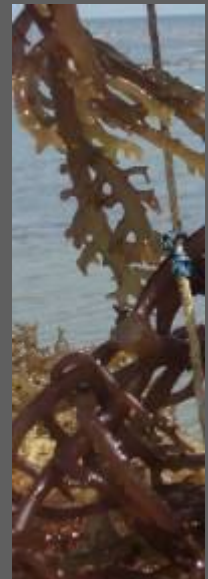
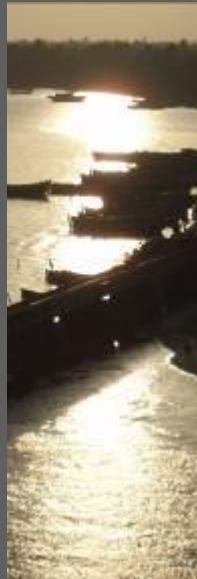


ASSESSING AND ENHANCING LEGISLATIVE PROVISIONS FOR NATURAL RESOURCE CONSERVATION IN THE GULF OF MANNAR BIOSPHERE RESERVE (TAMIL NADU, INDIA)



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Disclaimer: The views and opinions contained in this report are solely those of the authors and do not necessarily reflect the views of the organisations they belong to.

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Abbreviations and acronyms used in the report

ATREE:	Ashoka Trust for Research in Ecology and the Environment
CAG:	Citizen, consumer and civic Action Group
CRZ:	Coastal Regulation Zone
CWW:	Chief Wildlife Warden
CZM:	Coastal Zone Management
EPA:	Environment Protection Act
EFA / ESA:	Ecologically Fragile Areas / Ecologically Sensitive Areas
GEF:	Global Environment Facility
GoM:	Gulf of Mannar
GoMBR:	Gulf of Mannar Biosphere Reserve
GoMBRT:	Gulf of Mannar Biosphere Reserve Trust
GoI:	Government of India
IUCN:	World Conservation Union
MoEF:	Ministry of Environment and Forests
PCB:	Pollution Control Board
SSCP:	Sethusamudram Ship Canal Project
TNSPCB:	Tamil Nadu State Pollution Control Board
TNMFRA:	Tamil Nadu Marine Fisheries Regulation Act
UNDP:	United Nations Development Programme
UNEP:	United Nations Environment Programme
UNESCO:	United Nations Economic, Social and Cultural Organisation
WLPA:	Wild Life Protection Act
WWF:	World Wide Fund for Nature - The Global Conservation Organisation

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CHAPTER 1

1. Introduction

1.1. Declaration of National Park in Gulf of Mannar

The Government of Tamil Nadu *vide* G.O. Ms. No. 962, Forests and Fisheries, issued preliminary notification on 10th September 1986 declaring 21 islands in the Gulf of Mannar (GoM) off the coast of Tirunelveli District in the East and Ramanathapuram District in the South as National Parks in exercise of the powers conferred on it by Section 35(1) of the Wildlife Protection Act. These areas were notified as protected owing to their ecological, faunal, floral and zoological association and importance. The draft final notification (under Section 45(4) of the Wildlife Protection Act) for declaration of National Park was submitted in 2002 and is still pending approval.

The declaration of the islands of GoM as National Parks was preceded by extensive studies of the region. These studies indicated that these islands served as unique habitats for several endangered species and that there was extensive destruction of flora and fauna caused by anthropogenic activities. The creation of a marine national park was seen as a natural extension of the growing need to protect natural diversity, a concept that grew in popularity with the UNESCO's Man and Biosphere Programme (Mahadevan and Nayar, 1983).

1.2. Gulf of Mannar Biosphere Reserve

Gulf of Mannar (GoM) was designated Biosphere Reserve in 1989. The 'biosphere reserve' concept developed under the UNESCO- Man and Biosphere Programme initially in 1974 and subsequently revised in 1995 based on the ability of the ecosystem to reconcile the conservation of biological diversity and the sustainable use of biological resources.

The declaration of GoM as Biosphere Reserve facilitates the engendering of reduction in biodiversity loss in conjunction with improving livelihoods and enhancing social, economic and cultural conditions for environmental sustainability, the 7th Millennium Development Goal.

In pursuance with its policy to lend support to community based management of the GoMBR the Gulf of Mannar Biosphere Reserve Trust (GoMBRT) was set up, under the aegis of the Global Environmental Facility (GEF). The GoMBRT is the nodal agency responsible for the conservation of GoM. It also has as its mandate the integration of biodiversity conservation with sustainable coastal zone management and livelihood development.

1.3 Scope of study

Legal administration of the Gulf of Mannar Biosphere Reserve (GoMBR) and the National Park is under the control of the Chief Conservation of forests (Wild life), and the principal Chief Conservator of forests, Tamil Nadu Forest Department, Chennai.

The GEF-UNDP-GOI-GOTN project aims to develop meaningful co-ordination between various agencies working in this coastal zone such that the institutions and their mandates, laws and policies which affect the coastal zone in the GoMBR area are complementary to each other and are meaningfully implemented to realise objectives of biodiversity conservation and sustainable use of

marine resource. The GoMBRT has articulated the genuine need to examine various policies, laws, regulations, guidelines and rules of various institutions, which have legal, and policy mandates and which are in one or the other way influencing the conservation and sustainable use of resource and sustainable development of the area. The GOMBRT has engaged the project team put together by the Citizen, consumer and civic Action Group (CAG), Chennai to critically review and analyse various policies, laws, regulations, guidelines and rules related to protection, conservation, sustainable use of marine resources and developmental activities in GoMBR and to recommend to the Trust, their expert opinion on revision, modification and amendments at relevant places in order to reduce conflicting provisions and to bring a cohesive approach towards protection and use of the GoMBR's natural resources.

1.4 Methodology and limitations

Under this project, a combination of research methods was employed to answer the following specific research questions:

- Q1. Are the current marine legislations related to conservation and fisheries contributing effectively to the conservation and sustainable use of the GoMBR's resources?
- Q2. What are the ways by which these laws, the relevant implementing agencies and the legal strategies and mechanisms can be improved to positively impact the sustainable use and conservation of the natural resources of the GoMBR?
- Q3. What improvements are required within the legal framework to ensure better biodiversity conservation and sustainable use of the GoM's natural resources?

1.4.1 Primary data

Primary data was collected by conducting interviews with key informants from the various Government Departments of the region. Information about the role and functioning of these departments in conserving the GoMBR was gathered and used to better our understanding of the efforts taken to protect the Reserve. Various interview schedules were prepared based each the legislation and administered to the relevant officials in Ramanathapuram and Tuticorin Districts (refer to Annexure 1 for the list of people interviewed) in three rounds of interviews conducted between the 27th-28th February 2007, 17th-21st March, 2007 and 9th-15th May, 2007. A set of interviews were also conducted with representatives of the coastal community, people with several years of expertise in working with these communities and merchants trading in marine products in these two districts, as also in Kanyakumari District between the 17th-21st March 2007 and 26th March to 1st April, 2007. These interviews were conducted to help identify grey areas in the legislations.

1.4.2 Secondary data

Secondary data collected included various central and state legislations, maps pertaining to the GoMBR, details about the GoMBRT, and activities within the GoMBR (fishing, sea weed cultivation and harvesting practices in the region). Maps were obtained from the GoMBRT and the Tamil Nadu Forest Department. Details pertaining to the structure and functioning of the GoMBRT and data collected by the Trust on activities within the GoM were collected from the office of the GoMBRT, in Ramanathapuram. Acts and Rules governing the GoMBR area were collected from the official websites, government offices and from personal libraries of various environmental organisations. Notifications, Collector's orders and Government orders specific to

the region were collected from the relevant departments and the GoMBRT. Information about the fishing practices in the region was collected from the coastal community and the library of Central Marine Fisheries Research Institute (CMFRI), Mandapam was referred to for material on sea weed cultivation and harvesting.

In addition to the above a media search was also undertaken to document and analyse the reportage on issues pertaining to the biodiversity of the GoMBR. English Newspapers and magazines that were searched included The Hindu, Frontline, Indian Express, Deccan Chronicle, and The Outlook besides several internet searches. Media reports were collected from the year 2000 until 2007 to gain an overall understanding of conservation issues pre- and during the formation of the GoMBRT. Scientific journals were also searched to gain insight into the threats to the GoM's biodiversity, status of its marine biodiversity, socio-economic issues within the GoM and issues related to the overall subject matter of this study. Material was also obtained from the information centre of the International Collective in Support of Fishworkers(ICSF), Chennai and the libraries of CAG and ATREE.

1.5 Limitations of the study

There are several limitations within a research exercise such as the one attempted here. The first limitation is that of procuring adequate information related to orders and government notifications. Several months were spent trying to procure some of the orders and in many instances despite writing formal letters and continuous follow up, key orders were unavailable. Therefore only those orders, notifications and laws that the group was able to get hold of have been analysed. Some information pertaining to the efficiency of government departments, the functioning of government officers etc. was provided 'off the record'. We have refrained from mentioning sources in such instances, but have retained some comments only insofar as they are relevant to the task at hand.

On the advice of the Empowered Committee chaired by the Chief Wildlife Warden, the researchers have not focussed on specific issues of implementation including financial arrangements available within each government department entrusted with the task of implementing various laws. We strongly recommend that such a study is conducted as a follow-up to this project, since the capacity of implementing agencies is centrally tied to availability of finances.

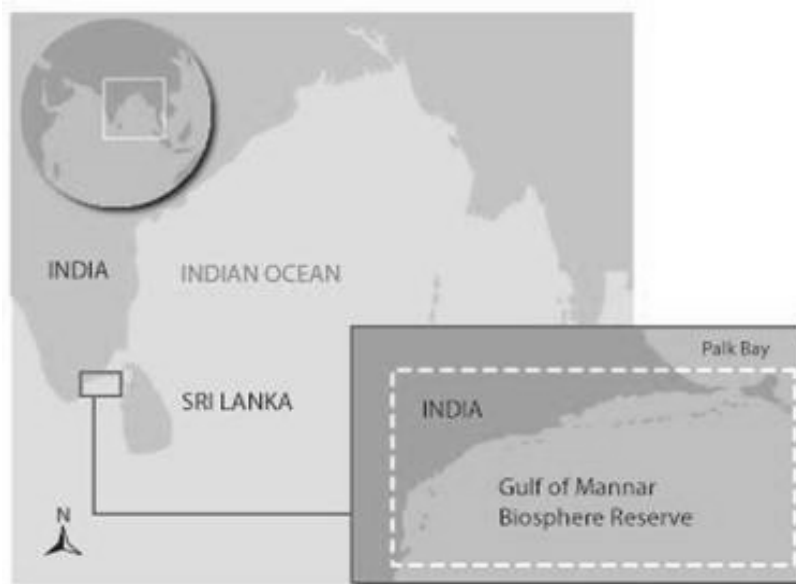
CHAPTER 2

2. CHALLENGES IN LOCAL LEVEL MANAGEMENT

2.1 Study Area: The Gulf of Mannar

The Gulf of Mannar, the first marine biosphere reserve in Southeast Asia, was established on 18th February 1989. This reserve is located in the coastal marine zone of the Gulf of Mannar. It is the first marine biosphere declared not only in India but also in South-East Asia. The IUCN Commission on National Parks and Protected Areas, with the assistance of UNEP, UNESCO and WWF identified the Reserve as being an area of 'Particular Concern' given its diversity and multiple use management status (UNDP-GEF, 1999).

Plate 1: The region of the Gulf of Mannar



The GoM has a chain of shoal, called Adam's Bridge nearly seven in all, about 30 km long. It is an inlet of the Indian Ocean, between Southeastern India and Western Sri Lanka. The GoM is 130 km to 275 km wide and 160 km long. During high tide the seawater would raise to more than 1.2 meters above the sea level. Full of beach ridges, the GoM can be grouped into: (i) Beach ridges south of Vaigai River; (ii) Beach ridges between Kotangudi River and Palar River; (iii) Beach ridges between Palar River and Gundar River system; (iv) Beach ridges between Gundar River and Vaippar River; and (v) Beach ridges south of Vaippar River. The total water logged land has been calculated to be 5.96 sq km. Eight series of Strand Lines can also be observed, apart from the sea cliffs and caves. The Palk Strait is an inlet of Bay of Bengal and is 64 kms to 137 kms wide and 137 kms long. It receives several rivers including Vaigai from India and contains many islands of Sri Lanka.

The GoMBR includes the Gulf of Mannar, the adjoining coasts and also the small islands dotting the Gulf. Spread in an area of 10,500 sq km, it is bound by Palk Bay and Rameswaram Island in the north side; by Ramanathapuram district in the northwest and west; and by Tuticorin district in the south and by Bay of Bengal in the east. It comprises a chain of 21 islands along a stretch of 140 km between Rameshwaram and Tuticorin, which are small and presently uninhabited. The GoMBR is made up of a core area and a buffer zone. The Core area comprises the 21 uninhabited islands ranging in size from 0.25 ha to 130 ha, lying one to four km offshore (Khwaja, 2000; Rai, 2000; Venkataraman et al., 2002; Singh, 2003). These islands and their surrounding waters measuring a total of 560 sq km. has been notified as a National Park on 10th September 1986 under the Indian Wild Life (Protection) Act, 1972, Government of Tamil Nadu, 1986. The buffer zone is comprised of the remaining Gulf waters to the south and an inhabited coastline to the north. Therefore the reserve is comprised of 560 km² core area of coastal islands and shallow marine habitat, surrounded by a 10 Km wide, 160 km long buffer zone (Government of Tamil Nadu, 2000)

2.2 Biodiversity of the Gulf of Mannar

There are several studies that point to the ecological sensitivity of the Gulf of Mannar region. It has 3,600 species of plants and animals that make it India's biologically richest coastal region (UNDP-

GEF, 1999). Kumaraguru et al., (2006) and Venkataraman et al., (2006) provide fairly detailed compilations of studies conducted in this region.

Muthuraman et al. (2007) provide an overview of the flora and fauna of the Gulf of Mannar coral reefs in their report on the impact of the Indian Ocean December 2004 tsunami. They state “*The regions’ coral reefs are highly diverse, and represent among the highest marine diversity hotspots in mainland India. This includes a high diversity of coral reef and other marine fish species (>538) (Venkataraman, 2006), including many ornamental fish species (Sekar, 2000 and Gopakumar, 2000), Molluscs (428) (Venkataraman et al., 2004), Sponges (319), Echinoderms (112) (James 2001), Corals (94) (Pillai, 1983), Dolphin (4) (Lipton et al., 1995), Whales (7) (James, 2005), Stomatopods (15) (Shanbhogue 1986), Brachyuran crabs (237) (Kathirvel and Gokul, 2006).*”

The Gulf abounds in important marine life comprising a unique stretch of coral reef systems, dugongs, sea turtles, dolphins, besides numerous species of molluscs and commercial fish. Four species of dolphins are common in some parts of the Gulf (Krishna Pillai and Kasinathan 1989; Lipton et al., 1995). Hundreds of migratory olive ridley sea turtles pass through the Gulf to their mass nesting or arribada in Gahirmatha, Orrisa. Five species of sea turtles (Green – *Chelonia mydas*; Hawksbill – *Eretmochelys imbricata*; Loggerhead – *Caretta caretta*; Olive Ridley – *Lepidochelys olivacea* and Leatherback – *Dermochelys coriacea*) are recorded in the Gulf of Mannar (Bhupathy, & Saravanan, 2006). Although their numbers have declined, dugongs though present in small numbers feed in the sea grass beds of the GoM (Silas & Fernando, 1985, Kumaran 2002). The UNEP report titled ‘*Dugong, Status Report and Action Plan for Countries and Territories*’ states that dugongs have been noted even in deep waters between India and Sri Lanka. It is reported here that the Dugong migrates to Palk Bay during the Southwest Monsoon since the sea in the Gulf of Mannar is rough during this season showing its adaptation to this ecosystem. Conversely, during the northeast monsoon season they migrate from the Palk Bay to the Gulf of Mannar when the Palk Bay becomes very turbid (Jones, 1976).

