

DECODING MARINE PROTECTED AREAS IN INDIA – PART I: UNDERSTANDING THE LEGAL AND POLICY FRAMEWORKS

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In the current era of the *Anthropocene*, humans have become the major driver for planetary changes in the physical, chemical and biological properties of the air, land and the ocean. The exact year/ decade of the beginning of this epoch is being debated among scientists. While some suggest that it coincides with the beginning of the industrial revolution in the 1800s, others argue that it should be around the time when humans tested the first nuclear bomb in 1945. Be that as it may, it is agreed upon by the broader scientific community that humans are increasingly causing significant changes in the climate and ecosystems.¹ Nowhere are these changes more apparent and of greater concern than in the global ocean. Taken in aggregate, the world's ocean basins absorb about 90 per cent of the excess heat generated by increasing greenhouse gases in the atmosphere. As a result, ocean temperatures are rising at an accelerating pace. Oceans also absorb almost one-third of the excess carbon dioxide (CO₂) in the atmosphere. This CO₂ forms carbonic acid when dissolved in water, leading to increasing ocean acidification.² Combined with the overexploitation of the ocean's living and non-living resources, and the ever-growing marine pollution due to untreated sewage discharge, industrial effluent run-offs, pollution from ships, and land-based plastic pollution, these environmental alterations pose a direct and imminent threat to marine biodiversity and, in turn, to the millions of coastal and hinterland residents that rely on the essential services provided by the rich marine ecosystems globally.

Fortunately, the incalculable ecological, cultural, and socio-economic value added by marine ecosystems is not lost on international experts and scientists, government officials, and the coastal populations. In recent decades, there has been a growing push, at the international and national levels, to protect and conserve key marine ecosystems around the world. This is typically done by establishing what are called "Marine Protected Areas" or MPAs, which limit human influences and undertake conservation efforts in areas of high ecological importance. According to a comprehensive global analysis, currently established MPAs account for around 6.4 per cent of the global ocean area, with an additional one per cent having been designated for MPAs but not yet formally established as such.³ However, scientists and conservation experts estimate that in order to ensure long-term sustainability of critical ecosystems and the services that they provide, we must conserve an area equivalent to 30 per cent of the global ocean area, spread out across multiple

¹ "Encyclopedic Entry: Anthropocene," *National Geographic Website*, <https://www.nationalgeographic.org/encyclopedia/anthropocene/>

² Pushp Bajaj, "On Oceans and Climate Change," *National Maritime Foundation Website*, 23 July 2020, <https://maritimeindia.org/on-oceans-and-climate-change/>

³ "The Marine Protection Atlas," *Marine Conservation Institute*, <https://mpatlas.org/>

biodiversity hotspots. Clearly, there is a long way still to go! Moreover, there are some major concerns among experts over the effectiveness of the conservation and monitoring measures adopted in MPAs which can vary widely amongst different countries and even amongst states, provinces and suchlike administrative divisions within a given country.

In this context, this two-part article series, which is targeted at local- and national-level policymakers, coastal and marine conservationists, researchers, and other stakeholders, provides a comprehensive analysis of MPAs, with a specific focus on the Indian perspective. It assesses the efficacy of these MPAs and the challenges associated with their effective management, as also the opportunities and socio-economic benefits that would accrue from expanding MPA coverage. This first part provides an overview of India's MPA network and highlights the existing challenges both at the policy level and in field management. To put this into perspective, the article begins with a background of the international framework and the key events that led to the rapid implementation of MPAs globally. Subsequently, it elaborates on the national laws that govern MPA establishments in India and the outlook on future utilisation of MPAs by providing suggestions for appropriate framing of National Biodiversity Targets for the following decade. Finally, it highlights the outstanding challenges in the monitoring and continued functioning of MPAs in India. The next part in the series will dwell in detail upon the legal and governance challenges associated with creating MPAs in the Exclusive Economic Zone (EEZ) and across marine areas that may be shared between two or more countries. A comprehensive set of policy recommendations to create robust MPA establishment, management, and monitoring frameworks, to ensure long-term protection and conservation of critical marine ecosystems, will also be provided in Part II.

