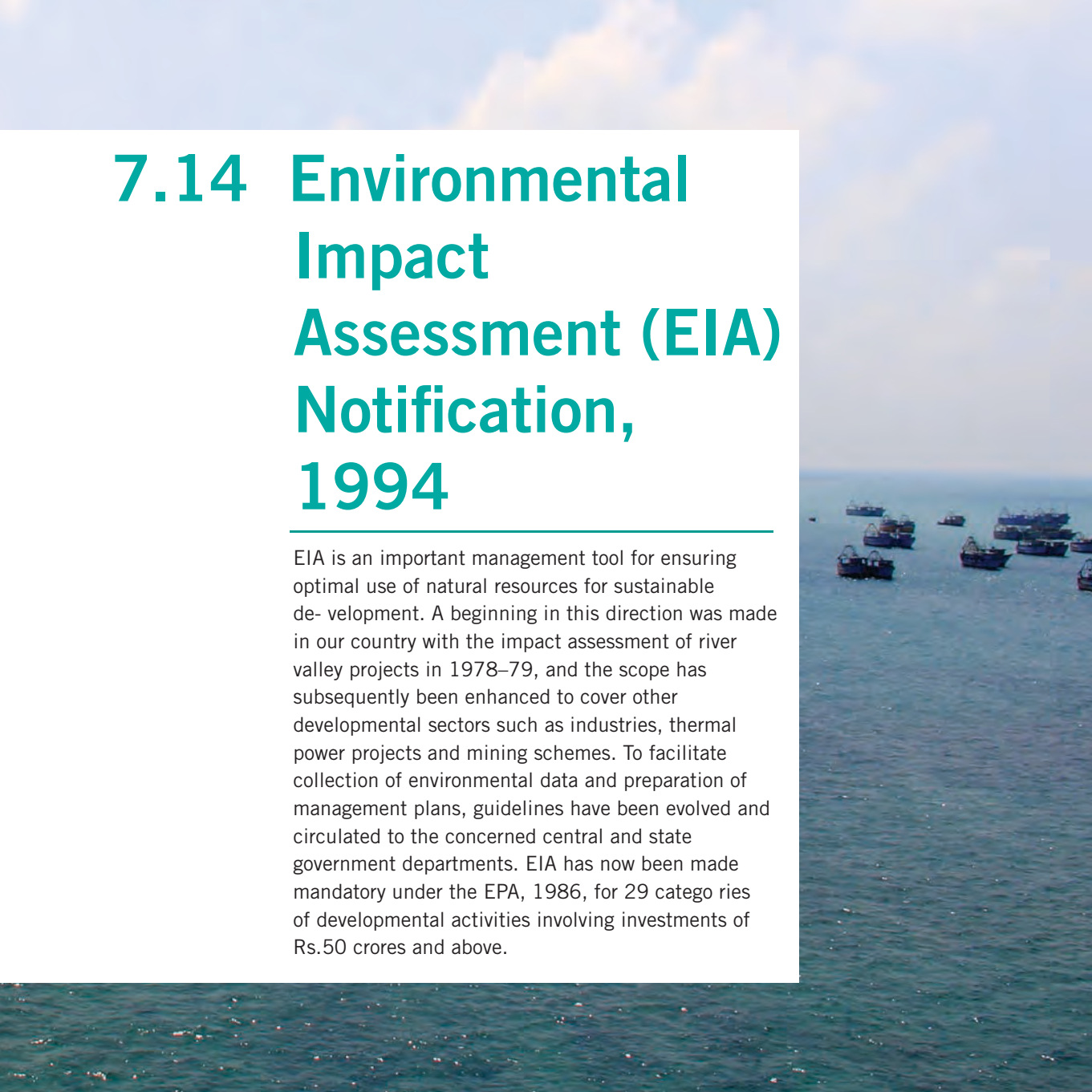


Figure 7.2: Different CRZ ZONES along the coast

Source: http://www.kadamenviro.com/CRZ-Clearance.html

7.14 Environmental Impact Assessment (EIA) Notification, 1994

EIA is an important management tool for ensuring optimal use of natural resources for sustainable de- velopment. 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 catego ries of developmental activities involving investments of Rs.50 crores and above.



7.15 Wetlands (Conservation and Management) Rules, 2010

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

Wetlands cover about 6% of the earth's land surface. 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.

The wetlands are covered under Environment (Protection) Act, 1986. Using the powers given by this act, on 31 March 2016, the Ministry of Environment, Forests and Climate Change (MoEF-FCC) has released the Wetland (Conservation and Management) Rules, 2016. These rules seek to replace the older Wetland (Conservation and Management) Rules, 2010.

Applicability of rules.—These rules shall apply to the following wetlands:-

(I) Wetlands categorised as 'wetlands of international importance' under the Ramsar Convention as specified in the Schedule.

(2) Wetlands notified by the concerned State Governments which are located in their jurisdiction.