The major and minor mangrove wetland areas in Tamil Nadu pertaining to this region are Palk strait (700 ha), Gulf of Mannar Marine area (148 ha) and Gulf of Mannar Island area (30 ha) (Selvam et al., 2002). *Pemphis acidula* (*Keeri chedi* - Tamil vernacular name) is a true mangrove species and is endemic to the islands of Gulf of Mannar (Selvam et al., *ibid*). The Gulf has a rich diversity of bird life, with 84 recorded aquatic species and 183 terrestrial species (Balachandran, 1995; Venkataraman, 2002). The land area that stretches between Kothandaswami Temple and Dhanushkodi which is a wetland acting as a feeding ground for thousands of migratory birds during the winter season. This region is referred to as the Kodhandaramar Temple Lagoon (Naganathan, 2005). Ten endangered bird species have been sighted during the last migratory season at the Gulf of Mannar Marine National park near Rameshwaram, a study undertaken by the Gulf of Mannar National Park authorities revealed in the year 2005 (Anon, 2005).

A unique endemic species of *Balanoglossus*, a living fossil that is considered a link between vertebrates and invertebrates was recorded from this region. Pillai (1983) recorded a total of 94 species of Scleractinian corals under 37 genera in the Palk Bay and Gulf of Mannar region. Venkataraman et al. (2003) reported 82 species of Scleractinian corals under 27 genera from Gulf of Mannar and Palk Bay region. 66 species of corals belonging to 23 genera were recorded in Palk Bay region alone (Pillai, 1971). Kelleher (1995) reported 117 species belonging to 37 genera in the Gulf of Mannar. The Gulf is believed to have the highest composition of sea-grass species along India's coast Jagtap (2003) reported 14 species of seagrass from GoMBR and Palk Bay.

Gulf of Mannar is one of the best regions in the Indian subcontinent in fish biodiversity richness. The total area of Gulf of Mannar under the Indian Exclusive Economic Zone is about 15,500 sq km where 5,500 sq km is used for commercial fishing within a 50 m depth. Dorairaj (1998) has documented 450 fish species under 252 genera and 112 families from GoM. He describes the uniqueness of species found in the region, the fish diversity, their socio-economic value, socio-cultural value and management of the region (Dorairaj, 1998).

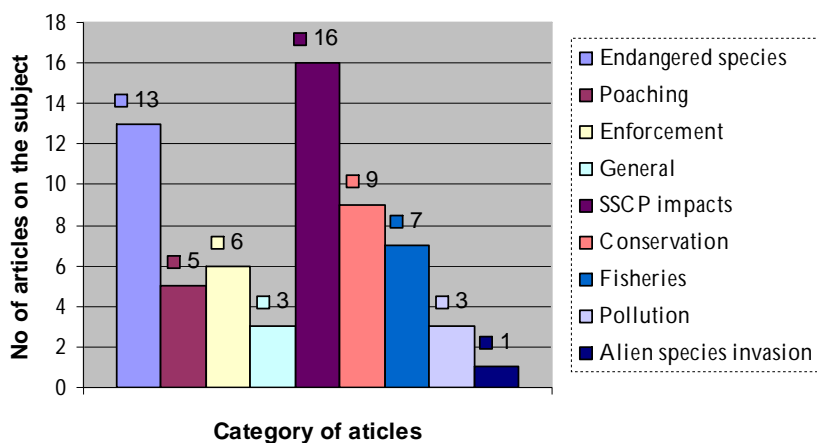
2.3 Resource use: Threats to the biodiversity of the Gulf of Mannar

2.3.1 Threats to the Gulf of Mannar identified by research papers

The biodiversity of the Gulf of Mannar is under significant threat from anthropogenic factors. A fresh assessment of threats to this region by itself warrants a separate study, although certain scientific studies of the biodiversity of the region do identify threats to specific ecosystems. Kumaraguru et al., (2006), the UNDP-GEF Project document (1999), Rajeswari et al., (1998) are a few reports that outline threats to the GoM. The UNDP-GEF supported project on conservation and sustainable use of GoM's resources through the GoMBR Trust is designed to demonstrate an effective protection and conservation mechanism which integrates sustainable use of the sensitive ecosystem.

2.3.2 Threats to the Gulf of Mannar identified by the media

Media analysis undertaken as part of this study sought to explore the important threats as identified by media sources. As explained in the section on methodology, a collection of nearly 50 news articles were catalogued from leading English dailies. The plate below shows the list of the number of articles on the Y-axis and the categories of issues that are dealt with in each on the X- Axis.



The graph in Plate 2 shows that the nearly 34% of the articles (n=16) raised the issue of impacts of the Sethusamudram Ship Canal Project (SSCP). Nearly 29% articles (n=13) contained information on endangered species. These articles were almost all on the issue of poor protection for the endangered species found in this region. About 20% of the articles (n=9) were on the topic of conservation and 15% (n=7) dealt with fisheries related matters. Six articles (13%) were devoted to the issue of pollution in the Gulf of Mannar.

The media has indeed covered a range of issues with respect to the Gulf of Mannar, but the English media has projected threats that mainly relate to specific infrastructure projects as well direct threats to endangered species. The coverage of these threats is also not done in a detailed manner. The articles related to development issues have only focused on larger and more controversial projects such as the SSCP, but have ignored other polluting industries located in the region. Similarly, none of the articles relate to fisheries really provide details other than regular reporting of regulations like the monsoon ban or infractions between the traditional and mechanised sectors. Therefore, it might appear that the threats to the Gulf of Mannar are easily identified. However, the analysis of the media reportage shows that several nuanced issues are not at all touched by the media and this includes issues related to problems with legal enforcement, community perceptions of laws, community dynamics with use of the natural resources etc.

2.3.3 Threats to the Gulf of Mannar identified by GoMBRT

GoMBRT through the UNDP funded project has identified a total of 222 villages as project villages. 59 of these are in the Mandapam zone, 40 are in the Keelakarai zone, 56 in the Erwadi zone and 67 in the Thoothukudi zone. Of these it has identified 73 villages as being High Threat villages (areas where the following take place: poaching of sea turtles, coral mining, collection of chanks & sea cucumbers, harvesting sea weeds, destructive netting practices, dynamite/destructive fishing practices, National Park dependents and other illegal activities). 55 villages are classified by the Trust as Medium Threat villages (activities here include unsustainable use of crafts & gears, high fishing pressure including fishing coolie, increased immigration and supporting illegal activities). 94 villages are identified as Low Threat to practice of seasonal fishing and pressure created by the non-fishing coastal villages in the GoMBR. This classification is still not comprehensive as it focuses on direct threats to the protected species and doesn't address problems related to pollution don't find enough emphasis and this is perhaps indicative of the huge challenge this threat poses. Pollution, dredging, shipping activity, mining, urbanisation, sewage disposal and tourism are all big sources of threats. A study undertaken by the UNDP-GEF project through the workshop (held on 5th -7th January 2006 at Madurai) identifies these other threats.

Table 1 Incidence of high threat activities practiced in the project villages

Threat	No. of villages engaged in these activities
Dynamite fishing	9
Sea turtle poaching	17
Sea Cucumber collection	10
Chank and sea cucumber	9
Chank	14
Use of destructive nets	30
Island dependants	29
Supporting illegal activities	1
Increased crafts & gears	15
Increased fishers	31
Increased fishing coolie	35
Seasonal fishing	43
Non fishing	47
Unlisted threats	4
Sea weed	27

Coral collection	9
Full time fishing	15
Shark and ray	1

Source: Compiled from micro plans prepared by the GoMBRT and its partner NGOs.

It is important to note that many of these resources that have been identified as being highly threatened by the Trust are prohibited by either the Wild Life Protection Act or the Tamil Nadu Marine Fisheries Regulation Act. It is thus important, to understand the occurrence of such resource exploitation, to examine the legal frameworks that govern the GoM and identify the gaps inherent in the legislations and in their implementations violations.

CHAPTER 3

3. POLICY ANALYSIS

This chapter begins with an identification of various legal provisions available for the protection and conservation of the natural resources of the GoMBR.

3.1 Constitution of India

Article 21 Protection of life and personal liberty

No person shall be deprived of his life or personal liberty except according to procedure established by law.

Article 48 A Protection and improvement of environment and safeguarding of forests and wild life

The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.

51A(g) Fundamental Duties

To protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures.

3.2 International parameters

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

What is it?

CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an inter-governmental, international agreement drafted to ensure that international trade in specimens of wild animals and plants does not threaten their survival by means of regulating and monitoring commercial international trade of the same. Trade in species ranges from live animals and plants to a vast array of wildlife products derived from them, including food products, exotic leather goods, wooden musical instruments, timber, tourist curios and medicines. CITES recognized

that species were driven to extinction because of unsustainable exploitation, combined with other factors such as habitat loss. CITES was the first international discussion that recognized the fact that trade in wild animals and plants was often international.

Functioning of CITES

CITES subjects international trade in specimens of selected species, listed in the three Appendices of the CITES, to certain controls. All import, export, re-export and introduction from the sea of species covered by the Convention has to be authorized through a licensing system administered by one or more Management Authorities who will in turn be advised by one or more Scientific Authorities to advise them on the effects of trade on the status of the species.

Implications on Indian policy making

In India, the legislative basis for the implementation of CITES lies in the Wild Life (Protection) Act, 1972; the Customs Act, 1962 and the Export and Import Policy (Bajaj, 1996).

The Wild Life Protection Act (WLPA) 1972, provides for protection to listed species of flora and fauna and establishes a network of ecologically-important protected areas. It empowers the central and state governments to impose a blanket ban on carrying out any industrial activity inside any area that has been identified and declared a wildlife sanctuary, national park or closed area.

Violation of the Import/export policy in general and CITES in particular, constitutes an offence under the Customs Act, 1962. Section 3(2) of Import and Export (Control) Act, 1947, states that all items (including wild fauna and flora) covered in the Import and export policy will be deemed to be covered under Section 11 of the Customs Act, 1962. Thus when CITES is being violated the role of the Customs Department comes into play mainly at the exit/entry points of the country.

Implications in GoM

Our study reveals that the problem of international trade in endangered species is a reality in the GoM region. Our interviews with the Customs Department officials revealed that wildlife is poached in the GoM and exported out of the country from Kilakarai, an important wildlife market. Paucities in the laws that were promulgated to implement the CITES which allow for such illegal activities to continue are elucidated subsequently in this chapter.

3.2.2 United Nations Convention on Law of the Sea (UNCLOS)

What is it?

The UNCLOS was convened with the intention of establishing a legal order for the seas and oceans in order to facilitate international communication, and promote the peaceful uses of the seas and oceans, the equitable and efficient utilization of their resources, the conservation of their living resources, and the study, protection and preservation of the marine environment.

The UNCLOS establishes a comprehensive legal framework to regulate all ocean space, its uses and resources. It contains, among other things, provisions relating to the territorial sea, the contiguous

zone, the continental shelf, the exclusive economic zone and the high seas. It also provides for the protection and preservation of the marine environment, for marine scientific research and for the development and transfer of marine technology. One of the most important parts of the Convention concerns the exploration for and exploitation of the resources of the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction (the Area).

The definition of the exclusive economic zone (EEZ) as 200-nautical miles with respect to the exploration and exploitation, and conservation and management of natural resources and certain economic activities has direct implications on fisheries sector. The Convention also requires coastal States to ensure that they evolve suitable mechanisms of conservation and management in order to prevent over exploitation of living resources. In order to achieve this, the UNCLOS calls for cooperation between States which possess overlapping/ contiguous EEZs; are home to species identified by it as highly migratory and a general international cooperation towards conservation and management.

The convention places obligations on both coastal States which are to allow access to surplus catch to other States and the other States which are obligated to comply with conservation measures and with the other terms and conditions established in the laws and regulations of the coastal State.

How it functions?

The Commission on the Limits of the Continental Shelf (CLCS), International Seabed Authority (ISA) and the International Tribunal for the Law of the Sea (ITLOS) are established under the UNCLOS. The CLCS was established to delineate the EEZ while the ISA administers the resources of areas beyond the national jurisdiction. Disputes arising out of the implementation of UNCLOS are to be addressed by ITLOS when conflicting States fail to reach a consensus through mechanisms prescribed by the Charter of the United Nations.

The Department of Ocean Development is the nodal agency for implementation of the provisions of United Nations Convention of the Law of the Sea (UNCLOS), in India.

Implications on Indian policy making

The UNCLOS is a critical convention since it places nearly 2.02 million square kilometers of area, or nearly two-third of the land mass has come under India's national jurisdiction.

The Department of Ocean Development's Ocean Policy Statement emphasizes the need to develop a coordinated and centralized development response to the UNCLOS convention and calls for a detailed mapping of marine resources in order to create an inventory of resources that can be exploited. It recognises the need for effective systems of management and control. The statement further calls for strengthening of technology in order to harness the mapped resources and ensure optimal utilisation. The statement envisions the need for surveillance and conservation of the marine environment and its resources, calling for an integrated legal framework and its concomitant enforcement.

Several laws have already been formulated regarding the maritime zone, fisheries etc. such as the Marine Fisheries Regulation Act (Tamil Nadu Marine Fisheries Regulation Act, 1983 in Tamil

Nadu), The Maritime zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981, The Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976, The Chank Fisheries Act, the Coast Guard Act etc.

Implications in GoM

While these individual Acts and their implications for the GoM are dealt with subsequently in this chapter, it is important to note that the critical finding study has been that there exists no one coordinating mechanism of the overall structure of legislation for the GoM. This absence of a unified code for governing marine areas, we observed in our interviews with officials from various Departments that govern the GoM, leads to the poor sharing of information on various notifications, orders and rules between departments, often making it difficult to even comprehend the legal conservation framework in the GoM, leave alone implementing all of these.

3.2.3 Convention on Biological Diversity, 1992 (CBD)

What is it?

CBD was convened to provide for the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. The CBD redefined biological diversity as relating to people and the need for food security, medicines, fresh air and water, shelter, and a clean and healthy environment in which to live.

The CBD sought to 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 especially by integrating biological diversity conservation and sustainable use in national decision making, ensuring that methods adopted for any use of biological resources causes the least impact on diversity and encouraging cooperation between government and private agencies to develop sustainable use of biological resources and protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements (subject to national legislation).

How it functions

The Conference of the Parties (COP) is the governing body of the Convention, and advances implementation of the Convention through the decisions it takes at its periodic meetings.

To date the Conference of the Parties has held 8 ordinary meetings, and one extraordinary meeting (the latter, to adopt the Biosafety Protocol, was held in two parts).

Several critical issues relating to conservation and sustainable use of biodiversity have been raised by the COP. The second COP (Jakarta, 1995) recognised that the seas face unprecedented human-induced threats from industries such as fishing and transportation, the effects of waste disposal, excess nutrients from agricultural runoff, and the introduction of exotic species. It suggests effective implementation of Integrated Marine and Coastal Area Management (ICMAM) as a tool to protect the coastal areas which includes putting in place marine and coastal protected areas to assist the recovery of biodiversity and fisheries resources and controlling land-based sources of pollution. It

also recognises the need for international cooperation for the protection of the open ocean and deep sea areas.

The eighth COP (Curitiba, 2006) identified the need to improve the participation of stakeholders and indigenous and local communities in the implementation of management decisions and the urgent need for the Parties to design and assess the ICMAM. The COP also highlighted the need for effective protection and management of marine ecosystems.

In order to help in realizing the objectives of CBD, India has enacted an legislation called the Biological Diversity Act 2002 aimed at conservation of biological resources and associated knowledge as well as facilitating access to them in a sustainable manner and through a just process.

The National Biodiversity Authority was established under Section 8 (1) (4) of the Biological Diversity Act, 2002 in order to prescribe procedures and guidelines for foreigners/ Non Resident Indians for obtaining any biological resource or transferring the results of any research. It also functions as an advisory body to the Government of India for the Notifications of threatened species, designation of institutions as repositories for different categories of biological resources, exemption from trade of certain biological resources, establishment of State Biodiversity Boards, creation of a database and generation of awareness amongst the public.