Evolution of the Global MPA Discourse

The praxis of establishing Protected Areas (PA) in global conservation efforts can be dated as far back as the first World Conference on National Parks that was held in Washington, USA, in 1962. Hosted by the International Union for the Conservation of Nature (IUCN), the event was a first in a chain of international conferences, held approximately every ten years, which focussed on the role of PAs in the protection and conservation of natural biodiversity.⁴ This newfound emphasis on PA measures subsequently fuelled the establishment of Marine Protected Areas (MPAs) in the 1970s and 1980s, with an estimated 1000 MPAs having been established in 87 countries by 1986.⁵ Further, the lack of a binding international agreement on the conservation of biodiversity was remediated by the Convention on Biological Diversity (CBD) in 1993. With the approval of 193 nation-states, the CBD remains the overarching document necessitating biodiversity conservation. Article 2 of the CBD defines a Protected Area as:⁶

“a geographically defined area, which is designated or regulated and managed to achieve specific conservation objectives.”

This definition exhibits indifference to the terrain and was intended to incorporate both, terrestrial and marine areas. However, the generic nature of this definition allowed for the

⁴ IUCN Protected Areas Programme, 50 Years of Working for Protected Areas: A Brief History of IUCN World Commission on Protected Areas (Gland, Switzerland: IUCN, 2010)

https://www.iucn.org/sites/dev/files/import/downloads/history_wcpa_15july_web_version_1.pdf

⁵ Maynard E. Silva et al, A Bibliographic Listing of Coastal and Marine Protected Areas: A Global Survey (Falmouth, Massachusetts: Woods Hole Oceanographic Institution, 1986). <https://doi.org/10.1575/1912/7543>

⁶ *Convention on Biological Diversity*, Rio De Janeiro, 29 December 1993, <https://www.cbd.int/convention/text/>

continued lack of understanding on the activities permitted in and the limitations set by MPAs. This dilemma was partially offset in 2004 when the Conference of Parties to the CBD interpreted the umbrella definition in the context of the marine environment as:

“[an] area within or adjacent to the marine environment, together with its overlying waters and associated flora, fauna and historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that its marine and/or coastal biodiversity enjoys a higher level of protection than its surroundings.”

This certainly provides a more detailed description. The emphasis on *“reserved by legislation or other effective means, including custom”* is of particular significance, being a first in recognizing the role of community traditions in Protected-Area management.⁷ Yet, the definition of Protected Areas in Article 2 of the CBD still needed to be remediated. In 2008, the IUCN provided a new definition that has since been the central reference for governments worldwide:

“A protected area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.”

The IUCN has since remained a key player amidst a variety of institutions in guiding the developments of PAs worldwide. In 2013, it published *Guidelines for Protected Area Management Categories*, which elaborate the interpretation of each term in the above definition.⁸ These guidelines were also intended to resolve widespread confusion about varying regulations in PAs. They provide a structured framework by assigning six different categories of PAs, based on differentiated regulations. In the context of MPAs, the document identified these categories to span from Category I (no-take MPAs with zero extraction) and Category VI (with sustainable take of specific resources) with an increasing easing of restrictions as one moved from Category I to Category VI.⁹

However, independent analyses have shown that the IUCN classification of MPAs remains inadequate, which leads to problems in the implementation stages. In many cases, a single MPA itself includes different zones with varying regulations, with some sections being ‘no-take’ and others allowing multiple use, which complicates the assessment of conservation effectiveness and public perception. Often, the established regulations within MPAs are loosely described and may be poorly aligned or insufficient to fulfil the stated objectives. The cumulative effect of this manifests in faulty monitoring and management of MPAs, allowing them to exist solely as superficial ‘paper parks’. Recently, a more consistent classification of MPAs has been suggested, which identifies each zone within an MPA and assesses the regulations based on their respective impact on biodiversity. This approach classifies MPAs as well as each zone individually, identifying the types of uses permitted within the MPA zone and the overall MPA, so as to gain a more accurate understanding of real-time conservation.¹⁰

⁷ Youna Lyons et al, “Moving from MPAs To Area-Based Management Measures in the South China Sea” *The International Journal of Maritime Law* 35, No.2 (October 2019): 201-231, <https://doi.org/10.1163/15718085-23521101>.

⁸ Nigel Dudley et al, “Guidelines for Applying Protected Area Management Categories including IUCN WCPA Best Practice Guidance on Recognising Protected Areas and Assigning Management Categories and Governance Types,” A Monograph by the *International Union for Conservation of Nature* (2013), <https://portals.iucn.org/library/node/30018>.

⁹ *Ibid*

¹⁰ Bárbara Horta e Costa et al, “A Regulation-Based Classification System for Marine Protected Areas (MPAs),” *Marine Policy* 72, (October 2016): 192-198, <https://doi.org/10.1016/j.marpol.2016.06.021>.

