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DEEPIKA SHARMA,
*and* MADHURI RAMESH

# Management of Marine Protected Areas in the Andaman Islands: Two case studies

WWF

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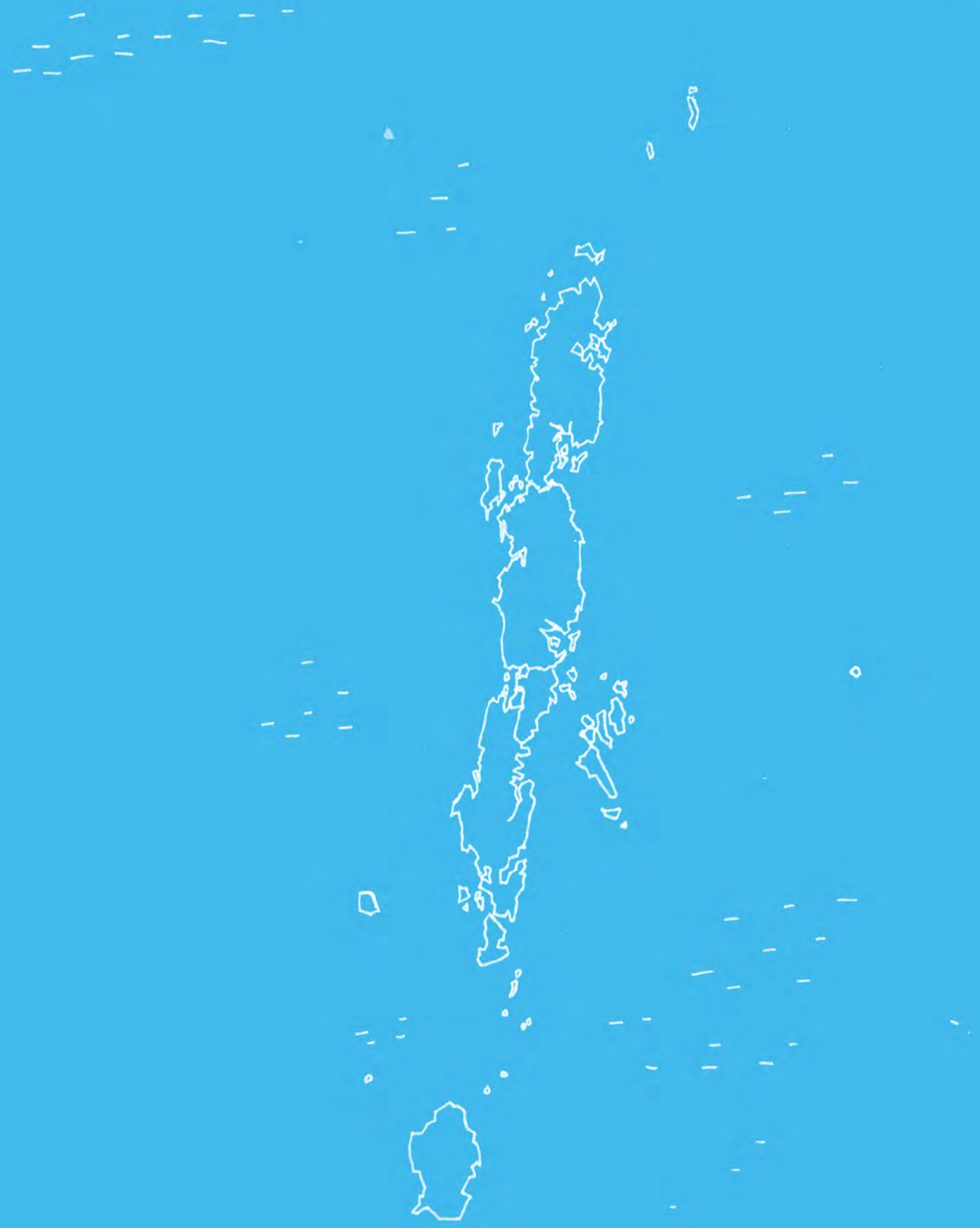