Implications on Indian policy

Existing laws that provide for the conservation and sustainable use of biological diversity, prior to India becoming a Party to the CBD include:

- Indian Forest Act, 1927
- Wildlife (Protection) Act, 1972
- Forest (Conservation) Act, 1980

However these acts do not provide for the protection of wild flora (not belonging to the Schedule of the WLPA) outside the notified sanctuaries and National parks (many of which are located outside forest areas including deserts, coastal and marine systems, grasslands, riverine systems, wetlands) and a large number of invertebrates (out of the 81,000 animal species so far described from the country about 68,000 are invertebrates) and micro organisms. The Acts also do not address issues of access to biological resources and benefit sharing and protection of traditional knowledge and equitable sharing of benefits arising out of the use of such knowledge.

It was in order to address these gaps that the Biodiversity Act, 2002 was enacted. The salient features of this Act include the (i) the regulation of access to biological resources of the country with the purpose of securing equitable share in benefits arising out of the use of biological resources; and associated knowledge relating to biological resources; (ii) conservation and sustainable use biological diversity; (iii) Protection of knowledge of local communities related to biodiversity; (iv) sharing of benefits with local people as conservers of biological resources and holders of knowledge and information relating to the use of biological resources; (v) conservation and development of areas of important from the standpoint of biological diversity by declaring them as biological diversity heritage sites; (vi) protection and rehabilitation for threatened species; vii. involvement of

institutions of state government in the broad scheme of the implementation of the Biological Diversity Act through constitution of committees.

Implications in GoM

As indicated in Chapter 2 of this report, the GoM is threatened by severe anthropogenic stress such as pollution. Conflicting mandates and the plurality of laws and Departments that govern the region are important causes for poor regulation. Also, before the establishment of the GoMBRT the National Parks did not have a well defined management plan (it is only now that a draft management plan for the conservation of the GoM is being circulated) and there was limited community buy-in for conservation. This could be because Settlement of Rights did not take place correctly (throughout the period of our study we were unable to procure any documents or information on whether any procedures for the Settlement of Rights had been followed).

3.2.4 Convention on the Conservation of Migratory Species of Wild Animals (CMS)

What is it?

The Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or Bonn Convention) aims to conserve terrestrial, marine and avian migratory species throughout their range by conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them. The convention obligates Range States to prohibit the capture/killing of a list of identified animals and to conserve and restore the habitats of these species accommodating traditional use of those species. Parties were encouraged to integrate the framework of the CMS into their local legislations.

How it functions

Migratory species threatened with extinction are listed on Appendix I of the Convention. Migratory species that need or would significantly benefit from international co-operation are listed in Appendix II of the Convention. In this respect, CMS acts as a framework Convention. The Agreements may range from legally binding treaties (called Agreements) to less formal instruments, such as Memoranda of Understanding, and can be adapted to the requirements of particular regions. The development of models tailored according to the conservation needs throughout the migratory range is a unique capacity to CMS.

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. A Scientific Council consisting of experts appointed by individual member States and by the COP, gives advice on technical and scientific matters.

3.3 Indian Legislation

3.3.1 Legislation for species protection of marine and coastal species and/ or habitats

3.3.1.1 Wild Life (Protection) Act, 1972

The Wild Life Protection Act (WLPA) was enacted to provide for the *protection of Wild animals, birds and plants with view to ensure the ecological and environmental security of the country* and is probably one of the most important laws in operation in the GoM. This Act is the only law in operation which focuses on habitat [Sections 18 – 38] and species [Annexure 5] conservation with an end to meet its objectives. Thus several marine species are included in the schedules of the Act (see Annexure 5).

Though a Wildlife Advisory Board has been constituted [Section 6] for the selection of areas to be declared protected [Section 8(a)] and for the formulation of policies for the protection of wildlife species and plants [Section 8(b)] the Act doesn't provide clear guidelines for how habitats or species should be added to or deleted from the Act or for the monitoring of the status of the species/ habitat that are protected by the Act and instead allow the Board to regulate its own procedure [Section 7(2)], though the Board is constituted of experts in the field of wildlife conservation, the absence of a clear procedure for conservation and protection of wildlife affects protection of species/ habitats and thus often, as was observed in our research in the GoM, several species that have become threatened **locally** do not find their way to the list and the absence of actual monitoring procedures that are grounded in scientific research dilutes the purpose of this Act.

The Act fails to provide definitive timeframes for fulfilling its various provisions. For instance, though the Act requires the boundary of the National Park to be demarcated [Section 35(2)] it fails to provide for any actual timeframe by which such demarcation should be carried out. This then leads to several problems, as is the case in GoM since the implementation of the Act especially in territorial waters becomes exceedingly challenging in the **absence of boundaries** for both the implementers and the local communities that use the resources of the area. Similarly, there is no timeframe specified for the issue of final notification declaring a specific area as a national park and thus, as in the case of the GoM where even after 22 years have elapsed there is still no final notification of the national parks. Though there is a school of thought that argues that declaration of intent will suffice for providing the demarcated area the status of a national park and that all rights of people in that area are extinguished within a year of declaration of intent, it is imperative that the declaration of national parks through final notification happens within a specified timeframe to ensure that the Government's lack of will to effect such declaration doesn't come in the way of larger conservation goals.

Even when timeframes are provided such as for the Settlement of Rights, where all rights are to be settled within a year of declaration of intention, there is nothing in the Act to specify the fate of areas that are to be declared as national parks where such rights are not settled. Also, the whole settlement of rights procedure is mired in problems since Section 26A(1)(b) of the Act states that adequate measures should be taken to protect the occupational interests of local fishermen. Section 26A(2) states that the right of innocent passage of any vessel or boat through territorial waters is not to be affected by the declaration of a protected area. Our research in the GoM area indicates that these clauses are interpreted differently by different officials with a few officers holding the view that it is not necessary to provide notice, or settle claims over marine spaces since ownership over the waters which are part of India's territorial waters technically belongs only to the Central Government.

The WLPA's penalty clauses [Sections 50-58] are also not found to be **sufficient** enough to act as a deterrent. The fines seem arbitrary, with no actual relation to the actual value of the habitat

destroyed/ species poached or the capital of any person/ persons that commit the offence. The provision to punish officers for wrongful seizure or 'vexatious' use of powers [Section 53] further cripples the implementation of this Act especially since the meaning of the terms 'vexatious', 'wrongful' etc., often are left open to interpretation by the courts.

In concentrating its efforts to protect little pockets of areas identified as sanctuaries and national parks, the conservation efforts of the Act appear myopic since they do not take into account other development activities that take place in the marine area other than the national park that might have direct implications on it. Therefore when corals that lie in the Park Bay or even in areas of the GoM outside the National Park are destroyed, or where land based pollution from coastal towns and industries takes place, no action can be initiated by the Wildlife Warden's office to stem this problem.

The greatest failing perhaps, of this Act is its inability to ensure the **coordination** of various laws and agencies for its effective implementation. For instance, though the WLPA prohibits the entry into sanctuary with weapon without previous permission in writing of the Chief Wildlife Warden or the authorised officer [Section 31], however the Arms Act that controls the licensing of arms and ammunitions finds no mention of this provision. This leaves conservation efforts in a vacuum of sorts especially because the WLPA mandates that all persons in possession of arms as defined under the Arms Act, 1954 should register their names with the Chief Wildlife Warden [Section 34] and no new licenses are to be granted under the Arms Act within a radius of ten kilometres of the protected areas without the prior concurrence of the Chief Wildlife Warden [Section 34(3)].

Thus the enforcement of the Act is largely restricted to the Forest Department, which (as was found in this study) often lacks the capacity to patrol and enforce the Act in territorial waters. Agencies such as the Fisheries Department and the Coast Guard (mandated to address marine pollution issues) which have overlapping functions are not recognised by this Act. This lack of coordination between agencies translates directly into limited protection of marine areas and an overall inability to conserve ecologically sensitive areas such as the GoM.

3.3.1.2 The Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976 and The Coast Guard Act, 1978

The Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act 1976 was enacted to apply the International Convention on Law of Sea in India. The law clarifies and demarcates areas in the sea as territorial waters, Contiguous zones, Exclusive Economic Zones and continental shelf. The right of the nations vary in these areas, for example, the State has complete sovereign authority over the territorial zones whereas the rights of the State parties is restricted to economic interests like exploitation and exploration of resources in the Exclusive Economic Zones. The law on the demarcation of the areas in the sea as territorial waters, Exclusive Economic Zones etc is considered to be very important since various other enactments like the Coast Guard Act, 1978, the Customs Act, 1962 etc. refer to the provisions of the Territorial waters, Continental shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976.

This Act also permits the innocent passage of all the foreign ships, other than warships, sub-marines and other under water vehicles in the territorial waters [Section 4(1)]. It goes on to define innocent passage as passage is innocent so long as it is not prejudicial to the peace, good order or security of India. This provision fails to incorporate the Precautionary Principle and the Polluter Pays Principle

since it does not prohibit ships that are identified as potential pollution hazards, even in ecologically sensitive areas such as the GoM thus exposing such areas to potential pollution incidents.

Sections 6(3)(d) and 7(4)(d) confer exclusive jurisdiction on the Central Government to preserve and protect the marine environment and to prevent and control marine pollution within the Continental Shelf and the Exclusive Economic Zone. However, the Act stops short of actually providing for mechanisms by which such protection and prevention and control of marine pollution can be carried out.

The maritime zones of India is patrolled by the Coast Guard who is also responsible for *taking such measures as are necessary to preserve and protect the maritime environment and to prevent and control marine pollution* [Section 14(2)(c)]. The Coast Guard Act does not however, provide for the mechanism of regulation of pollution. Our interview with the Commandant of the Coast Guard Office, Tuticorin reveals that currently, due to the lack of procedural clarity, any discharge of pollutants above a certain limit is currently regulated by the IMO and the MARPOL (The International Convention for the Prevention of Pollution from Ships).

The Coast Guards who are appointed under the Coast Guard Act work under the general superintendence, control and direction of the Central Government [Section 5]. Since fisheries is a State subject and the maritime zones in the GoM are governed by the Tamil Nadu Marine Fishing Regulation Act, 1983 (TNMFRA) fisheries falls outside the jurisdiction of the Coast Guard. This State – Centre disconnect therefore leads to a situation where the Coast Guard, the best equipped to patrol the seas, **cannot** take cognizance of offences under the TNMFRA.

The duties of the Coast Guard also includes the prevention of illegal activities like smuggling, pollution, to enforce other maritime laws in those areas and to ensure the safety of life and property at sea [Section 14]. In keeping with this the Coast Guard is mandated to apprehend any person/vessel that carries marine life that is protected by the Wildlife Protection Act (WLPA). However, since the Coast Guard is not empowered under the WLPA, their role is **limited** to apprehending contraveners of the provisions of the WLPA and handing them over to the Wildlife Warden.

Thus there are no specific provisions to regulate marine pollution in either of the above Acts. The Acts also fail to recognise the need for a joint state-centre cooperation to help protect coastal waters especially in ecologically sensitive areas such as the GoM.

3.3.1.3 The Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981

The Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act was enacted to *regulate the fishing activities of the foreign vessels in certain maritime zones of India*. “Maritime zones” is defined as *the territorial waters and the Exclusive Economic zones of India* [Section 2(g)]. The Act necessitates authorisation from the Central Government for entry any ship, boat, sailing vessel or any other description of vessel which is not owned by a citizen of India shall into the maritime zones of India.

The Act requires foreign vessels to obtain a license [Section 3(a)] and permit [Section 3(b)] for carrying out fishing activities in the maritime zones of the GoM. The licensing procedure itself is fraught with provisions that go against any meaningful regulation of fishing, especially in ecologically sensitive areas such as the GoM.

For instance, the Act and Rules indicate that the license can be issued for any term as decided by the Government of India [Section 4(5)(b)] or required by the Licensee [Rule 3(1)(e)]. This provision vests discretionary powers with the Government of India without providing for the period of validity of license, taking into account the biological diversity of the area, the status of species proposed to be caught etc.

The Act also indicates that the license must be issued within one month of application [Rule 3(2)], a provision that does **not** provide for enough time for reconnaissance studies of ground realities in the area that such fishing is proposed. This provision will also impede any real effort on the part of the Government of India to conduct inquiries into whether the issue of such license is in keeping with the public interest of that area [Section 4(3)], a provision that is already mired in procedural hurdles due to the absence of any clear requirements/procedures in either the Act or the Rules.

The Act and the Rules also stop short of providing any mechanisms for monitoring and implementation. Thus, the provisions in the Act that lays down procedures for cancellation or suspension of licence or Permit if the Government of India has reasonable cause to believe that either the information supplied to it in the license requisition form is wrong or if conditions of the license have been contravened [Section 6(1)] and the Rules which allows for the levy of fine extending up to Rs. 50,000 [Rule 16] if provisions of the Rules are contravened are rendered meaningless in the absence of strict monitoring mechanisms.

Foreign vessels are also prohibited from catching any fish of a species, size or age that are prohibited under the Wild Life Protection Act and where such fish are caught they shall be retained and preserved on board the vessel and shall be surrendered to the authorized officer along with the report accounting for the same [Rule 5]. This provision is however meaningless since effective monitoring procedures are not prescribed under this Act or under the Coast Guard Act (Since it is the Coast Guard that is to implement this Act). Further, just requiring the surrender of species caught in contravention of the Wild Life Protection Act makes it seem like the Act is just making a token gesture towards actual species and habitat protection as prescribed by the Wild Life Protection Act. This supposition is further strengthened by the fact that the Act fails to prescribe several provisions that would help in species conservation such as the regulation of the number of foreign vessels that can be allowed in the area at a given time, the need for protection of ecologically sensitive areas etc.

3.3.1.4 The Merchant Shipping Act, 1958

The Merchant Shipping Act of 1958 provides civil and criminal liability regimes in the case of marine pollution. Part XI A of the Act, amended in 2003, contains provisions for *incidents of marine casualty or acts relating to such casualty occurring with grave and imminent danger to Indian coast line or related interests from pollution or threat of pollution in the sea or air either by deliberate, negligent or accidental release of oil, ballast water, noxious liquid and other harmful substances into sea or including such incidents occurring on the high seas*. It necessitates Indian ships to have several certificates such as the international oil pollution prevention certificate 356C(1), international pollution prevention certificate if it is an Indian oil ship or ship carrying noxious liquid substances in bulk 356C(2), international sewage pollution prevention certificate 356C(3), international pollution prevention certificate 356C(4).

Part X B of the Act which deals with the civil liability of the owner of an Indian or foreign vessels that cause marine pollution in the territorial waters or EEZ and defines the liability of owner [Section 352J] due to pollution damage. Here the definition of pollution damage is restricted to *loss or damage caused outside the ship by contamination resulting from escape or discharge of oil from that ship, wherever such escape or discharge occurs, and includes the costs of preventive measures and further loss or damage caused by preventive measures* [Section 352H(d)] and excludes any liability due to pollution by the release/spillage of ballast water or noxious liquids. Another discrepancy in the Act is that though it seeks to penalise all pollution incidents irrespective of the manner in which it is committed, provisions are made to provide immunity to persons who are able to prove that such damage has not been caused *wilfully*. Also, the provisions for containment of accident pollution [Section 356K] in Part XI A are also limited to oil pollution and do not include pollution due to other contaminants such as ballast water.

Just necessitating these ‘certificates’ seems like an *ad hoc* measure taken to accommodate but not enforce commitments made at international conventions such as the International Convention for the Prevention of Pollution from Ships, 1973 and stops short of actually protecting the territorial waters of India, especially in ecologically sensitive areas such as the GoM region from pollution. Though these certificates are mandatory there is no method to verify their authenticity and it thus fails to regulate pollution incidents as defined by Indian environment legislations or destruction caused to habitat or species by Indian or foreign ships due to causes other than release or spillage of liquid contaminants.

3.3.1.5 The Water (Prevention and Control of Pollution) Act, 1975

The Water (Prevention and Control of Pollution) is a Central Act enacted by the Parliament in pursuance of powers given under Articles 249, 250 and 252 of the Constitution of India. The basic scheme of this Act is to ensure the prevention and control of water pollution and to maintain and restore the wholesomeness of water. The Central and State Pollution Control Boards (PCBs) are the implementing bodies under the Water Act.