Biodiversity Targets: Then and Now

The ninth meeting of the Conference of the Parties (COP 9) to the CBD, held in 2010, laid out 20 comprehensive targets called the ‘Aichi Biodiversity Targets’. Target 11 committed to the following area-based conservation goal:

“By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures and integrated into the wider landscapes and seascapes.”

This global commitment to cover “10 per cent of coastal and marine areas” was subsequently adopted in the UN’s Sustainable Development Goals (SDG 14.5) and was successful in at least stimulating countries to develop Protected Area networks and utilise “*other effective area-based conservation measures*” which were defined during the COP 14 to the CBD in 2018 as:

“a geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in-situ conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio-economic and other locally relevant values.”

The decadal report of the CBD, entitled “Global Biodiversity Outlook – 5”, released in September 2020, noted an increase in MPAs from 3% in 2000 to 7% in 2020 in respect of global coastal and marine areas. The report further claimed that the 10% target was likely to be achieved by the end of the year and may be exceeded if and when ‘*other effective area-based conservation*’ measures are included.¹¹

However, as of March 2021, the World Database on Protected Areas reported that only 7.65% of the global seas had been covered.¹² It should, of course, be borne in mind that these aggregated statistics often differ from those reported by individual countries due to differences in methodologies and datasets used to assess protected area coverage. The PA coverage of India itself is undermined greatly in the database — the reasons for which certainly call for further scrutiny. Nevertheless, it cannot be denied that “Aichi Target 11” has been only partially met. The race to reach targets is expected to intensify as the world moves to more ambitious conservation commitments. On 11 January 2021, for instance, France hosted the “One Planet Summit for Biodiversity”. Amongst several other undertakings, the summit launched the “High Ambition Coalition (HAC) for Nature and People”. This is a coalition of 50 countries aiming to achieve a global agreement to protect at least 30 per cent of the planet’s land and 30 per cent of its oceans. The HAC intends to influence the decisions of the fifteenth meeting of the Conference of Parties (COP 15) to the CBD, which will convene later in 2021, which seeks to establish global biodiversity targets for this decade (2020-2030).¹³

¹¹ Secretariat of the Convention on Biological Diversity, *Global Biodiversity Outlook 5 – Summary for Policy Makers* (Montreal, Quebec: CBD, 2020), <https://www.cbd.int/gbo/gbo5/publication/gbo-5-spm-en.pdf>

¹² “Discover the World’s Protected Areas,” Protected Planet, Accessed on 11 May 2021, <https://www.protectedplanet.net/en>

¹³ High Ambition Coalition for Nature and People, “50 Countries Announce Bold Commitment to Protect at Least 30% of the World’s Land and Ocean by 2030,” *Campaign For Nature*, 11 January 2021, <https://www.campaignfornature.org/50-countries-announce-bold-commitment-to-protect-at-least-30-of-the-worlds-land-and-ocean-by-2030>

The National Stage: India's Approach to Ecosystem Conservation

Legal Frameworks

In India, the legal framework governing Protected Areas mandates the following categories through the respective legislations:

- 1) Reserved/ Designated Forest Areas declared as such under the Indian Forest Act, 1927.
- 2) Protected Areas declared under any of the four categories of the Wildlife Protection Act, 1972, namely, National Parks, Wildlife Sanctuaries, Community Reserves, and Conservation Reserves.
- 3) Biodiversity Heritage Sites notified under the Biological Diversity Act, 2002.
- 4) Wetlands identified and notified under Wetland (Conservation and Management) Rules, 2017.¹⁴

Terminological imprecision has allowed for a common misunderstanding that PAs in India are legislated only by the Wildlife Protection Act of 1972. In fact, all the above categories fall under the ambit of the protected area definitions offered both by the CBD and the IUCN. The Wildlife Protection Act of 1972 takes precedence in the context of Marine Protected Areas and will, therefore, remain the central reference document in further discussion. This Act, despite having been amended several times, fails to explicitly distinguish MPAs from other PAs, and hence permits their establishment under all the categories described in the Act. Most MPAs have been established as National Parks and Wildlife Sanctuaries and exercise the regulations of the same. The various permissible activities in an MPA under the various conservation levels are listed below in **Table 1**.