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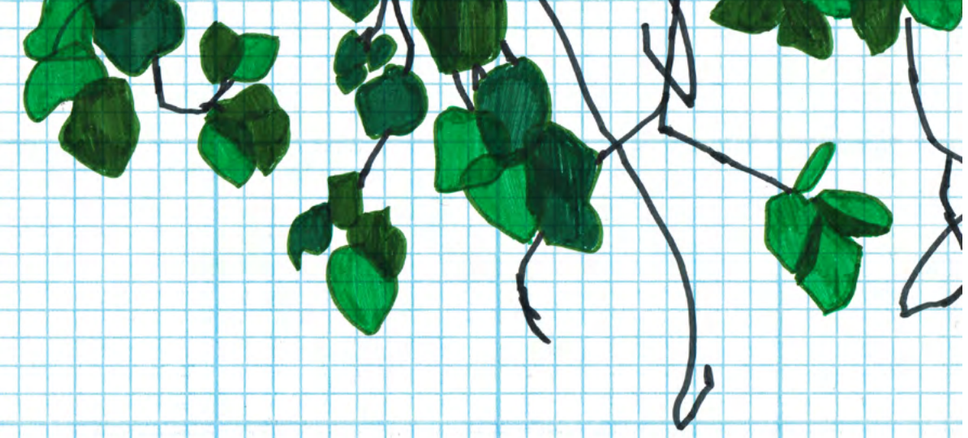
## *Contents*



## *List of Abbreviations*

| | |
|---|---|
| **ANIIDCO** | Andaman and Nicobar Islands Integrated Development Corporation Limited |
| **ANI** | Andaman and Nicobar Islands |
| **CBD** | Convention on Biological Diversity |
| **EDC** | Eco-Development Committee |
| **ENVIS** | Environmental Information System |
| **EPA** | Environmental (Protection) Act |
| **GOI** | Government of India |
| **ICRZ** | Island Coastal Regulation Zone |
| **LTC** | Leave Travel Concession |
| **MGMNP** | Mahatma Gandhi Marine National Park |
| **MPA** | Marine Protected Area |
| **MoEFCC** | Ministry of Environment, Forests, and Climate Change |
| **PA** | Protected Area |
| **RJMNP** | Rani Jhansi Marine National Park |
| **WPA** | Wildlife (Protection) Act |

# Introduction

The Andaman Islands fall within the Indo-Burma global biodiversity hotspot, while the Nicobar Islands, which are separated from the former by the Ten Degree Channel, constitute the northwestern extremity of the Sundaland hotspot. Together, they form a region that holds significance for marine and terrestrial conservation. The islands' seas and forests are also lifelines to human communities who benefit from a vast array of natural resources ranging from fish to timber. Therefore, sea-, sand-, and land-scapes here serve livelihoods and ecological functions. At the same time, the seas and forests are under pressure from increasing local extraction as well as impending large-scale threats such as climate change. As a result, following the global trend, Marine Protected Areas (MPAs) have been established as instruments to safeguard biological diversity and ecosystem functioning.

The Andaman and Nicobar Islands have 105 protected areas, of which 15 have been categorised as MPAs i.e. PAs that are primarily marine systems or those having significant marine influences (Category I and II). Additionally, the Nicobar Islands were declared as a tribal reserve in 1956, which restricted external visitors and development al activities (Andaman and Nicobar Administration, 1957). However, in their current form, the MPAs in these islands – as in several other geographies around the world – are controversial spaces backgrounded by significant conflicts. As a result, while some stakeholder groups have enthusiastically promoted their widespread establishment to protect intensely harvested species while others have opposed them on ideological grounds: for instance, on account of their exclusive nature, there are difficulties with respect to implementation and there is scant attention paid to traditional use and demands for social justice. In order to understand these contestations better and assess the de facto role of the MPA system in these islands, we took up a detailed case study of two MPAs in the Andaman Islands. This exercise aimed to move beyond simplistic evaluations and instead, attempted to unpack the underlying assumptions, the extent to which principles of conservation science had been incorporated and evaluate the scope for hybrid management regimes that would involve a range of stakeholders. In addition, several development policies targeting these islands are at various stages of planning and implementation such as fisheries intensification, infrastructure development, tourism promotion, etc. and these need to be sustainable. Overall, a detailed analysis of human use of

these ecosystems would be timely and relevant to ongoing efforts to design appropriate conservation and decision-making protocols.

To reiterate, the objectives of this project were to review the existing management models and identify challenges and opportunities in these management systems, through two case studies. The first was Smith and Ross Islands, one of Andaman's most popular tourist destinations and a postcard image that represents the ecosystem. It is also one of the four sites selected by the NITI Aayog for large-scale tourism. The second case study was involved the Rani Jhansi Marine National Park at Havelock, which is one of the only two marine national parks in the islands. This park, although established in 1996, has seen little development in terms of planned management, and the study attempts to look at why this has been so.