The GoM region comes under the purview of the Tamil Nadu Pollution Control Board (TNPCB), set up under Section 4 of the Act. Since this Act has been enacted for the protection of water resources from pollution, this Act is considered to be very significant in preserving the marine environment of the Gulf of Mannar region.

Though the Act was one of the first efforts to check pollution entering streams (defined under the act to include all water bodies including sea or tidal waters) the Act is seen as falling short of providing meaningful protection to the ecologically sensitive area of the GoM.

The legal provision that allows for States to delineate specific pockets of ‘water pollution, prevention and control area or areas’ within the State to come under the purview of the Water Act [Section 19(1)] restricts the scope of the Act and the achievement of its goals. What is also interesting to note is that the Act, though it provides for areas to be excluded from its purview, fails to acknowledge the need for such delineation of ecologically sensitive areas such as the GoM which will require **special standards** for protection, beyond the tolerance limits set for discharge of trade effluents for coastal marine areas issued by the TNPCB. This is especially significant since our research reveals that the release of untreated sewage and effluents directly into the water poses a significant threat to the GoM.

It is also important to note that the Act defines streams in the marine context as sea or tidal waters to such extent as notified by the State Government in the Official Gazette [Section 2(j)(v)]. This definition excludes Exclusive Economic Zones and other maritime zones which fall under the jurisdiction of the Central Government from its ambit. The framework for controlling marine pollution in these regions is provided for by the Territorial Waters, Continental Shelf, Exclusive Economic Zone and Other Maritime Zones Act, 1976 (Divan *et al.*, 2003).

Though the Supreme Court of India recognises that the Polluter Pays Principle is a part of the basic environmental law in India (Divan *et al.*, 2003) the legal statutes in India fail to expand and apply this principle where the polluter bears the remedial or clean up costs as well as the amount payable to compensate the victims of pollution. Instead a more lenient view is taken towards defaulters, even sometime going out of their way to protect them. This is a flaw that is true of the Water Act also. For instance, the Act identifies offenders as those who *knowingly* pollute or obstruct the flow of water in streams [Section 24(1)(a) & (b)], thereby devolving the burden of proof of intention upon the PCBs. The Act excludes persons who are involved in the construction, improvement and maintenance of several structures such as buildings, and the deposition of material for reclamation to protect the bank or bed of the stream [Section 24(2)(a) & (b)]. The Act also allows for conditions to be imposed on any industry or process, treatment and disposal system, or addition thereto that has either been established or altered without obtaining permission [Section 25(5)], thereby granting *post facto* clearance. This then encourages detractors to not seek consent of the board initially since, the PCBs are forced to grant consent in this Act once work has begun. The grant of deemed, unconditional consent shall be granted on the expiry of four months from the date of application [Section 25(7)] curbs the spirit of the Act and is extremely detrimental, especially in areas of ecological significance such as the GoM.

The failure of the Act to incorporate special provisions for the protection of ecologically sensitive areas, read together with the provisions which divest the Act of the Polluter Pays Principle does not spell well for the protection of the GoM area. There is therefore an urgent need to redefine the Act to allow for more stringent protection of this region.

3.3.1.6 The Coastal Regulation Zone (CRZ) Notification, 1991

The Central Government has issued the Coastal Regulation Zone Notification under Section 3 of the Environmental Protection Act and under Rule 5(3) (d) of Environmental Protection Rules, 1986, declaring the coastal stretches in the country as Coastal Regulation Zone. The Coastal Regulation Zone (CRZ) Notification was introduced in 1991 and sought to govern industrial and other activities in the coastal zones. The 'Coastal Regulation Zone' or the zone under the purview of the CRZ Notification comprises the coastal stretches of seas, bays, estuaries, creeks, rivers and backwaters which are influenced by tidal action (in the landward side) up to 500 meters from the High Tide Line (HTL) and the land between the Low Tide Line (LTL) and the HTL. Within this region, a number of activities are prohibited and certain activities are permitted depending on the nature of the area itself which are 'zoned' as CRZ -I, II, III or IV areas depending on ecological sensitivity and amount of anthropogenic influence.

The actual implementation of the Notification has been very poor in all coastal States of India. This is attested by Supreme Court of India (Anon, 1996) and again by the Comptroller Auditor General of India in its 2006 report on the performance audit of the tsunami relief and rehabilitation efforts. The report states that the CRZ Notification was not implemented at all by the MoEF. It states, 'The

Ministry of Environment and Forests did not enforce the Coastal Regulation Zone notification effectively resulting in extensive destruction in coastal areas due to industrial expansion' (Paragraph 5.1.1 of the CAGI report). It further states, *'The States/UTs did not prepare coastal zone management plans'* (Paragraph 5.1.2) and they *'did not review/amend zoning regulations and building byelaws after the tsunami'* (Paragraphs 5.1.6, 5.1.6.1 and 5.1.7). Detailed critiques on the implementation of the CRZ Notification and matters related to coastal management through this notification are studied by Sridhar (2005), Sridhar et al. (2006) and Menon and Sridhar (2007).

Implementation of the CRZ notification is severely hampered by the several amendments made to it (21 amendments between 1991 and 2007). This was observed in our study of the GoM region where lack of clarity on the law and inability to stay abreast of the various changes made to it has translated into poor implementation with a lack of clarity amongst the ground staff of the Pollution Control Board (PCB), or the Department of Environment on who actually implements this notification in the region. These amendments also allowed several activities prohibited by the original CRZ notification; including mining rare minerals, exploration and extraction of oil and natural gas, etc. (Para 2(ix) of the CRZ notification added vide Notification S.O.329 (E) dated 12 April 2001)

The failure of the CRZ notification to provide for accurate definitions and procedural mechanisms to implement its various provisions is another impediment to the realisation of coastal protection. For instance, though the GoM NP would fall under the CRZ-1 category and therefore be protected by the CRZ notification, this protection remains largely notional in the absence of actual definition of the legal protection afforded to the region by virtue of its being a CRZ-1 area and a mechanism for enforcing the same. Thus though the region is granted the CRZ-1 status, any legal protection that is afforded to the region is not by the virtue of it being protected under the CRZ Notification but under other laws (the WLP in this instance). This then raises the question of the legal protection of the GoMBR (excluding the GoMNP) since though identified as ecologically sensitive, only the national park is protected under the WLP, not the rest of the biosphere reserve.

This invalidation of the CRZ notification due to lack of procedural clarity is seen in several instances along the GoM region. For instance, the Tuticorin Thermal Power Station allegedly releases its fly ash directly into the sea, an activity that is prohibited under the CRZ notification [Para. 2(v)] but since the CRZ notification stops short of prescribing a mechanism for the prevention of dumping of fly ash or any other material directly into the sea, effective implementation of this clause is curbed. Also, the CRZ notification allows mining activities (a significant threat in the GoM region) [Paragraph 2(ix)], in coastal areas provided that certain safeguards are followed but fails to define the scope of these safeguards, thus making any legal action against mining activities detrimental to the GoM almost impossible.

It is also critical to note that the categorisation of areas as CRZ 1, 2 and 3 is restricted to landward stretches and does not extend beyond the LTL (low tide line) in the water. This is a serious limitation in efforts to provide meaningful protection to coastal areas.

Thus the CRZ law which was introduced to ensure coastal protection has failed to achieve its mandate both by failing to set down procedures for implementers to follow and by severely diluting its own provisions rendering coastal protection meaningless.

3.3.1.7 The Special Economic Zone Act, 2005

The Special Economic Zone (SEZ) Act, 2005 has been enacted by the Parliament in 2005 to provide for the establishment, development and the management of the Special Economic Zones for the promotion of exports in the country. The Act is applicable to the whole of India. The SEZ Act has been enacted with the twin objectives of specifying the procedures for setting up the Special Economic Zones and governing the industries and other activities established in such Zones. Other Acts such as the Customs Act of 1962 also contains several provisions (sections 76A – 76N) exempting customs duties for the exports and imports from or to the Special Economic Zones in the country.

The Act has implications for the GoM region since coastal areas are considered highly suitable for economic development (due to easy access to land, water, transport and waste disposal). It is in keeping with this that the Act contains several provisions to facilitate such establishment.

The SEZ Act, 2005 exempts the payment of taxes, duties and cesses [Section 7]. The Act provides that any goods which are procured by the SEZ from the territorial waters and the Continental Shelf of the GoM region are not liable to be taxed. This exemption, which has been provided to attract investment in the area can be detrimental to the GoM since there is no provision to deter the establishment of SEZs in ecologically sensitive areas. This is further amplified in Section 5 of the Act which states that the Central Government shall be guided by several factors like the promotion of exports and imports, creation of employment opportunities, development of infrastructure etc while setting up the SEZ in the country but fails to take adverse environmental impacts, especially in ecologically sensitive areas such as the GoM into account.

The failure to recognise environmental impacts as a significant problem coupled with other provisions in the Act such as allowing for a broad range of activities including to make, produce, fabricate, assemble, process or bring into existence, by hand or by machine, a new product having a distinctive name, character or use and shall include processes such as refrigeration, cutting, polishing, blending, repair, remaking, re-engineering and includes agriculture, aquaculture, animal husbandry, floriculture, horticulture, pisciculture, poultry, sericulture, viticulture and mining [definition of manufacturing in Section 2(r)] make the SEZ Act potentially detrimental to an ecologically sensitive area such as the GoM.

This threat is further accentuated by the absence of any significant representation of the State Government (let alone of the State Environment department) in the Board of Approval (the agency responsible for deciding the proposal made for the establishment of the SEZ is constituted under Section 8 of the Act).

Section 3(8) of the Act and Rule 5 of the SEZ Rules, 2006 empower the Central Government to prescribe the minimum area of land required by the processing or industrial activities in the SEZ. Rule 5(6) of the SEZ Rules, 2006 states that the State Government shall indicate whether the reserved area for the setting up of the SEZ falls under the reserved or ecologically fragile area as prescribed by the concerned authority. Though this sub – rule talks about this, nowhere under the SEZ Act or under the Rules, the procedures to be followed while such indication has been made by the State Government are mooted. Due to the absence of clear provisions dealing with the consequence and effect of the indication made by the State Government, Rule 5(6) loses its significance and it impairs the inclusion of this provision itself.

The SEZ Act also states that it can nullify all other laws of the country [Section 51]. Since the environmental impacts of these activities also gain significance in the Gulf of Mannar there must be clear provisions **preventing** the establishment of SEZs in and around this region.

3.3.2 Laws that govern use of marine resources

3.3.2.1 Tamil Nadu Marine Fishing Regulation Act, 1983 (TNMFRA)

Each maritime state has a Marine Fishing Regulation Act (MFRA) derived from the Indian Fisheries Act, 1927. The TNMFRA was promulgated in the year 1983 *to provide for the regulation, restriction and prohibition of fishing by fishing vessels in the sea along the whole or part of the coast line of the State*. The TNMFRA uses spatial and temporal restrictions as well as gear restrictions to implement its various provisions. Therefore there are monsoon bans which are seasonal bans, and restrictions on gear in the state.

Even a cursory reading of the law reveals that the provisions of the law are not focussed on conservation. However, despite the intent of the law, it is the poor implementation of the TNMFRA that has really been highlighted in the study.

An often repeated statement is that the TNMFRA has been unable to address the problem of over-capacity. The Act calls for the regulation, restriction or prohibition of fishing in the specified area [Section 5] and makes specific demands to regulate/restrict or prohibit fishing in any specified area by such class or classes of fishing vessels [Section 5(1)(a)], number of fishing vessels [Section 5(1)(b)], catching of such species of fish as may be specified in the notification [Section 5(1)(c)], use of such fishing gear [Section 5(1)(d)] in any specified area. However, no directions have been prescribed for their operationalisation in the subsequent sections of the Act. The Tamil Nadu Marine Fishing Regulation Rules, 1983 only makes a perfunctory mention of these requirements [Rule 6].

The Rules are also beset by the problem of seeming to confer wide discretionary powers on the local level authorities for taking decisions. For instance, the Rules provide that a close season for fishing in a specified area shall be notified 'from time to time by the authorised officer having jurisdiction over that area' [Rule 6(iv)]. However, the reasons to be taken into account for such closure and the kinds of fishing to be banned are not specified, leaving these decisions to be taken by the authorized officer having jurisdiction over the area (the District Collector in the GoM region), without necessarily being guided by science or ecological considerations. The same wide discretionary powers are witnessed with the provisions that vest the authorized officer with the powers to regulate the *number* of mechanised fishing vessel which may be used for fishing [Rule 6(x)]. Though these decisions are taken by the District Collector in consultation with the Fisheries Department, our research reveals that the Fisheries Department itself is often left being unable to understand the exact methods for implementing these provisions in the absence of specific procedural mechanisms prescribed towards the same.

The study also revealed that there was no clarity on mechanisms for ensuring the protection of the interest of different sections of persons engaged in fishing in the GoM especially those engaged in fishing using traditional fishing craft as mandated by the Act [Section 5(2)(a)]. In the absence of a

clear procedure (such as the public consultation procedure prescribed by the Environment Impact Assessment Notification, 1994) establishing that fishermen interests are not affected still remains a challenge.

Additionally, Rules pertaining to species ban [Rule 6(v)] could be **strengthened** since the TNMFRA does not provide for the implementation of the WLPFA.

The Act also fails to provide for stringent penalty to discourage *mala fide* conduct. Section 18 of the Act limits the penalty to Rs.5000. Interviews with Fisheries Department Officials in Rameswaram, Ramanathapuram and Mandapam revealed that this sum does not act as a deterrent. The failure of the Act to prescribe the impoundment of nets/ methods that are banned also significantly weakens the spirit of the Act (some of the banned nets cost up to several thousand rupees).

3.3.2.2 The Marine Products Export Development Authority (MPEDA) Act, 1972

The Marine Products Export Development Authority (MPEDA) Act, 1972 was promulgated to provide for the establishment of an authority for the development of the marine products industry under the control of the Union. It was established due to the recognition of the need for the Union Government to take control of the marine products industry [Section 2] through the establishment of the Marine Products Export Development Authority [Section 4].

In the constitution of the Authority traditional fisher folk and fishing communities that do not own fishing vessels [Section 4(3)(e)] are excluded (where fishing vessels are defined as *ship or boat fitted with mechanical means of propulsion which is exclusively engaged in sea-fishing for profit* [Section 3 (g)]). This failure to include the economically weaker sections of the fishing communities has been observed to only further widen the gap between traditional and the mechanised fishing community, which the Tamil Nadu Marine Fishing Regulation Act was promulgated to bridge.

While the Act prescribes developing and regulating off-shore and deep-sea fishing and undertaking measures for the conservation and management of off-shore and deep-sea fisheries [Section 9(2)(a)], registering fishing vessels [Section 9(2)(b)], fixing of standards and specifications for marine products for purposes of export [Section 9(2)(c)], regulating the export of marine products [Section 9(2)(f)] etc. it, as was the case with the Tamil Nadu Marine Fisheries Regulation Act this Act also fails to regulate/ restrict fishing and provide for actual procedures for implementing the same.

3.3.2.3 Indian Fisheries (Tamil Nadu Amendment) Act, 1980 Tamil Nadu Chank Fisheries Rules, 1981

The Indian Fisheries Act was enacted to provide for the regulation of fisheries, especially to control private industry and ensure Government monopoly over the fisheries sector. This Act was further fortified and amended by the Tamil Nadu Government in 1980.

The aforementioned Act and Rules amended and applied by the Tamil Nadu Government follow the same principles of State-dominated resource exploitation [Section 6D] and provision of licenses for persons seeking to catch chank and process it.

The Act fails to rely on adequate/ periodic scientific research on the status of chanks in the region. This is reflected in the various provisions of the Act and Rules such as the conferring of discretionary powers on the State Government in the matters of licensing chank collection, exploitation etc. [Section 6G]; arbitrary period for the issue of license (no timeframe for expiry of the license is prescribed by the Act or Rules). Even where the Rules provide for the prohibition of fishing of chanks below a certain size by the State Government [Schedule 3 of the Rules], it fails to actually prescribe such minimum sizes or mandate scientific studies for the determination of these sizes for various species.