(3) Wetlands notified by the Central Government based on recommendation of the Union territory Administrations for wetlands located in their jurisdiction.

Applicability of other laws:

(I) Wetlands within the protected areas of the National Parks and Wildlife Sanctuaries shall be regulated by the provisions of Wildlife (Protection) Act, 1972 (35 of 1972) and the management plans for such wetlands will be prepared on wise use principles and applying guidelines for integrated management. Implementation of management plans shall ensure that traditional uses of wetlands, which are harmonized with its ecological character are not curtailed.

(2) Wetlands within the 'protected or notified forest areas shall be regulated by the provisions of the Indian Forest Act, 1927 (16 of 1972); the Forest (Conservation) Act, 1980 (69 of 1980); and the Environment (Protection) Act, 1986 (29 of 1986) and the management plans for such wetlands shall he prepared on wise use principles and the implementation of management plans shall ensure that traditional uses of wetlands, which are harmonized with its ecological character

are not curtailed.

(3) Wetlands in coastal areas shall be regulated as per the provisions of the Coastal Regulation Zone Notification, 2011 issued vide S.O. No. 19(E) dated eh January, 2011 and the management plans for such wetlands shall he prepared on wise use principles and the implementation of management plans shall ensure that traditional uses of wetlands, which are harmonized with its ecological character arc not curtailed.

Restrictions of activities in wetlands:

(I) The wetlands shall be conserved and managed in accordance with principle of 'wise use' for maintaining their ecological integrity.

Note 1: 'Wise use of wetlands' is the maintenance of their ecological character, achieved through implementation of ecosystem approaches, within the context of sustainable development.

Note 2: 'Ecological character' is the combination of ecosystem components, processes and services that characterize a wetland, and provide the necessary conditions for delivering ecosystem services and maintenance of biodiversity.

Note 3: 'Ecosystem approach' is the strategy for integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.

(2) The following activities shall be prohibited in wetlands notified under these rules, namely:-

(i) reclamation of wetlands, and conversion for non-wetland uses;

(ii) any diversion or impediment to natural water inflows and outflows of the wetland;

(iii) any activity having or likely to have an adverse impact on ecological character of the wetland:

Provided that exceptional cases, any change to the above may be taken up with prior approval of the Central Government.

7.16 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 the food security of the country. With a coastline of 7500 kilometres and, an EEZ of over 2 million square kilometres, and with extensive freshwater resources, the fisheries play a vital role.

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 fisheries in both 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 the per capita fish protein intake of the masses, (2) to ensure the socio-economic 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 the east and west coasts. A national committee has also been constituted to effectively implement the provisions of the 1995 CCRF.

Development and planning of fisheries 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 hrough a public notice issued in 2006 decided to allow the operation of 'deep sea fishing vessels in the Indian EEZ under joint ventures. For this the proposals are subjected to certain guidelines that shall be considered merit-wise by the Inter-Ministerial Empowered Committee on Marine Fisheries.

Other Indian legal instruments at central level that are 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

State-level fisheries management

At the state level, fisheries management is undertaken mainly through licensing, prohibitions on certain fishing gear, regulations bearing 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 kilometres to 10 kilometres) 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, demarcation of zones for no-trawling, and other measures such as the use of turtle excluder devices and designation of no-fishing areas.

7.17 Institutional framework for implementation of coastal and marine-relevant law and policies

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).

Table 7.2 Institutions responsible for decision-making in coastal and marine environment in India

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

Source: http://envfor.nic.in/divisions/ic/wssd/doc2/ch11.pdf

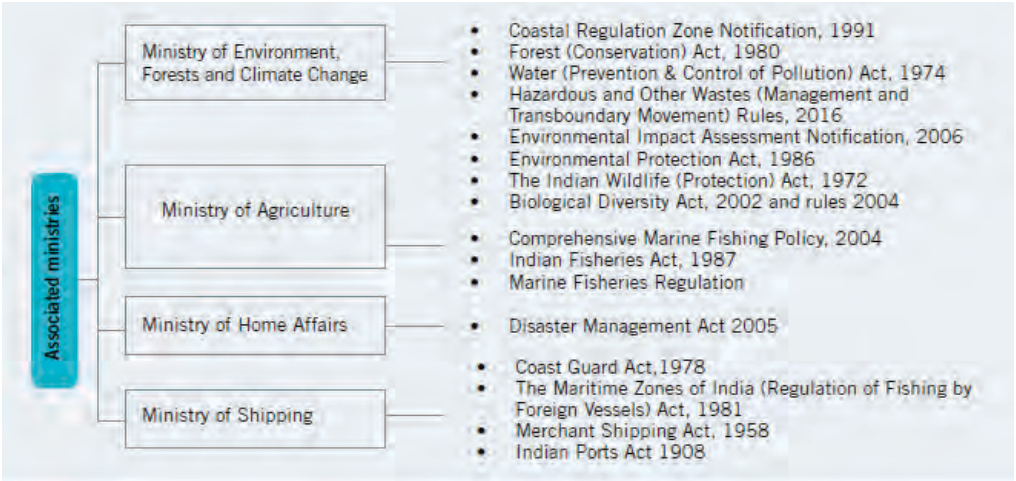


Figure 7.3 : Laws under the purview of different ministries in India

Source: TERI: Review of Marine and Coastal Policies in India, available at: http://www.teriin.org