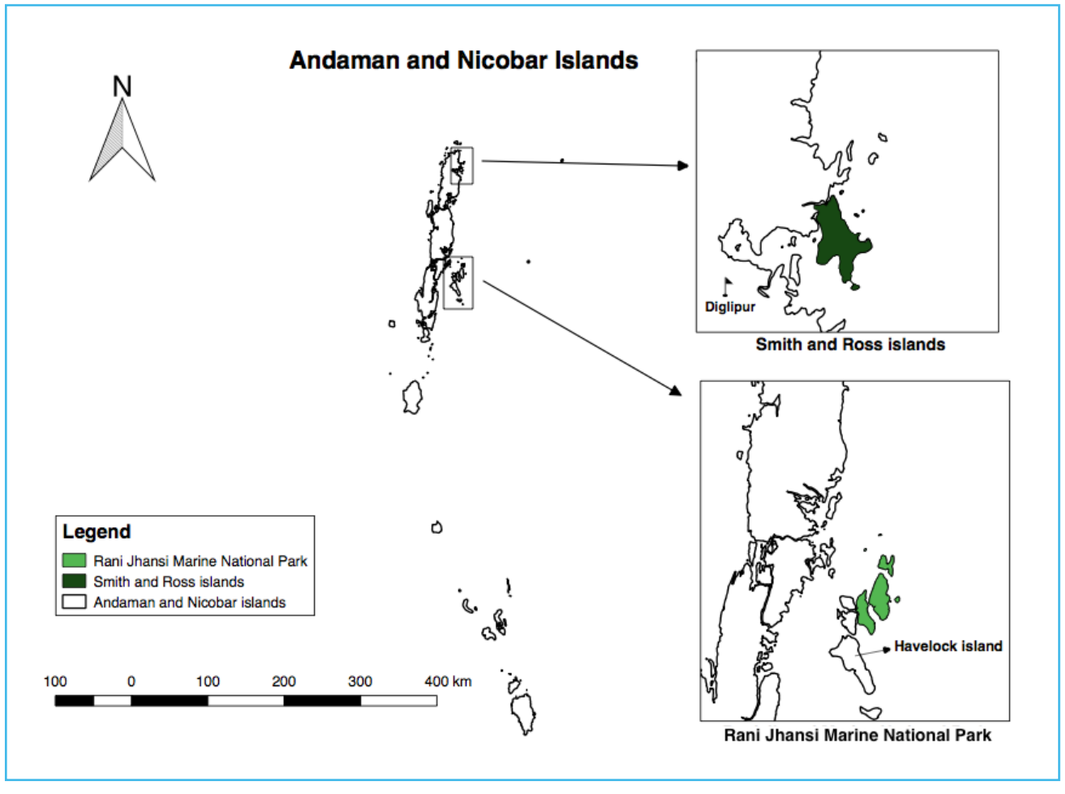



**FIGURE 1:** Map depicting the two study sites; Smith and Ross Islands and islands in the Rani Jhansi Marine National Park.



## Methodology

A rapid round of fieldwork was conducted in Diglipur and Havelock Island, from May to July 2018. It involved semi-structured interviews with the following agencies: Forest Department, Wildlife Department, Revenue Department, Fisheries Department, Directorate of Shipping Services, Agriculture Department, Tourism Department, Andaman Lakshadweep Harbour Works and the Coast Guard. Members of the panchayat, the fishworkers' union, hotels, dive shops, ferry operators, and other local residents were also interviewed. In all, 15 respondents were interviewed at Havelock Island, 21 at Smith and Ross, and 3 at Port Blair. Literature available at the Andaman and Nicobar Environment Team (ANET) library and the zonal library in Diglipur was reviewed before and after fieldwork. This included ecological assessments of both sites, management plans, protected area assessments, socio-economic monitoring reports, census data for both sites, and other relevant material. The report presented here is primarily based on our findings from fieldwork and wherever required, we have included appropriate citations from the literature review.

## Background

### Marine Protected Areas

With the conservation of marine ecosystems and coastal livelihoods gaining increasing importance at a global level, the establishment of Marine Protected Areas has become widespread. As per the Convention on Biological Diversity (CBD), an MPA is "any defined 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" (Secretariat to the Convention on Biological Diversity, 2006). Hence MPAs are established for the conservation of the biodiversity and habitats in a marine ecosystem. They can be reserves, parks or sanctuaries (Jentoft et al, 2007).