Further, the exemption of individuals or families [Section 6-E2(a)] religious establishments [Section 6-E2(b)] and educational or research institutions [Section 6-E2(c)] from the regulation as prescribed by this Act is irrational, especially given the implications of their collective numbers (such as several thousand religious establishments, individuals etc.). Similarly the provision to exclude inadvertent catch of chank [Section 6F, Rule 4 (ii)] by the Act should also be **reviewed** since the Act neither prescribes the definition of such 'inadvertent catch' nor does it define a quantity up to which any catch can be considered inadvertent. Resting the onus on the person who has inadvertently caught chank also does not portend well for effective monitoring and implementation of the regulation/ restriction of chank collection especially as the Act remains silent on monitoring and implementation. Also, the penalty issued under the Act [Section 6 J] is considered meagre (1 – 3 years imprisonment and/or Rs 500 fine) to act as a deterrent.

Thus the Act and the Rules merely appear to focus more on the sale/ exploitation of chanks rather than actually regulating/ restricting their catch. These provisions are especially significant in the GoM region since Rule 3(i)(a), Schedule 1 identifies the maritime boundaries between India and Sri Lanka in the GoM as chank beds or great circles of chank potential. These Rules and the Act itself therefore need to be reviewed in the light of the declaration of the GoM as a biosphere reserve and provisions that focus on conservation needs to be strengthened.

3.3.2.4 The Coastal Aquaculture Authority Act 2005

The Coastal Aquaculture Authority Act and Rules were enacted to establish a Coastal Aquaculture Authority and to regularize aquaculture activities. The Authority has been constituted [Section 4] to make regulations for the construction and operation of aquaculture farms within the coastal areas [Section 11(1)(a)]; to inspect coastal aquaculture farms with a view to ascertaining their environmental impact caused by coastal aquaculture [Section 11(1) (b)]; to register coastal aquaculture farms [Section 11(1) (c)]; to order removal or demolition of any coastal aquaculture farms which is causing pollution after hearing the occupier of the farm [Section 11(1) (e)].

The Act and Rules have been challenged on various grounds such as allowing coastal aquaculture to be carried out between 200-500m from the HTL (high tide line), a provision that is in contravention of the Coastal Regulation Zone Notification [Clause 2(xii)]; failure to regulate farms that have come into existence prior to 2005 and farms that are used for research purposes by the Government, a provision that is especially detrimental in CRZ-1 areas of ecologically sensitive areas such as the GoM; the lack of clear guidelines for monitoring and implementation; lack of specifications for effluent quality monitoring, not mandating effluent treatment systems for farms under 5 ha. in size; no requirement for environmental clearances, environmental monitoring and environmental management plans for farms lesser than 40 ha. in size; etc.

As with the other laws studied such as the the Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act and Tamil Nadu Marine Fisheries Regulation Act this Act also fails to regulate the number of coastal aquaculture farms allowed in any region in general and in ecologically sensitive areas such as the GoM region in particular.

3.3.2.5 Customs Act, 1962

The Customs Act was enacted in the year 1962 under Entry 41 of List I of the Seventh Schedule of the Constitution of India which deals with trade and commerce with the foreign countries, import and export across customs frontiers and the definition of custom frontiers and Entry 83 of the same List which gives the Central Government the power to impose duties of customs including export duties in the country. The Tuticorin Port and proximity to Sri Lanka makes GoM region an important import/export hub and therefore the Customs Act gains relevance in this region.

The main purpose of the Customs Act is to prevent illegal imports and exports in the country. The repealing of the Sea Customs Act has been repealed has led to the addition of several provisions relating to the imposition of customs duties upon the goods which are imported or exported through sea in the current Act. The jurisdiction of the Act includes territorial water and water extending up to the limit of contiguous zone of India including any bay, gulf, harbour, creek or tidal water [Section 2(28)].

The jurisdiction of the Act was further extended to the whole of the EEZ and Continental Shelf of India for certain purposes vide Notification dated 7th February, 2002 issued by the Ministry of External Affairs. The purposes specified in this notification are (i) the prospecting for extraction or production of mineral oils in the Continental Shelf and EEZ of India, and (ii) the supply of any goods [as defined in Section 2(22) of the Customs Act, 1962] in connection with any of the activities mentioned in clause (i) above. In the 'Explanation' to the notification, it has been clarified that for the purposes of the notification, "mineral oils" would include petroleum and natural gas. The Act regulates foreign trade and helps prevent over exploitation of resources by stating that oil produced in the off-shore installations in the said 'designated areas or within the Territorial Waters of India would be deemed to be produced in India and subject to the levy of central excise duties under section 3 of the Central Excise Act, 1944. In case, however, the oil is produced at such of the installations which have not been designated by the Ministry of External Affairs and which lie outside the Territorial Waters of India, such oil would be deemed to be imported into India when this oil is transferred to the mainland and be subject to customs duties as specified in the Customs Tariff Act, 1975 [Board's letter F.No. 450/65/92-Cus. IV dated 28/9/1994 and Circular No. 28/95-Cus. dated 27/3/1995].

The Act vests the Central Government with the power to prohibit either absolutely or subject to certain conditions, the import and export of goods of any specified description [Section 11]. Prohibition can also be imposed based on specific purposes such as the maintenance of the security of India, maintenance of public order, maintaining the standards for classification, protection of human, animal or plant life or health, conservation of exhaustible natural resources etc. [Section 11(2)]. The Act exempts goods used for personal use [Section 11G].

The Act also provides for the Central Government to impose stringent conditions in order to detect and prevent the illegal exports of specified goods in the specified area i.e. the customs water [Section 11H (c)] as defined in Section 2(28). This provision when read with Section 11M of the Act which

provides for the regulation of the sale or transfer of these specified goods can help prevent the illegal export of marine products from the GoM region. Similarly, the penalty clauses [Sections 111-127] of the Act remain unclear on several grounds such as the mode of disposal of confiscated goods, the procedure for dealing with confiscated vessels etc. This lack of clarity might prove expensive to the GoM region since it might lead to the berthing of confiscated vessels for unregulated periods of time or its pollution by these confiscated goods.

3.3.2.6 Tourism Policy

The GoM is an important tourism destination particularly for domestic tourists. The location of the Ramanathaswamy Temple in Rameswaram and the Gulf of Mannar National Park are the central attractions of this region. There are also numerous other tourism sites along the coast and at the tip of the Gulf of Mannar lies Kanyakumari which also receives a large number of tourists.

This issue gains significance when perusing the Tourism Policy, 2007-2008 of Tamil Nadu that only encourages tourism and does not suggest regulating/ restricting it for ecological reasons. When viewed in conjunction with the statement that *Tamil Nadu Tourism's ultimate goal is to reach the first position in both domestic and foreign arrivals*, the regulation of tourism in the GoM region with much to be desired and the identification of as one of the 10 main wildlife circuits under the eco-tourism plan with a concentration on Ramnad, Pamban, Danushkodi and Rameswaram; and addition of infrastructure around the Thiruvalluvar Statue in Kanyakumari, and locations identified in Thoothukudi all focus on enhancing facilities to attract tourists, in a scheme to be implemented jointly by the District Administration and the Department of Tourism under the development of less known places scheme.

Our interview with the Tourism Department at Rameshwaram reveals that funds within the department were to be utilised only for development facilities for tourism, although the department did not undertake any construction on its own. Our research further reveals that the Tourism Department provides funds for developmental activities to concerned bodies or institutions interested in carrying out development works in tourism potential areas. The District Tourism Department finalises and forward the proposals submitted by the local bodies to the Commissioner's office in Chennai which is the authority that approves these activities. No documents were available with the local Tourism Department office on the various activities it undertook or on the various tourism development works that were taking place in the GoMBR.

The Tourism Policy thus displays very little understanding of the regulation of anthropogenic activity in eco sensitive areas such as the GoM. Already, the GoM region is littered with problems arising from unchecked tourism activities. The demand for tourism has led to the boom of various contractions along these sites which need to be regulated by the CRZ Notification. However, as seen in the earlier section, the implementation of this law has been abysmal and this contributes to the tourism related violations along the coast. The sewage and garbage related problems, purely from tourist inflow, although not computed accurately by any agency, are still discernable from a mere walk around the Ramanathaswamy temple beach area where garbage and sewage flows directly into the GoM. Thus the Policy as it stands today abets the destruction of habitat and species conservation

3.3.2.7 The Arms Act, 1959

The Arms Act was legislated to control the possession of the arms and ammunitions recognising its potential to disrupt public peace and tranquillity.

The Act is significant in the GoM region since the marine environment and the biosphere reserve zones in this region come under threat due to the usage and the possession of arms and ammunitions in this region. For instance, dynamite fishing is rampant in the region (See Chapter 2). The importance of restricting arms in ecologically sensitive areas has been recognised by the Wild Life Protection Act of 1972 which contains provisions regulating the possession of arms and ammunitions inside protected areas declared under the Wild Life Protection Act [Section 34].

The Arms Act requires license for the ammunitions acquired or possessed in the country where ammunition is defined as *ammunition for any firearm and includes rockets, bombs, grenades, articles designed for the torpedo service and submarine mining, or any article containing explosive, fulminating or fissionable material or noxious liquid or gas or such other thing capable of using it with fire arm or not etc.* [Section 2(b)]. Though the Act seeks to prohibit the acquisition and possession of ammunitions without obtaining valid licence from the concerned authority [Section 3] it still allows any person to carry such ammunitions *for the purpose of repair, or renewal of licence or for use provided he is authorized by the holder of the licence.* Further, the Act does not prohibit manufacture, sale, use, convert, repair etc without a license if such arms and ammunitions are meant for private use [Section 5]. The Act also exempts licensing procedures for *bona fide tourists* [Section 10(1)(b)] or any persons deemed to be carrying reasonable quantities of arms [Section 10(2)].

Further, the Act also indicates that licenses should be issued for specific types of rifles/ guns to be used for protection or sport or bona fide crop protection [Section 13(3)(a)(i)] and for members of rifle clubs [Section 13(3)(a)(ii)]. Though it also requires a report to be submitted by the officer of the nearest police station before granting the licence for the arms and ammunitions, this is considered to be as a mere formality.

However, arguably the most important discrepancy with regard to the application of the Arms Act in the GoM region is that it does not incorporate provisions complimentary to the regulation/restriction of arms in sanctuaries and national parks as provided for by the Wild Life Protection Act. The Arms Act regulates/restricts only the possession and transfer of the arms and ammunitions and not the use of such arms and ammunitions.

CHAPTER 4

CONCLUSION

The study of the above legislations that directly and indirectly have implications for the GoM brings home the need for strengthened legal protection with a focus on protecting marine habitats and species. It is evident that multiple legislations with specific line departments coordinating each have been unable to effect meaningful protection to the GoM region. Functioning as isolated pockets has led to a duplication of efforts for protection, which then leads to a conflict of roles and mandates (between State agencies/laws, or between the State and Centre) resulting ultimately in failed protection of the GoM.

The study also reveals the obvious problems these laws are beset with: the failure to provide methods to operationalise them within their scope thus failing to establish clear steps and fair processes for the designation and management of marine protected areas.

Some of the laws analysed also reflect a lack of understanding of the conservation/protection of ecologically sensitive areas mandate. There is a need to provide a legal basis for development, implementation and enforcement of management plans for marine protected areas. Responsibility for management planning should also be established (Abergana et al.)

The most obvious solution to the problem of having a plethora of legislations, each with its own deficiencies is the promulgation of a unified legislation for the protection of marine areas, and the establishment of the GOM region as an Ecologically Sensitive Area which can then be provided legal status to the area. However, this is a larger call. Therefore even while this is being operationalised, steps should be taken to overcome the various problems identified in the legislations through specific amendments in the various laws either at a State/ Central level, or at least specifically in so far as they apply to the GoM region.

CHAPTER 5

RECOMMENDATIONS

5.1 Strengthening Legislation

It is evident that there is a need for procedural clarity in most legislations analysed. Scientific studies may also be useful to assess the ecological status of the region and success of conservation efforts. Wherever scientific studies are suggested in the following recommendations, it is suggested that a clause is prescribed that mandates that such studies should be completed within specified time periods from the date of commencement of the provision.

5.1.1 Wild Life (Protection) Act, 1972

- Include Section 3(4):

Every officer whose duty it is to ensure habitat and species protection is be empowered to exercise his powers under this Act as well.

- Commission studies to evaluate the pros and cons of newer PA categories such as 'Conservation Reserve' under section 36A or the Community Reserve and their applicability for a resource rich region such as the GoM and given the present land rights and resource usage patterns. Such assessments should be accompanied by participatory processes before such a declaration can take place. The involvement of local communities and other stakeholders in the process of conservation is critical to its future success.
- Review Section 7(2): The National Wildlife Board should regulate its own functioning and include:

Procedure for identifying and protecting marine areas, preferably including the following criteria: The identification of critical habitat for threatened or endangered

species; potential conflicts with existing marine resource use; extent of protected area already in that region; value for ecological research and monitoring; and community acceptability.

Scientific studies of species/ habitats at repeated intervals (say once every 5 years) to measure effectiveness of conservation and need for further conservation.

- Review Schedule I of the notification based on scientific studies. Explore options for modifying the list and including other threatened species such as ornamental fishes.
- Review Section 29 and 35(6) and explore the implications of applying this section to all areas around sanctuaries and national parks especially Conservation Areas.
- Complete the notification process for the GoMNP area and issue final notification
- Review Section 50 – Penalties must be greater to act as a deterrent
- Clarify the terms ‘wrongful seizure’ and ‘vexatious’ in Section 53 and review the need for the Section.

5.1.2 The Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976

- Review Section 4(1) and expand the definition of ‘innocent passage’ to read:

For the purposes of this section, passage is innocent so long as it is not prejudicial to the peace, good order or security of India **or to the ecosystem health of the marine waters especially with respect to passage through ecologically sensitive areas.**

- Review Section 6(3)(d) and include the protection of species and habitat as prescribed under the Wild Life Protection Act

5.1.3 The Coast Guard Act, 1978

- Review Section 14(2)(c) of the Act to read:

taking such measures as are necessary to preserve and protect the maritime environment **to conserve ecologically sensitive areas, implement the Wild Life Protection Act** and prevent and control marine pollution.

- Include Clause 14(3A) to read:

To coordinate with various Central and State Agencies to ensure the effective implementation of Sections 14(1)-14(3)

5.1.4 The Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981

- Review Section 4(5)(b) and include:
maximum periods for the license after which the licence will expire
- Include Section 4(5)(ba) to mandate scientific studies of the carrying capacity of the region in which the license for fishing is sought before the grant of license
- Review Rule 3(1)(e) and include the following Proviso
Provided that the period for which licence is required does not exceed the maximum period for grant of licence as prescribed by the Act
- Include Schedule 1 in Act to define the procedure to be followed for such scientific studies
- Include Section 4(6) to read:
The Government may, based on scientific studies as prescribed in sub section 4 5(ba):
(a) regulate, restrict or prohibit the fishing in any specified area by such class or classes of fishing vessels; and
(b) regulate, restrict the number of fishing vessels which may be used for fishing in any specified area
as prescribed in the Schedule 2 of this Act
- Include Schedule 2 in the Act to prescribe the mechanism for determination of provisions 4(6)(a) and 4(6)(b) above
- Include Schedule in the Act to prescribe mechanism for conducting inquiries to determine public interest as prescribed by Section 4(3) of the Act. Such a procedure may be along the lines of the public consultation process prescribed by the Environmental Impact Assessment Notification, 1994 (without the clauses modified/ added in the 2006 amendment).