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

Source: Neeraj Khara et al, *Training Resource Material on Coastal and Marine Biodiversity and Protected Area Management for Field-level MPA Managers* (New Delhi: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) India and the Wildlife Institute of India, 2015)

¹⁴ Ramya Rajagopalan, *Marine Protected Areas in India* (Chennai: International Collective in Support of Fishworkers, 2008)

It may be noted that the 2003 amendment to the Wildlife Act introduced “Conservation Reserves” and “Community Reserves”, which include community involvement in protection. While Community Reserves only pertain to land and cannot be included as MPAs, Conservation Reserves are declared for protecting both landscapes and seascapes. Generally, the areas adjacent to National Parks and Sanctuaries are established as Conservation Reserves as linkages of the PA network.¹⁵

On the coasts, PAs that fall entirely or partially within 500 metres to landward from the High Tide Line (as described by the Coastal Regulation Zone notification, 2011) are considered to be MPAs. The seaward extent of MPAs under the Wildlife Act is limited to the extent of the Territorial Sea as promulgated by the Maritime Zones Act, 1976.¹⁶ i.e., 12 nautical miles from India’s baseline. There are currently 25 MPAs on the mainland and 130 MPAs in the islands of India. Under the UNESCO-MAB program, the Central Government has also designated “Biosphere Reserves”. Although these do not constitute a Protected Area as designated by the Wildlife Act, they are nevertheless included in the list of PAs submitted to the CBD.¹⁷ The Wildlife Institute of India has additionally identified and prioritised 106 sites as “Important Coastal and Marine Biodiversity Areas” (ICMBAs) and proposed their upgradation to “Sanctuaries” or “Conservation Reserves”.¹⁸ It is noteworthy that only one identified ICMBA site — Angria Bank — lies within the Exclusive Economic Zone (EEZ).

Biodiversity Targets: Then and Now

To uphold the commitments of the Aichi targets, the GoI formulated twelve “National Biodiversity Targets” (NBT), which are listed as addendums to the “National Biodiversity Action Plan” (NBAP) of 2008. NBT 6 under the NBAP Addendum (2014) seeks to address the protected area coverage as envisioned by Aichi Target 11. The target states:

“Ecologically representative areas on land and in inland waters, as well as coastal and marine zones, especially those of particular importance for species, biodiversity and ecosystem services, are conserved effectively and equitably, on the basis of protected area designation and management and other area-based conservation measures and are integrated into the wider landscapes and seascapes, covering over 20 % of the geographic area of the country, by 2020.”

The recent progress on achieving this quantitative target has been documented in India’s 2018 report to the CBD. The report provides a detailed update of NBT 6 and concludes that the 20 per cent target of Protected Area and Other ABCM has been largely accomplished.¹⁹ While this success is commendable, the target does not distinguish between terrain-specific PA coverage but, instead, demands 20% coverage over any “*geographic areas*” of the country. This means, the success of the larger target may not necessarily translate to an increase in MPAs. While in this case an increase in MPA coverage has, indeed, been noted, there is little doubt that such targets need to be

¹⁵ Neeraj Khara et al, *Training Resource Material on Coastal and Marine Biodiversity and Protected Area Management for field-level MPA managers* (New Delhi: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) India and the Wildlife Institute of India, 2015)

¹⁶ K Sivakumar et al, *Coastal and Marine Protected Areas in India: Challenges and Way Forward* (Dehradun: Wildlife Institute of India, 2013)

¹⁷ Rajagopalan, *Supra* Note 14

¹⁸ Sivakumar et al, *Supra* Note 16

¹⁹ *India’s Sixth National Report to the Convention on Biological Diversity* (2018), <https://chm.cbd.int/database/record?documentID=241351>

drafted with far more precise language so as to promulgate commitments unambiguously, ensuring holistic management of both terrestrial and marine ecosystems.

Upon the finalisation of the next set of decadal PA coverage targets at the COP 15 to the CBD later in 2021, an amendment to the NBTs will likely follow. As a global target of 30 per cent of land and 30 per cent of ocean coverage by 2030 is expected, the national amendments must ensure adequate PA coverage and, moreover, must make a clear distinction between the commitments for marine and land-based PA coverage.