Internet resources relevant to Figure 7.3 :

http://www.moef.nic.in/legis/crz/crznew.pdf
http://envfor.nic.in/legis/forest/forest2.html
http://www.envfor.nic.in/legis/water/wat1.html
http://www.moef.gov.in/sites/default/files/Final%20HWM%20Rules%202016%20(English).pdf
http://envfor.nic.in/legis/eia/so1533.pdf
http://envfor.nic.in/legis/env/env1.html
http://envfor.nic.in/legis/wildlife/wildlife1.html
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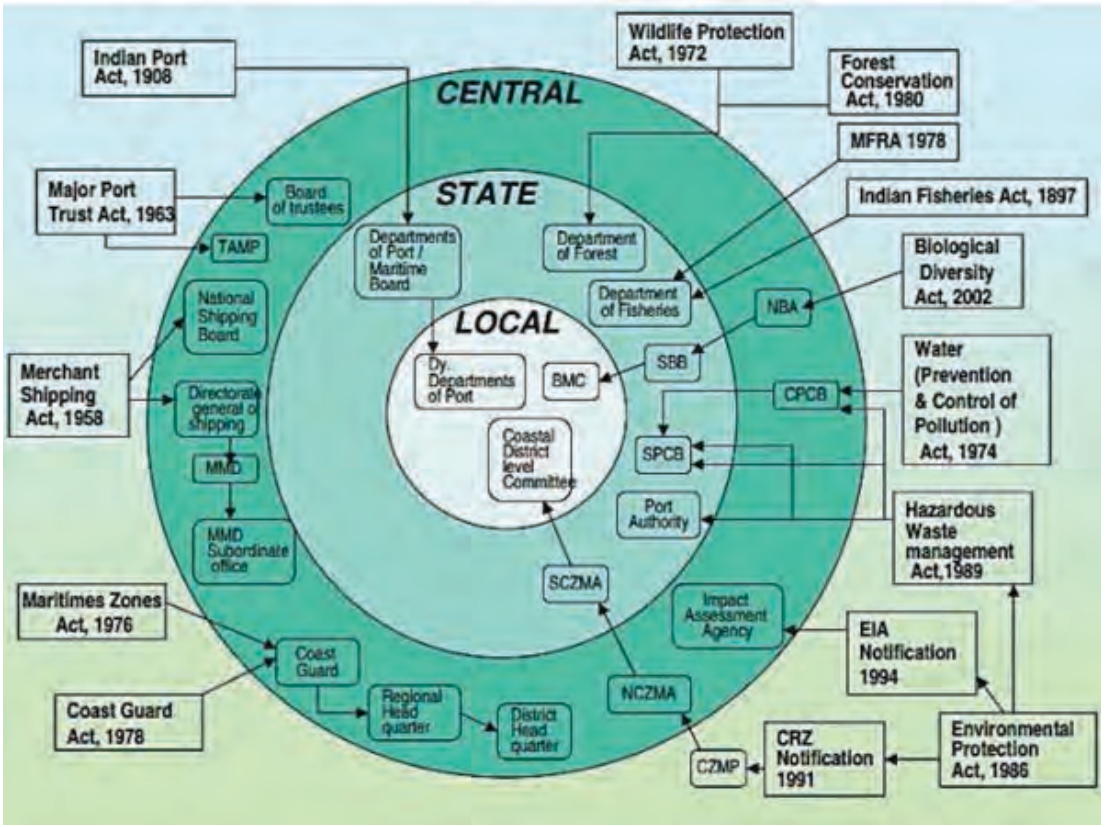

Figure 7.4: Institutional map for different laws on coastal and marine issues in India

Source: TERI: Review of Marine and Coastal Policies in India, available at: http://www.teriin.org

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 NGT was established on October 18, 2010 under the National Green Tribunal Act 2010, passed by the Central Government. The stated objective of the Central Government was to provide a specialized forum for effective and speedy disposal of cases pertaining to environment protection, conservation of forests and for seeking compensation for damages caused to people or property due to violation of environmental laws or conditions specified while granting permissions. (add footnote here: http://www.greentribunal.gov.in/)

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 terrestrial issues and concerns. As is evident in the case of the WPA, the act and 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 forests 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 some scope since their adverse impacts on the livelihood needs of traditional communities are minimal and they achieve 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 play 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 the media for building awareness about the existing policy and legal regime.

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