5.1.5 Merchant Shipping Act, 1958

- Clarify the definition of 'pollution damage' as defined in Section 352H(d) of the Act and expand to include

means loss or damage caused outside the ship by contamination resulting from escape or discharge of oil, **ballast water, noxious liquid and other harmful substances** from that ship, wherever such escape or discharge occurs, and includes the costs of preventive measures and further loss or damage caused by preventive measures; so, however, that the provisions of clause (a) of sub-section (1) of section 352B shall not apply to such loss or damage;
- Similarly review Section 356 K provisions for containment of accident pollution due to oil spills to also include incidents due to discharge of ballast water, noxious liquid and harmful substances

- Include a provision for ensuring compliance with conditions of licence in Section 356G
- Review Act to include any incident that may cause habitat destruction in marine areas

5.1. 6 The Coastal Regulation Zone (CRZ) Notification, 1991

- Review the amendments to the principal Notification in light of their detrimental effects on the ecology of the GoM.
- Ensure the area of the GoMBR (ecologically sensitive area) is included as a Coastal Regulation Zone
- Review the rationale behind permitting any activity that does not require foreshore facilities in the GoM region
- Include an Annexure 2 to prescribe a mechanism for protection of CRZ-1 Areas as identified by the Notification to extend legal protection to such areas

5.1. 7 The Water (Prevention and Control of Pollution) Act, 1975

- Include Section 17(1)(ga):
lay down, modify or annul effluent standards for the sewage and trade effluents **for ecologically sensitive areas** resulting from the discharge of effluents and to classify waters of the State
- Review Section 19(1) and include the following Proviso:
Provided that any ecologically sensitive marine area is declared 'water pollution, prevention and control area or areas'.
- Review Section 24(1)(a) & (b), and modify as:
24(1)(a) no person shall **deliberately, negligently or accidentally** cause or permit any poisonous, noxious or polluting matter determined in accordance with such standards as may be laid down by the State Board to enter (whether directly or indirectly) into any stream or well or sewer or on land; or
24(1)(b) no person shall **deliberately, negligently or accidentally** cause or permit to enter into any stream any other matter which may tend, either directly or in combination with similar matters, to impede the proper flow of the water of the stream in a manner leading or likely to lead to a substantial aggravation of pollution due to other causes or of its consequences.
- Review Section 25(5), especially in ecologically sensitive areas such as the GoM
- Review Section 25 (7), especially for ecologically sensitive areas such as the GoM

5.1.8 The Special Economic Zone Act, 2005

- There must be a prohibition against the establishment of SEZs in and around the GoM region owing to its ecological fragility

5.1.9 Tamil Nadu Marine Fishing Regulation Act, 1983 (TNMFRA)

- Section 5(1) – include schedules to define exact procedure to determine how to regulate/ restrict
 - fishing in any specified area by such class or classes of fishing vessels
 - number of fishing vessels
 - species of fish
 - specific types of fishing gear
- Include a Schedule in the Act to prescribe mechanism for conducting inquiries to determine public interest as prescribed by Section 5(2)(a) of the Act. Such a procedure may be along the lines of the public consultation process prescribed by the Environmental Impact Assessment Notification, 1994 (without the clauses modified/ added in the 2006 amendment)
- Review the Penalty imposed [Section 18] and modify. Include the impoundment of fishing gear and or vessel and increase the fine imposed.

5.1.10 Tamil Nadu Marine Fishing Regulation Rules, 1983

- Clarify the powers vested with local level authorities in Rules 6(i); 6(iv); 6(v); 6(x); 6(xi)

5.1.11 The Marine Products Export Development Authority (MPEDA) Act, 1972

- Review Section 4(3)(e) and include
4(3)(e)(va): the interests of persons engaged in traditional fishing
- Prescribe procedures for the implementation of Section 9(2)(a); Section 9(2)(b); Section 9(2)(c); Section 9(2)(f) in Schedules to the Act.

5.1.12 Indian Fisheries (Tamil Nadu Amendment) Act, 1980 Tamil Nadu Chank Fisheries Rules, 1981

- The above Act and Rules must be revisited and amended based on scientific studies of the actual biological resource availability of the region
- Review Section 6D of the Act and include Section 6 D (3) to mandate scientific studies before Government exploits chank resources or grants licences for the same
- Make a similar provision applicable under Section 6 G of the Act

- Review Sections 6E(2) of the Act, include licensing for individuals, religious establishments and educational or research institutions
- Clarify the use of 'inadvertent catch' in Section 6F, Rule 4 (ii)
- Review Penalty clauses (Section 6J) and modify
- Include Section 6-GA to deal with regulation of chank exploitation
- Ensure that Such regulation is based on scientific studies as prescribed by Section 6D of the Act
- Section 6 GA must also include a provision for operationalisation of such regulation

5.1.13 The Coastal Aquaculture Authority Act, 2005 and Rules

- Prohibit the establishment of aquaculture farms in and around the GoM area
- Review the guidelines for coastal aquaculture (Annexure of Rules) especially with regard to permitting coastal aquaculture between 200-500 m from the high tide line Not requiring:
 - effluent treatment systems for farms under 5 ha in size
 - environmental clearances, environmental monitoring and environmental management plans for farms lesser than 40 ha in size
- Include provisions on monitoring and implementation of the act. In particular include provisions to suggest how all the guidelines will be implemented.
- Ensure timelines for the completion of various provisions of this Act

5.1.14 Customs Act, 1962

- Review Section 11 G especially with respect to marine products
- Include Section 111 A - procedures to be undertaken to prevent loss or damage of habitat/ species due to berthing of vessels
- Review discretionary powers given to adjudicating officer in Section 125

5.1.15 Tamil Nadu Tourism Policy, 2007-2008

- Tourism policy needs to move from merely trying to attract investment to being ecologically and socially sustainable
- Tourism policy must by subject to an EIA and must regulate:
 - number of tourism activities – both private and government owned
 - construction activities related to tourism

- number of people allowed at one time, especially in ecologically sensitive areas such as the GoM
- waste generation and disposal arising out of such tourism activities
- Tourism policy must also mandate periodic scientific studies to understand the carrying capacity of the region

5.1.16 The Arms Act, 1959

- Include Section 3(1A) – licence request to be sent to Chief Wildlife Warden if arms and ammunition are sought by person or persons residing in and around a protected area

5.2 Suggestions for creation of Gulf of Mannar Biosphere Reserve Authority (GoMBRA)

There is need to create an Authority that has legal powers under the provisions of the EP Act which is currently the most flexible and appropriate.

This would entail issuing a separate notification for the creation of this authority under section 3(2)(v) of the EP Act which allows for the creation of such authorities. This notification would contain the following broad points:

1. The notification would specify the powers of each of the officers of the trust and also their rules of procedure.
2. The GoMBRA should be designed as a operational body that deals with the day to day matters of the GoM. This would mean that its constitution should be separate and distinct from the current constitution of the GoMBRT.
3. The process of the constitution of the GoMBRA should be through an open and transparent procedure and a search committee should be constituted for this purpose.
4. The conditions under which a revision of the members of the GoMBRA would take place and the process of doing this should also be specified.
5. The roles and responsibilities of the GoMBRA should be outlined in the notification. This expressly should contain the responsibility of coordination, and legal powers to take action on specific conservation matters.
6. The GoMBRA should be provided with a regular budgetary provision to ensure its lasting performance. The notification should contain clauses specifying sources of finances for its functioning.
7. The GoMBRA notification should contain provisions that outline both a protective as well as a proactive responsibility. This means that both regulatory as well as restorative measure should be undertaken.
8. The GoMBRA notification should encourage further scientific study to inform all its conservation actions. It should be empowered to garner funds for this purpose.
9. The staff of the Gulf of Mannar should be appointment for longer time periods. The appointment period of all its officers needs to be specified.
10. Working agreements should be developed between the GoMBRA and all the various government departments involved in conservation of GoMBR with time-bound deliverables.

5.3 Options for better management of the GoMBR

One of the key problems identified in this study is that the entire Biosphere Reserve itself lacks any legal protective mechanism. Declaring this region as a special zone needing protection also provides legitimacy to a specific agency that is created specifically for its protection. In actuality this should have preceded the creation of the GoMBRT. Therefore the provision of legal protection to the entire region, taking into consideration the various use requirements of its stakeholders is of immediate need.

The current option of creating Protected Areas under the Wild Life Protection Act, 1972 as a habitat protection measures is not at all suitable for an area this large and with its various multiple use regimes. The GoMNP has already created a sense of alienation among the local people of the region and utilisation of this Act will vest sole responsibility of the region's management with an already over-burdened Wildlife Wing of the Forest Department.

Of the slew of options that can be made available for the better management of the GoM, the best option appears to be the declaration of the region as an Ecologically Sensitive Area under the Section 3(2)(v) of the EP Act.

5.4 ESAs under the Environment Protection Act, 1986

The Environment Protection Act (EP Act) has been extensively and creatively used since its introduction in 1986. The Act can be cursorily described as a central legislation that makes the Central Government a 'pro-active watchdog' of the environment. It strives to improve environmental quality and it also reigns in development processes where they threaten environmental resources. Despite the fact that there are very serious questions regarding aspects of planning, execution / poor implementation, inaction etc directed at the Centre, the Act per se still holds much promise as a tool for environmental security.

The crux of the Act and its Rules is that it empowers the Centre [which translates as the Ministry of Environment and Forests (MoEF)] with tremendous power to take actions 'for the purpose of protecting and improving the quality of the environment and preventing, controlling and abating environmental pollution'. In practice this has included an interesting assortment of things. Some of the actions taken by the MoEF through the EP Act include the formulation of standards, guidelines, Rules, creation of Boards, Authorities, appointment of officers, taking punitive action against offenders of the Act, establishment of institutions, labs, dissemination of information to name a few. One such powerful action that the MoEF can take is– that of restriction of development processes in particular sensitive areas. The MoEF is empowered to plan for particular regions. This is done through restricting certain kinds of activities in these regions. The specific legal provisions that can be used are:

a) Section 3(2)(v) of the Environment Protection Act, 1986

This section allows the Centre to restrict areas where any industries, operations or processes or class of industries, operations or processes shall not be carried out or shall be carried out subject to certain safeguards.

b) Section 6(2) (e) of the Environment Protection Act, 1986

This Section pertains to the powers of the Centre to make rules for protecting and improving the quality of the environment and preventing, controlling and abating environmental pollution. This section specifically states that the rules can provide for the prohibition and restriction on the location of industries, and the carrying on of processes and operations in different areas.

c) Rule 5 (1) of the Environment (Protection) Rules, 1986

This rule states that the Centre can impose prohibitions and restrictions on the location of industries and the carrying on processes and operations in different areas. It also states that the central government can follow certain factors while imposing such prohibitions. These are:

- (i) Standards for quality of environment in its various aspects laid down for an area.
- (ii) The maximum allowable limits of concentration of various environmental pollutants (including noise) for an area.
- (iii) The likely emission or discharge of environmental pollutants from an industry, process or operation proposed to be prohibited or restricted.
- (iv) The topographic and climatic features of an area.
- (v) The biological diversity of the area which, in the opinion of the Central Government needs to be preserved.
- (vi) Environmentally compatible land use.
- (vii) Net adverse environmental impact likely to be caused by an industry, process or operation proposed to be prohibited or restricted.
- (viii) 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 Wild Life (Protection) Act, 1972 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 conference¹ association or other body.
- (ix) Proximity to human settlements.
- (x) Any other factor as may be considered by the Central Government to be relevant to the protection of the environment in an area.

Some of these regions declared as ESA by the MoEF have been accorded special statuses, which have been spelt out in their individual notifications. The terms used to describe such areas in the notifications are: Ecologically Sensitive Areas (ESA) or Ecologically Fragile Areas (EFA) or No Development Zones (NDZ or, Ecologically Sensitive Zones (ESZ). It is to be noted that the EP Act / Rules do not make any mention of such terms. They merely refer to the powers of the Centre to restrict activities in particular areas.

The term 'Ecologically Sensitive Area' (ESA) is however gaining popularity especially in official parlance. It is to be remembered that despite the difference in terminology used for each area, the reference is to its ecological sensitivity and hence the need to restrict/ regulate activities in the region. Unlike the Wild Life (Protection) Act, the EP Act does not mention exclusive conservation categories like 'National Parks' and 'Wildlife Sanctuaries'. In fact we see that the ESA actually covers areas already covered by the WLPA where it imposes additional restrictions besides that existing in that particular PA.

A look at some earlier notifications reveals that the concept of an ESA is not new but is definitely undergoing a process of evolution. However creatively each of these notifications has been used, what is common to all is:

- They all deal with particular locations/ regions
- There is an imposition of certain restrictions
- There are certain procedures that are put in place to ensure the preservation of that region.

5.5 Advantages of the ESA as a conservation strategy

1. Flexibility: The EP Act and Rules may seem loosely drafted, but this is in fact one of the biggest advantages in planning for conservation. This leaves Governments and environmental groups with immense scope to plan for the sustainable development of the region and demand for legal protection that is truly area specific.

2. No displacement: The legal provisions of the ESA do not call for the displacement of people or land alienation. The ESA primarily seeks to regulate large-scale ecologically unsustainable development activities and processes. This is one of the advantages of the ESA in comparison to other strategies. However if other Acts in operation within the ESA mandate resettlement, then this will take place. For eg. If a large ESA has National Parks within it, then the WLPA's strict provisions do apply to that particular Protected Area.

3. Inclusive: The concept of an ESA/EFA extends to any kind of ecosystem like coasts, forest, plains etc

4. Land Use Planning: Keeping in mind the geo-morphological features and the impacts of land use on the eco-system, the ESA can mandate sustainable land use practices. This can be planned taking into consideration the livelihoods of the local communities of the region. The traditional rights and practices can be given due recognition in the management plans or master plans of that region.

5. Size does not matter: As seen from the various examples, the size of an 'ESA' (as used in this paper) varies from small localities within city limits to entire mountain ranges.

6. Additional protection: All other provisions under the Environment (Protection) Act including the EIA Notification, CRZ Notification, all the Rules, Siting Guidelines etc which apply to the entire country apply to these regions (where relevant) as well.

The declaration of an area as an ESA should not be viewed as being against the objectives of protection (in case the ESA is inclusive of national parks or sanctuaries) under, say, the Wildlife (Protection) Act, 1972 (WLPA). The focus of an ESA is to restricting industrial/ developmental processes, while the Forest Conservation Act lays rules for preventing/ allowing the diversion of forest areas and the WLPA seeks to protect species of animals or plants and ecosystems which perform functions of maintaining micro climate, water catchments etc. Therefore, the declaration of an area as ESA only supplements the protection granted to the area by other laws or systems.

7. Space for public participation: A creatively drafted ESA can offer a critical space for laying down systems of public participation in conserving and preserving the region. For example, this can be through civil society representation on monitoring committees or in the drafting of Master Plans.

8. Creation of dedicated Authorities/ Committees: Especially dedicated authorities or committees can be set up with a custom made mandate. Besides Government officials, this can comprise of representatives from civil society, academic/research/ scientific institutions.

5.6 The Gulf of Mannar Ecologically Sensitive Area under the EP Act

- In light of the above advantages, it is suggested that the Gulf of Mannar Biosphere Reserve be declared an Ecologically Sensitive Area under the EP Act.
- A statutory Authority (the GoMBRA) be created for the management of this region with **powers and functions** to regulate all activities within GoMBR.
- The notification for the Gulf of Mannar Ecologically Sensitive Area GoM ESA should contain restrictions on certain restrictions on activities in the region. It can contain prohibitions and permitted activities.
- Identification should be made for the various industrial activities that will be allowed in the GoM (such as the current classification of Red, Green and Orange category of industries done by the PCB)
- The drafting of such a notification should entail a participatory and well coordinated process comprising inputs from expert groups from the fields of natural science, social science, legal experts and members of other ESA authorities to gain a better understanding of the experiences in these regions.

References

Abergana, B, Barber P.G., Maxino M, Saunders P and VanderZwaag D. 1996. Legal challenges for local management of marine resources: a Philippine case study. Report submitted under Environment and Resource Management Project, Philippines.

Anonymous. 2005. Ten endangered bird species spotted at Gulf of Mannar. *The Hindustan Times*, March 25, 2005. http://www.hindustantimes.com/news/181_1294316,00040003.htm

Anonymous. 1996. JT 1996 (4) SC 263 = 1996 (5) SCC 281, Indian council for Environ Legal Action vs Union of India & Ors, WP (Civil) 664 of 1993

Balachandran, S. 1995. Shore birds of the Marine National Park in the Gulf of Mannar, Tamil Nadu. *Journal of the Bombay Natural History Society*. 92:303-313.

Bajaj, R. 1996. CITES and the wildlife trade in India. New Delhi: Centre for Environmental Law, WWF-India. 182 p.