Future Outlook

In the current absence of updated NBTs for the next decade, the “National Wildlife Action Plan” (NWAP) [2017-2030] provides a foundational conservation strategy.²⁰ Drafted by the Wildlife Institute of India, which operates under the Ministry of Forests, Environment and Climate Change (MoEFCC), the plan is commendably comprehensive and introduces hitherto excluded factors such as recognising the impacts of climate change on wildlife and biodiversity, and undertaking relevant mitigation measures. It also implements a ‘landscape approach’ to conservation, which ensures traditional socio-economic/ cultural use along with ecological conservation. Numerous challenges in coastal and marine conservation are acknowledged and adequate measures have been proposed to strengthen the MPA network.²¹ Importantly, however, while the NWAP acknowledges the absence of MPAs in the EEZ, it fails in providing satisfactory remedial interventions. In this context, the challenges and opportunities associated with establishing MPAs in the EEZ will be discussed in detail in Part II of this two-part article series.

Management and Effectiveness

Of course, the creation of MPAs is only the beginning of a long and arduous process of practicing, monitoring, and revisiting measures to conserve marine biodiversity. Assessing the management practices and their efficacy at actually achieving the desired goals is just as important, if not more so, as is the identification and designation of the MPAs themselves. To measure the impacts of the conservation measures, Protected Areas are required to undergo periodic assessments. The 1992 World Parks Congress in Venezuela was an influential juncture where the discussion on evaluation methods for PAs were debated at the international level. It led to the development of the “Management Effectiveness Evaluation” (MEE) framework, which has come to be defined as “*an assessment of how well PAs are being managed- primarily, whether they are protecting their values and achieving the goals and objectives agreed upon.*”²² Information gained from MEE assessments can be used to improve the performance of PAs by revisiting the management methods, changing resource allocation, and enhancing transparency for the various stakeholders.

The last two decades have seen the development of a variety of methodologies for MEEs, varying from questionnaire-type approaches to detailed monitoring systems that rely upon factors

²⁰ *National Wildlife Action Plan (2017-2031)*, Ministry of Environment, Forests and Climate Change (MoEFCC), Government of India

²¹ *Ibid*

²² Fiona Leverington et al, *Evaluating Effectiveness: A Framework for Assessing Management Effectiveness of Protected Areas* (Gatton, Australis: IUCN WCPA, 2008)

such as the significance of the site, available time and resources, and stakeholder pressure.²³ However, most of these revolve around the IUCN’s “World Commission on Protected Areas Framework for Assessing MEE”. The WCPA Framework is a globally endorsed best-practice guide that fractionates the MEE into six key stages as presented in **Table 2**.

Table 2: Summary of the IUCN’s World Commission on Protected Areas (WCPA) Framework			
Elements of Evaluation	Explanation	Criteria Assessed	Focus of Evaluation
Context	Where are we now? Assessment of importance, threats, and policy environments	<ul style="list-style-type: none"> • Significance • Threats • Vulnerability • National Context • Partners 	Status
Planning	Where do we want to be? Assessment of PA design and planning	<ul style="list-style-type: none"> • Protected area legislation and policy • Protected area system design • Reserve design • Management planning 	Appropriateness
Inputs	What do we need? Assessment of resources needed to carry out management	<ul style="list-style-type: none"> • Resourcing of agency • Resourcing of site 	Resources
Processes	How do we go about it? Assessment of the way in which management is conducted	<ul style="list-style-type: none"> • Suitability of management processes 	Efficiency and appropriateness
Outputs	What were the results? Assessment of the implementation of management programmes and actions; delivery of products and services	<ul style="list-style-type: none"> • Results of management actions • Services and products 	Effectiveness
Outcomes	What did we achieve? Assessment of the outcomes and the extent to which they achieved the objectives	<ul style="list-style-type: none"> • Impacts: effects of management in relation to objectives 	Effectiveness and appropriateness
Source: Sue Stolton et al, <i>Management Effectiveness Tracking Tool, Reporting Progress at Protected Area Sites: Second (Revised) Edition</i> (Gland, Switzerland: WWF International, 2007)			

The CBD Programme of Work for Protected Areas calls on all member States to continue to expand and institutionalise management effectiveness assessments and aim towards assessing 60 per cent of the country’s total area of National Parks and Wildlife Sanctuaries.