Bavinck, M. 1996. 'Fisher regulations along the Coromandel Coast: A case of collective control of common pool resources.' *Marine police*, 20 (6): 475-82.

Bavinck, M. 1997a. 'Changing balance of power at sea, motorisation of artisanal fishing craft'. *Economic and political Weekly*, 32(5): 198-200

Bavinck, M. 1997b. 'A history of nets and proscriptions; restrictions on technical innovation by artisanal fishing communities along the Coromandel coast'. *Journal of South Indian studies*, 3: 144-64.

Bavinck, M. 1998. "'A matter of maintaining the peace", State accommodation to subordinate legal systems: The case of fisheries along the Coromandel coast of Tamil Nadu, India'. *Journal of legal pluralism*, 40:151-70.

Bavinck, M. 2001. Marine Resource Management Conflict and Regulation in the Fisheries of the Coromandel Coast. In: *Livelihood and Environment – 5*, Sage Publications, New Delhi.

Bhupathy, S. and S. Saravanan. 2006. Marine turtles of Tamil Nadu. In: *Marine turtles of the Indian subcontinent* (eds. K. Shanker and B. C. Choudhury). pages 58-67. Universities Press, Hyderabad, India.

Comptroller Auditor General of India, 2006. *Performance audit of Tsunami Relief and Rehabilitation, Report 20 of 2006*. Government of India, New Delhi. 36 p.

Divan S, Jairaj B, Divan M G. 2003. *Environment Misrepresentation and Fraud* In: Volume 14, Halsbury's Laws of India. (eds.) Nigam D, Bharti S and Narayanan S S. P. 15. Butterworths, India.

Dorairaj, K. 1998. Economic and Ecological Diversity of Marine Fish Resources. In *Proceedings of the technical workshop on Biodiversity of Gulf of Mannar Marine Biosphere Reserve*, (eds. Anand, M. Rajeshwari, K. Dorairaj, A. Parida) MSSRF, Chennai. pp 185.

Government of India. 1976. Letter No. K11011/39/76 FRY(WL) dated November 23, 1976.

Government of Tamil Nadu. 1989. *Notification of Gulf of Mannar National Park*, G.O. No. 962, Forests and Fisheries, 10th September 1986.

Government of Tamil Nadu. 2000. Notification of the Gulf of Mannar Biosphere Reserve. G.O. M.S No. 263, Environment and Forests (FR.V) dated 19th December 2000. Tamil Nadu.

Jagtap, T. G., D. S. Komarpant and R. Rodrigues. 2003. The seagrasses of India. In: *World atlas of seagrasses*. (eds.) E. T. Green and F. T. Short. Pages 1-310. University of California Press.

Jones, S. 1976. The present status of the Dugong *Dugong dugon* (Muller) in the Indo-Pacific and problems of its conservation. Report of Advisory Committee on Marine Resources Research. ACMRR/MM/SC/26. FAO, Rome.

Kelleher, G., Bleakly, C. and Wells, A. 1995. *Global Representative System of Marine Protected Areas*, Volume II.

Khwaja, R. H. 2000. Biosphere reserve an example of ecosystem approach in practice. In: Proceedings of the Biosphere Reserve of India and their management. Kerala forest Research Institute Peechi, Kerala 21-25.

Krishna Pillai, S. and C. Kasinathan. 1989. On two species of marine turtles caught off Dhanushkodi, Gulf of Mannar. *Marine Fisheries Information Service T & E Series* 102: 17-18.

Kumaran, P.L. 2002. 'Marine Mammal Research in India – a review and critique of the methods'. *Current Science*, Vol. 83 (10):1210-1220.

Kumaraguru, A.K., V. Edwin Joseph, N. Marimuthu and J. Jerald Wilson 2006. *Scientific Information on Gulf of Mannar - A Bibliography*. Centre for Marine and Coastal Studies, Madurai Kamaraj University, Madurai, Tamilnadu, India. 656 pp.

Lipton, A. P., A. D. Diwan, A. Regunathan and C. Kasinathan. 1995. Frequent standings of dolphins and whales along the Gulf of Mannar coast. *Marine Fisheries Information Service T & E Series* 138:11-14.

Mahadevan, S. and Nagappan Nayar, K. 1983. 'National Marine Parks'. *Journal of the Marine Biological Association of India*, Vol. 25 (1&2): 71 – 77.

Menon, M. and Sridhar, A. 2007. An appraisal of coastal regulation law in tsunami-affected mainland India. In: *Report on ecological and social impact assessments post-tsunami in mainland India*; Draft submitted to UNDP. Post-Tsunami Environment Initiative. 105-149 p.

Muthuraman, B., A. Gokul, N. Mukheree, K. Shanker and R. Arthur. 2007. An overview of coastal ecosystems and the impact of the December 2004 tsunami on mainland states in India. In: *Report on ecological and social impact assessments post-tsunami in mainland India*; Draft submitted to UNDP. Post-Tsunami Environment Initiative. 43-71 p.

Naganathan, V. 2005. *Bird Survey Report of Gulf of Mannar Biosphere Reserve*. Tamil Nadu Forest Department.

Pillai, C. S. G. 1971. *Composition of the coral fauna of the Southeastern coast of India and the Laccadives*. Symposium of Zoological Society of London 28:301-327.

Pillai, C. S. G. 1983. Structure and genetic diversity of recent Scleractinia of India. *Journal of Marine Biological Association of India*. 25:78-90.

Rai, R. K. 2000. Management of Biosphere resources in India present status, Future prospects and Constraints. In: *Proceedings of Biosphere Reserves in India and their management*. Kerala Forest Research Institute, Peechi. Kerala 15–20.

Selvam, V., L. Gnanappazham, M. Navamuniyammal, K. K. Ravichandran and V. M. Karunakaran. 2002. *Atlas of Mangrove Wetlands of India: Part 1- Tamil Nadu*. M.S. Swaminathan Research Foundation, Chennai, India. pp 100.

Silas, E.G and A.B.Fernando. 1985. The Dugong in India- is it going the way of the Dodo. In: Silas, E.G (Ed.), *Proceedings of the Symposium on Endangered Marine Animals and Marine Parks*, Cochin, Marine Biological Association of India. 167-176p

Singh, H. S. 2003. Marine Protected Areas in India. *Indian Journal of Marine Science*. 32:226-233.

Sridhar, A. 2005. Statement on the CRZ Notification and Post Tsunami Rehabilitation in Tamil Nadu. UNDP Discussion Paper, New Delhi.

Sridhar, A., R. Arthur, D. Goenka, B. Jairaj, T. Mohan, S. Rodriguez and K. Shanker. 2006. *Review of the Swaminathan Committee Report on the CRZ Notification*. UNDP, New Delhi.

Subramanian, A. 2003. Community, Class and Conservation: Development Politics on the Kanyakumari Coast. *Conservation and Society* 1.2:177-208

UNDP-GEF, 1999. *Conservation and sustainable use of the Gulf of Mannar Biosphere Reserve's coastal biodiversity*. Project Document. Government of India and UNDP, New Delhi

Venkataraman, K., M. Srinivasan, Ch. Satyanarayana and D. Prabakar. 2002. Faunal diversity of Gulf of Mannar Biosphere Reserve. Zoological Survey of India. *Conservation Area Series* 15:1-77.

Venkataraman, K., Ch. Satyanarayana, J. R. B. Alfred and J. Wolstenholme. 2003. *Handbook on Hard corals of India*. Director, Zoological Survey of India, Kolkata. pp 266.

Venkataraman, K. 2006. Coral reefs in India. *NBA Bulletin* No.4. Pages 1-70. National Biodiversity Authority, Tamil Nadu, India.

Venkataraman, K., M. Srinivasan, Ch. Satyanarayana and D. Prabakar. 2002. Faunal diversity of Gulf of Mannar Biosphere Reserve. Zoological Survey of India. *Conservation Area Series* 15:1-77.

Annexure 1

List of persons interviewed

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Thiru. Velpandiyan, Assistant Director of Fisheries (Marine), Near West Gopura Vasal, Rameswaram.	Mr. PaneerSelvam, Inspector O/o Assistant Director of Fisheries (Marine), Near west Gopura Vasal, Rameswaram.
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Mr. T. Balakrishnan Senior superintendent Customs Division, Ramanathapuram.	Mr. Narasimhan Superintendent Customs Division, Ramanathapuram
Mr. R. Arunachalam Superintendent Customs Division Tuticorin	
Tourism Department Officials	
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Forest Department Officials	
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FD Superintendent O/o District Forest Officer Forestry Division, 113-A/1, Ettayapuram Road Polpettai, Thoothukudi 628 002	Mr. Subramaniam, FD Forest guard O/o District Forest Officer Forestry Division, 113-A/1, Ettayapuram Road Polpettai, Thoothukudi 628 002
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Merchants	
Mr. Chella Durai, Traditional Crafts Union Leader, Rameshwaram	Mr. Rajasekaran Chank Merchant Kaniyakumari
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Mr. Sweeter , Trawler Boats Union Leader, Rameshwaram	Ms. Sahaya Rathnam Fisher women, Kaniyakumari
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Annexure 2

Laws pertaining to the Gulf of Mannar

DESCRIPTION	TYPE OF INSTITUTION/INITIATIVE	NAME	RELEVANCE TO BIODIVERSITY OF THE GOM
Act of Parliament	Empowers District Magistrate/ Sub-divisional magistrate and other judicial and law enforcement officers	Code of Criminal Procedure, 1973	Section 133 has the provision in Section 1(c) that certain activities can be prohibited or regulated if they are injurious to health or comfort of communities. This implies that activities that can harm the environment or habitats can be regulated or prohibited.
Act of Parliament	Empowers Law enforcement and judicial officers	Indian Penal Code, 1860	Chapter XIV can declare a person guilty of public nuisance for any act/legal omission which causes danger, annoyance or injury to the public
Act of Parliament	District Collectorate closely involved in implementation	Public Liability Insurance Act, 1991	The law outlines remedial measures in the event of accidents while handling hazardous substances. However, it does contain the scope for providing relief for damage to 'property' which could include habitats and ecosystems and under certain interpretations even communities and species.
Rules under principle Act	Empowers District Collectorate closely involved in implementation	Public Liability Insurance Rules, 1991	Provides rules to operationalise the Public Liability Insurance Act, 1991
Constitution of India	Empowers Central, State Governments, Union Territories and local governments	Constitution of India: Directive Principles of State Policy (48-A) and Fundamental Duties (51-A)	The Indian Constitution is amongst the few in the world that contains specific provisions on environmental protection
Act of Parliament	National Environment Tribunal	National Environment Tribunal Act, 1995	Redressal of environment related cases
Policy	Empowers Central, State Governments, Union Territories and local governments to work under a new set of environmental governance principles	National Environment Policy	Directly concerns itself with environmental governance
General Environment Laws			
Act of Parliament	Authorises officers/agencies and authorities created by the EP Act	The Environment (Protection) Act, 1986 amended in 1991	Specifically promulgated to deal with the subject of Environment Protection
Rules under principle Act	Authorises officers/agencies and authorities created by the EP Act	The Environment (Protection) Rules, 1986	Specifically promulgated to deal with the subject of Environment Protection
Act of Parliament	Central and State Pollution Control Boards	The Water (Prevention and Control of Pollution) Act, 1974, as amended up to 1988	Specifically for protection of water sources
Rules under principle Act	Central and State Pollution Control Boards	The Water (Prevention and Control of Pollution) Rules, 1975	Provides rules to operationalise the Water Act, 1974
Act of Parliament	Central and State Pollution Control Boards	The Water (Prevention and Control of Pollution) Cess Act, 1977 amended in 2003	Plays an indirect role by augmenting resources for the functioning of the Pollution Control Boards
Rules under principle Act	Central and State Pollution Control Boards	The Water (Prevention and Control of Pollution) Cess Rules, 1978	Rules to operationalise the Water Cess Act
Act of Parliament	Central and State Pollution Control Boards	The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987	Specifically concerned with air pollution

Rules under the Air Act	Central and State Pollution Control Boards	The Air (Prevention and Control of Pollution) Rules, 1982	Rules to operationalise the Air Act
Rules under EP Act & EP Rules	Empowers District Magistrate, other law enforcement agencies, the Central and State Pollution Control Boards	Noise Pollution (Regulation and Control) Rules, 2000	Rules formulated from the EP Act to deal with noise pollution
Rules under EP Act	Recombinant DNA Advisory Committee, Review Committee on Genetic Manipulation, Department of Biotechnology, Institutional Biosafety Committee, Genetic Engineering Approval Committee, State Biotechnology Co-ordination Committee, District Level Committee	Rules for the Manufacture, Use, Import, Export and Storage of Hazardous micro-organisms Genetically engineered organisms or cells 1989	Directly involved with biodiversity conservation
Rules under EP Act & EP Rules	.	Ozone Depleting Substances (Regulation and Control) Rules, 2000 .	Indirect means of environment protection
Notification under EP Act & EP Rules	Expert Committee, Impact Assessment Agency, District Collector (Public hearings)	The Environment Impact Assessment Notification, 1994	Specifically promulgated to deal with the subject of environment impact assessments
		The EIA Notification, 2006	Contains revised provisions for assessing environmental impacts of scheduled industries and operations.
Act of Parliament	National Environment Appellate Authority	National Environment Appellate Authority Act, 1997	To decide on appeals against environmental clearances or decisions for environmental protection under the EPAct
Specific to wildlife and forests			
Plan issued by MoEF	Wildlife Wardens, National Board for Wildlife, State Wildlife Boards, State Forest Departments (Wildlife Wing), Community Reserve Management Committees, Chief Wildlife Warden, Directors, Powers of Collectors, Central Zoo Authority, Appellate Tribunal, State Governments	National Wildlife Action Plan, 2002-2016	Specifically with the subject of wildlife
Act of Parliament	Same as above	The Indian Wild Life (Protection) Act, 1972 amended in 2002	Directly deals with protection of wildlife and habitats
Rule under the Wildlife Protection Act	Same as above	The Wildlife (Transaction and Taxidermy) Rules, 1973	Rules made to operationalise sections of the Wildlife Protection Act
Rule under the Wildlife Protection Act	Same as above	The Wildlife (Stock Declaration) Central Rules, 1973	Rules made to operationalise sections of the Wildlife Protection Act
Rule under the Wildlife Protection Act	Same as above	The Wildlife (Protection) Licensing (Additional Matters for Consideration) Rules, 1983	Rules made to operationalise sections of the Wildlife Protection Act
Rule under the Wildlife Protection Act	Same as above	Wildlife (Specified Plants - Conditions for Possession by Licensee) Rules, 1995	Rules made to operationalise sections of the Wildlife Protection Act
Rule under the Wildlife Protection Act	Same as above	Wildlife (Specified Plant Stock Declaration) Central Rules, 1995	Rules made to operationalise sections of the Wildlife Protection Act
Act of Parliament	Animal Welfare Board	Prevention of Cruelty to Animals Act, 1960	For the prevention of cruelty to animals

Act of Parliament	Forest Departments and forest officers	Indian Forest Act 1927	Laws designed for forest management and protection
Act of Parliament	Empowers the Forest Advisory Committees, Ministry of Environment and Forests	Forest Conservation Act 1980, amended in 1988	Specifically designed for the conservation of forests
Rules under the Forest Conservation Act, 1980	Empowers the Forest Advisory Committees, Ministry of Environment and Forests	Forest Conservation Rules, 1981	Designed to operationalise the Forest Conservation Act
Policy issued by the MoEF	Village communities and Voluntary Agencies and NGOs and State Forest Departments	The Forest Policy 1988	Policy specifically for forests
Circular issued by the MoEF	Empowers Village communities and Voluntary Agencies and NGOs and State Forest Departments	Joint Forest Management Circular 1990	For promotion of participatory forest management
Act of Parliament	National Biodiversity Authority, Biodiversity Management Committees, State Biodiversity Boards	The Biological Diversity Act 2002	Specifically deals with the subject of biodiversity
Rules under the Biological Diversity Act 2002	National Biodiversity Authority, Biodiversity Management Committees, State Biodiversity Boards	Biological Diversity Rules 2004	Deals with operationalising the Biodiversity Act
Act of Parliament	Farmers, National Gene Fund, Registrar and Registrar General of Plant Varieties, Plant Varieties Protection Appellate Tribunal	Plant Varieties Protection and Farmers' Rights Act, 2001	Specifically deals with farmers rights and plant varieties
Coastal and Marine Legislations			
Notification under the EP Act, 1986	National Coastal Zone Management Authority, State Coastal Zone Management Authorities, State Departments of Environment, MoEF	Coastal Regulation Zone Notification, 1991	Designed for protection of the coast and nearshore areas
Notification under EPA	Aquaculture Authority	Aquaculture Authority , 1997	Regulates aquaculture in India
Act of Parliament	Aquaculture Authority	Aquaculture Authority Act, 2005	Regulates aquaculture in India
Act of Parliament	The Indian Coast Guard	Coast Guard Act, 1978	Protects the marine resources of India
Act of Parliament	Coast Guard, other authorised officials	The Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981	An act to regulate fishing by foreign fishing vessels
Rules under the Maritime Zones Act, 1982	Coast Guard, other authorised officials	The Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Rules, 1982	Provides rules to operationalise the Maritime Zones Act
Act of Parliament	National Shipping Board	The Merchant Shipping Act, 1958	Contains provisions for the protection of the marine environment from shipping activity
Act of Parliament	Central Government	The Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976	To demarcate India's territorial waters and provide guidelines for its use
Act of Parliament	Central Government	Offshore Area Mineral (Development and Regulation) Act, 2002	Contains provisions for regulating offshore mining in certain areas of the marine environment
State Fisheries Legislations			
		The Indian Fisheries Act, 1897	Overarching legislation governing fisheries
Act of State		Tamil Nadu Fishing Regulation	Conservation of marine resources

Legislature		Act, 1983, amended in 2000	(particularly fishery resources) by regulation of fishing
Rules under State Act		Tamil Nadu Fishing Regulation Rules, 1983, amended in 2000	Rules for regulation of fishery practices
State Act	Authorised officials of the TN fisheries department	Chank Fisheries Act	Contains provisions for regulating the collection of chanks in Tamil Nadu
		Guidelines for Fishing Operations in Indian Exclusive Economic Zone dated 01 November 2002	Contains provisions for regulating fisheries operations in the EEZ of India
Related laws with environmental components			
Rules under EP Act & EP Rules		Hazardous Wastes (Management and Handling) Rules, 1989 Amended in 2002 and 2003	Indirect means of environment protection
Rules under EP Act & EP Rules		Manufacture, Storage and Import of Hazardous Chemical Rules, 1989, amended in 2000	Indirect means of environment protection
Rules under EP Act & EP Rules		The Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996	Indirect means of environment protection
		Fly-ash Notification, 1999	Indirect means of environment protection
Rules under EP Act & EP Rules		Bio-Medical Waste (Management and Handling) Rules, 1998 amended 2003	Indirect means of environment protection
Rules under EP Act & EP Rules		Recycled Plastics Manufacture and Usage Rules 1999 , amended in 2002 and 2003	Indirect means of environment protection
Rules under EP Act & EP Rules		Municipal Solid Wastes (Management and Handling) Rules, 2000	Indirect means of environment protection
		Tamil Nadu Municipal Waste Acts	Indirect means of environment protection
Rules under EP Act & EP Rules Resolution		Batteries (Management & Handling) Rules, 2001	Indirect means of environment protection
		Ecomark Label - Scheme for Labelling Environment Friendly Products, 1991	Directly promotes eco-friendly products
Act of Parliament	Central Government	Indian Ports Act, 1908	Regulates port related activities
Act of Parliament	Central Government	Major Port Trusts Act, 1963	Regulates port related activities
Act of Parliament	Central Government	Merchant Shipping Act	Regulates shipping vessels and contains environmental provisions for these
Act of Parliament	Central Government	Mines Act, 1952	Regulates mining and mining operations through licenses and other procedures
Act of Parliament	Central Government	Mines and Minerals (regulation and Development) Act, 1957 amended in 1986	Regulates mining and mining operations through licenses and other procedures
	Department of Geology and Mines	Mineral Concession Rules, Tamil Nadu	Regulates mining in the state through licences and regulations
Act of Parliament	Central Government	Right to Information Act, 2005	Overarching legislation on providing citizens with information
State Act	State Government	Tamil Nadu Right to Information Act,	Provides legal space for access to information for citizens
State Act	State government rules	Tamil Nadu Right to Information Rules,	Provides legal space and procedures for access to information for citizens

Source: The format and data contained in this table has been adapted from an assessment of environmental laws done by Aarthi Sridhar for the publication ATREE, NCSA Draft. 2007

Annexure 3: Key provisions of the Wild Life Protection Act, 1972

SECTIONS	CONTENTS
Section 3: Authorities under the Act	Appointment of Director and other officers. – (1) The Central Government may, for the purposes of this Act appoint (a) a Director of Wildlife Preservation; (b) Assistant Directors of Wildlife Preservation; and (c) such other officers and employees as may be necessary.
Section 4: Authorities under the Act	Appointment of Chief Wildlife Warden and other officers – (1) The State Government may, for the purposes of this Act, appoint – (a) a Chief Wildlife Warden; (b) Wildlife Wardens; [(bb) One Honorary Wildlife Ward in each district; (c) such other officers and employees as may be necessary.
Section 6	Constitution of the Wildlife Advisory Board
Section 9: Prohibition of Hunting	9. Prohibition of Hunting. – No person shall hunt any wild animal specified in Schedule, I, II, III and IV except as provided under section 11 and section 12. ^{1]}
Section 17A. Prohibition of picking, uprooting, etc., of specified plants.	17A. Prohibition of picking, uprooting, etc., of specified plants. – Save, as otherwise provided in this Chapter, no person shall – Save, as otherwise provided in this Chapter, no person shall – (a) willfully pick, uproot, damage destroy, acquire or collect any specified plant from any forest land and area specified, by notification, by the Central Government, (b) possess, sell, offer for sale, or transfer by way of gift or otherwise, or transport any specified plant, whether alive or dead, or part or derivative thereof.
Section 29: Destruction, etc., in a sanctuary prohibited without a permit	Destruction, etc., in a sanctuary prohibited without a permit. – No person shall destroy, exploit or remove any wildlife from a sanctuary or destroy or damage the habitat of any wild animal or deprive any wild animal or its habitat within such sanctuary except under and in accordance with a permit granted by the Chief Wildlife Warden and no such permit shall be granted unless the State Government being satisfied that such destruction, exploitation or removal of wildlife from the sanctuary is necessary for the improvement and better management of wildlife therein authorises the issue of such permit
Section 38J. Prohibition of teasing & etc, in a zoo	38J. Prohibition of teasing & etc., in a zoo. – No person shall tease, molest, injure or feed any animal or cause disturbance to the animals by noise or otherwise, or litter the grounds in a zoo.

Section 44. Dealings in trophy and animal articles without licence prohibited.	44. Dealings in trophy and animal articles without licence prohibited. – (1) [7Subject to the provisions of Chapter VA, no person shall, except under, and in accordance with, a licence granted under sub-section 4: (a) commence or carry on the business as (i) a manufacturer of, or dealer in, any animal article, or (ii) a taxidermist; or (iii) a dealer in trophy or uncured trophy; or (iv) a dealer in captive animal; or (v) a dealer an meat; or (b) cook or serve meat in any eating-house (c) derive, collect or prepare, or deal in, snake venom
Punishments Section 51. Penalties.	51. Penalties. - (1) Any person who contravenes any provisions of this Act [except Chapter VA and section 38J] or any rule or order made thereunder or who commits a breach of any of the conditions of any licence or permit granted under this Act, shall be guilty of an offence against this Act, and shall, on conviction, be punishable with imprisonment for a term which may extend to [three years] or with fine which may extend to [twenty five thousand rupees] or with both. Provided further that in the case of a second or subsequent offence of the nature mentioned in this sub-section, the term or imprisonment may extend to six years ' and shall not be less than two years and the amount of fine shall not be less than ten thousand rupees. (1A) Any person who contravenes any provisions of Chapter VA, shall be punishable with imprisonment for a7 term which shall not be less then one year but which may extend to seven years and also with fine which shall not be less than five thousand rupees.] [(1B) Any person who contravenes the provisions of Section 38J] shall be punishable with imprisonment for a term which may extend to six months or with fine which may extend to two thousand rupees, or with both.
53. Punishment for wrongful seizure	53. Punishment for wrongful seizure. - If any person, exercising powers under this Act, vexatiously and unnecessarily seizes the property of any other person on the pretence of seizing it for the reasons mentioned in sec. 50, he shall, on conviction, be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to five hundred rupees, or with both.

Annexure - 4
LIST OF MARINE SPECIES ON THE SCHEDULES OF
THE WILDLIFE PROTECTION ACT, 1972

Date of Notification	Legal clause / Notification No.	Species listed by number on the Schedules	Description
9 th September 1972	By Act of Parliament 53 of 1972	7. Dugong (<i>Dugong dugon</i>)	Schedule – I, Part –I, Mammals
		4. Green Sea Turtle (<i>Chelonia mydas</i>) 5. Hawksbill Turtle (<i>Eretmochelys imbricata imbricata</i>) 11. Leathery Turtle (<i>Dermochelys coriacea</i>) 12. Loggerhead Turtle (<i>Caretta caretta</i>) 13. Olive back logger head turtle (<i>Lepidochelys olivacea</i>)	Part II, Amphibians and Reptiles
		Sea cucumbers (All <i>Holothurians</i>)	Part IV-C, Echinodermata
		4. Otters (<i>Lutra, L. perspicillata</i>)	Schedule II, Part-II
5 th October 1977	No. FJ-11012/31/76 FRY (WL)	5-A Sperm Whale (<i>Physeter macrocephalus</i>)	Schedule II, Part – II
9 th September 1980	No.FL-28/78 FRY (WL) Published in Gazette dated 2 nd October 1980	4 – A. Cetacean spp.	Schedule – I Part –I, Mammals
		12. Snakes [other than species listed in Sch. I, Pt. II; and Sch.II, Pt.II] viii) <i>Hydrophilidae</i>	Schedule – IV
24 th November 1986	No. S.O. 859(E) Published in Gazette dated 24 th Nov 1986	8 – D. Gangetic dolphin (<i>Platanista gangetica</i>) 33-A. Irrawady/ Snubfin dolphin (<i>Orcaella brevezastris</i>)	Schedule – I Part –I, Mammals
		1-D Crocodiles (including estuarine or salt water crocodile) (<i>Crocodilus porosus</i> and <i>Crocodilus palustris</i>)	Schedule – I Part II, Amphibians and Reptiles

		3-C. Cetacean species other than those listed in Schedule –1 and Schedule – II, Part II	Schedule – I Part I
28 th May 2001	No. S.O.474 (E) , [No. 1-2/2001 WL-I] Published in Gazette dated 28 th May 2001 Section 61(1)	1. Whale shark (<i>Rhincodon typus</i>)	Schedule – I, Part II A — Fishes
11 th July 2001	Notification No. S.O. 665 (E) [F.No.1-4/95/WL-I] Section 61(1)	3. Sea Horse (<i>All Sygnathidians</i>) 4. Giant Grouper (<i>Epinephelus lanceolatus</i>)	Schedule – I Part II A Fishes
		1. Reef Building Coral (<i>All Scleractinians</i>) 2. Black Coral (<i>All Antipatharians</i>) 3. Organ Pipe Coral (<i>Tubipora musica</i>) 4. Fire Coral (<i>All Millipora Species</i>) 5. Sea Fan (<i>All Gorgonians</i>)	Schedule – I Part IV Crustacea & Insects Part IV A – Coelenterates
		1. <i>Charonia tritonis</i> 9. <i>Conus malne-edwardsi</i> 32. <i>Tudicla spiralis</i> 33. <i>Cypracasis rufa</i> 45. <i>Nautilus pompilius</i> 46. <i>Tridacna maxima</i> 47. <i>Tridacna squamosa</i> 48. <i>Hippopus hippopus</i>	Schedule – I Part IV B – Mollusca
		Sea Cucumber (<i>All Holothurians</i>)	Schedule – I Part IV C – Echinodermata
		20. Sponges (<i>all Calcareans</i>)	Schedule III
		The following entries were subsequently removed in the amendment dated 5 th Dec 2001 2. Shark and Ray (<i>All Elasmobranchii</i>)	Schedule – I Part II A Fishes

		<ol style="list-style-type: none"> 2. <i>Lambis truncata</i> 3. <i>Lambis chiragra</i> 4. <i>Lambis chiragra arthritica</i> 5. <i>Lambis millepeda</i> 6. <i>Lambis cricea</i> 7. <i>Lambis scorpius</i> 8. <i>Conus bengalensis</i> 10. <i>Conus textile</i> 11. <i>Conus nobilis</i> 12. <i>Conus geographus</i> 13. <i>Conus marmoreus</i> 14. <i>Cypraea lamacina</i> 15. <i>Cypraea cribraria</i> 16. <i>Cypraea tigris</i> 17. <i>Cypraea mappa</i> 18. <i>Cypraea talpa</i> 19. <i>Cypraea carneola</i> 20. <i>Cypraea mauritiana</i> 21. <i>Cypraea onyx</i> 22. <i>Cypraea argus</i> 23. <i>Cypraea testudinaria</i> 24. <i>Cypraea moneta</i> 25. <i>Ovula ovum</i> 26. <i>Volva volva</i> 27. <i>Turbo marmopratus</i> 28. <i>Trochus niloticus</i> 29. <i>Xancus pyrum</i> 30. <i>Harpulina lapponica</i> 31. <i>Harpulina arausiaca</i> 34. <i>Cassis cornuta</i> 35. <i>Murex palmorosae</i> 36. <i>Murex haustellum</i> 37. <i>Murex ramosus</i> 38. <i>Strombus plicatus sabbaldi</i> 39. <i>Strombus listeris</i> 40. <i>Fasciolaria trapazium</i> 41. <i>Fusinus longicaudus</i> 42. <i>Mitra mitra</i> 43. <i>Mitra papalis</i> 44. <i>Cymatium pileare</i> 49. <i>Piter erycina</i> 50. <i>Pteria brevilata</i> 51. <i>Placenta placenta</i> 52. <i>Paphia ala-papilionis</i> 	<p>Schedule – I Part IV B – Mollusca</p>
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5 th December, 2001	No. S.O. 1197(E) Section 61(1)	2. Shark and Ray <ul style="list-style-type: none"> i. <i>Anoxypristis cuspidata</i> ii. <i>Carcharhinus hemiodon</i> iii. <i>Glyphius gangeticus</i> iv. <i>Glyphis glyphis</i> v. <i>Himantura fluviatilis</i> vi. <i>Pristis microdon</i> vii. <i>Pristis zijsron</i> viii. <i>Rhynchobatus djiddensis</i> ix. <i>Urogymnus asperrimus</i> 	Schedule I Part II –A, Fishes
		<ul style="list-style-type: none"> 1. <i>Cassis cornuta</i> 2. <i>Charonia tritonis</i> 3. <i>Conus malneedwardsi</i> 4. <i>Cypracasis rufa</i> 5. <i>Hippopus hippopus</i> 6. <i>Nautilus pompilus</i> 7. <i>Tridacna maxima</i> 8. <i>Tridacna squamosa</i> 9. <i>Tudicla spiralis</i> 	Schedule I Part IV B – Mollusca
		19. Mollusca <ul style="list-style-type: none"> i. <i>Cypraea lamacina</i> ii. <i>Cypraea mappa</i> iii. <i>Cypraea talpa</i> iv. <i>Fasciolaria trapazium</i> v. <i>Harpulina arausica</i> vi. <i>Lambis chiragra</i> vii. <i>Lambis chiragraarthitica</i> viii. <i>Lambis crocea</i> ix. <i>Lambis millepeda</i> x. <i>Lambis scorpius</i> xi. <i>Lambis truncata</i> xii. <i>Placenta placenta</i> xiii. <i>Strombus plicatus sibbaldi</i> xiv. <i>Trochus niloticus</i> xv. <i>Turbo marmoratus</i> 	Schedule IV
19 th February 2002	S.O. 233(E) Published in the gazette dated 26 th February 2002		