In India, the MEE process has been institutionalised to some extent, with the country having evaluated many of its World Heritage Sites, National Parks, Wildlife Sanctuaries and Tiger Reserves.²⁴ The most recent evaluation was undertaken between 2018-19 for 146 National Parks and Wildlife Sanctuaries, which included 5 MPAs, namely, the *Gulf of Mannar Marine National Park*, the *Krishna Wildlife Sanctuary*, the *Bhitarkanika Wildlife Sanctuary*, the *Thane Creek Flamingo Wildlife Sanctuary*, and, the *Pitti Wildlife Sanctuary*. The evaluation abided by the WCPA Framework and used

²³ Dhananjai Mohan et al, *Management Effectiveness Evaluation (MEE) of National Parks and Wildlife Sanctuaries in India. Process and Outcomes, 2018-19 (Volume IV)* (Dehradun: Wildlife Institute of India, 2020)

²⁴ *Ibid*

a “Rapid Expert-Based Scorecard” method where different parameters concerning the biophysical, socio-economic, and governance aspects, each having multiple criteria, were given a score and, subsequently, a total score was generated to measure overall performance. The management strengths, weaknesses, and actionable points were also highlighted in the evaluation.

However, because such an assessment framework is meant to apply across all PAs of all regions and terrains, it is likely to overlook certain parameters specific to MPAs, given the vastly different challenges of the marine environment. It is very encouraging to note that in order to address this potential infirmity, plans to create an MPA-specific-MEE were, indeed, announced earlier this year. This is currently being jointly developed by the WII and the MoEFCC and can be expected soon.²⁵ Of course, there is no gainsaying that while this represents a step in the right direction, much remains to be done to overcome the issues in the management of Indian MPAs. Clear evidence of this is to be found in the findings of the latest MEE assessment (2018-19) mentioned above. According to the report, four of the five MPAs that were evaluated face threats to water quality from industrial wastewater, untreated domestic sewage, discharge from mining activities, increasing salinity, and reduced freshwater flow. Three of the five MPAs lack adequate staff to ensure efficient day-to-day monitoring and also lack the technical staff to address scientific and communal issues. The *Pitti Wildlife Sanctuary* also faces a shortage of both, budget and infrastructure. Additionally, lack of consolidated and well-documented data is a common problem across these MPAs.²⁶ The *Malvan Marine Wildlife Sanctuary* was also evaluated, with poor performance being reflected in the 2017-18 MEE report. It faces a number of problems such as inadequate management, pollution from unregulated tourism and untreated domestic sewage disposal, and, failure to settle rights and provide concessions to local residents. According to an independent analysis from 2018, the many MPAs in the Andaman and Nicobar Islands also face similar challenges especially in terms of lack of public infrastructure and inadequate staffing.²⁷

Moreover, some conservation experts argue that the role of the Forest Department as the central authority for MPA management (which has conventionally been the case) results in suboptimal governance because of their ‘terrestrial lens’ on conservation.²⁸ In India, almost all the MPAs are coastal but the focus of conservation is reported to be towards the terrestrial component to the neglect of the marine component. Therefore, there is a need for better inter-departmental coordination between the Fisheries Department, the Coast Guard, and the Department of Tourism, for a more holistic approach to MPA management.

As discussed in this article, much progress has been made in recent decades, both at the international and national levels, in terms of creating appropriate legal and institutional frameworks related to protection and conservation of marine ecosystems and biodiversity. However, in terms of actual coverage of MPAs, much more work needs to be done to meet the ambitious goal of protecting at least 30 per cent of the global ocean as suggested by marine scientists and experts. At

²⁵ Ministry of Environment, Forests and Climate Change, Government of India, “Best Managed Protected Areas in the Country to be Ranked and Awarded Every Year: Shri Prakash Javadekar. Environment Minister Releases Management Effectiveness Evaluation (MEE) of 146 National Parks and Wildlife Sanctuaries. Framework for Management Effectiveness Evaluation of Indian Zoos (MEE-Zoo) and of Marine Protected Areas also Launched,” *PIB Delhi*, 11 January 2021. <https://pib.gov.in/PressReleasePage.aspx?PRID=1687688>

²⁶ Mohan et al, *Supra* Note 23

²⁷ Shimul Bijoor et al, *Management of Marine Protected Areas in the Andaman Islands: Two case studies* (Bangalore: Dakshin Foundation, 2018)

²⁸ *Ibid*

the national level, there is a need to better acknowledge and incorporate in legal and governance frameworks the differences between marine and terrestrial PAs, and to create more robust monitoring and evaluation mechanisms to achieve the long-term conservation objectives. Part II of this series will delve into the critical yet underappreciated aspect of creating and managing MPAs in the EEZ and in areas shared by two or more countries (i.e., trans-boundary MPAs). To conclude the series, the next part will also provide a comprehensive list of policy recommendations for Indian policy makers to fill in the gaps and better preserve our rich marine biodiversity.

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