The main driving force behind the establishment of MPAs is the recognition that anthropogenic stresses on marine ecosystems have greatly increased in recent times (Carr et al, 2003). From the 1960s onwards, international efforts for marine conservation gained momentum and this led to the closure of several fishing areas, accompanied by heated protests (Kearney et al, 2012). However, it is believed that such closures preserve the source populations of many marine species and sustain populations outside the reserve too (Carr et al, 2003). But on the other hand,

owing to the variability in mobility of marine species, according to the different stages of their life cycles, it is challenging to define appropriate boundaries for an MPA (Kearney et al, 2012).

The concept of Protected Areas (PAs) for a marine ecosystems has historically been used as an extension of PAs in terrestrial ecosystems, with the assumption of similar circumstances (Carr et al, 2003; Kearney et al, 2012). However, this has been reason for setbacks in marine protection, as marine environments differ dramatically from terrestrial ones in terms of their fundamental functioning. As described by Carr et al (2003), marine environments have a far greater degree of openness and with respect to fauna, population sizes, taxonomic diversity, species distribution in terms of depth etc are all highly variable. There is also lesser sensitivity to habitat fragmentation but protection of populations outside reserves is often required. Due to the complexity, dynamicity, and vulnerability of marine spaces, management of MPAs is an especially challenging task.

In terms of management, MPAs can be conceptualised as an interaction between a "system to be governed" and a "governing system" (Jentoft et al, 2007). The system to be governed is more than just the ecological attributes - it involves "embedded" socio-ecological systems, formed by the interaction of stakeholders such as state agencies and local communities with the natural ecosystem, whose norms and values contribute to the governance and management of MPAs. These user groups have different dependencies on MPAs. The MPAs essentially impose order, rules, and regulations on such user groups. But if carried out properly, the involvement of local communities and stakeholders can help in information and knowledge sharing and provide management support to MPAs. It therefore becomes important to communicate the rationale and goals for the creating an MPA to the user groups, so as to make sure that the system-to-be-governed can be effectively involved in the "governing system" (Jentoft et al, 2007).

MPAs can also be viewed as an amalgamation of discourses from several stakeholders, each with a different use and perception of the space (Gelcich et al, 2005). In such a case, when multiple state agencies regulate MPAs, challenges of overlapping jurisdictions and contradicting perceptions can arise and add to the complexity of the scenario (Carr et al, 2003; Jentoft et al, 2007). Adhering to just one or a few of such discourses is also not a viable option in the long term and therefore developing an effective management regime can be tricky (Gelcich et al, 2005; Jentoft et al, 2007).

## Development of MPAs in India

In India, MPAs are either 'national parks' or wildlife sanctuaries' under the Wildlife Protection Act of 1972 (Rajagopalan, 2008). However, there is no distinct category defining MPAs in the Wildlife Protection Act of 1972 (Rajagopalan, 2011; Sridhar & Namboothri, 2017). The number of MPAs in India, thus varies according to how different agencies define an MPA (Rajagopalan, 2008). For example: according to the action plan on Convention on Biological Diversity, submitted by the MoEFCC and Wildlife Institute of India in 2012, all the National Parks, Sanctuaries or Reserves that are entirely or in part under the 500m High Tide Line in the marine or coastal areas, come under MPA. The Action Plan also mentions that there are 18 MPAs in peninsular India and 100 MPAs in ANI. Whereas according to the ENVIS website there are 25 MPAs in peninsular India including 105 MPAs listed in ANI as of 2016. ENVIS defines MPAs as a protected space in the ocean for its marine resources and where human activities are strictly regulated by different state agencies.

In the 47th meeting of the National Board for Wildlife, held in January 2018, the MoEFCC instructed all States and Union Territories to identify marine areas that can be made into protected areas for biodiversity conservation. The large marine areas consisting of Exclusive Economic Zones (EEZ) and continental shelves will be converted into conservation reserves. This is, in order to achieve the Aichi targets by 2020. The Aichi Target 11 sets the goal for nations to declare 10% of marine and coastal areas as Protected Areas.

## MPAs in the Andamans

The government plans to promote conservation of marine areas especially across the islands through community-based tourism. This is a part of the holistic development of islands in India. The Island Development Agency, set up in 2017 by the Ministry of Home Affairs, has identified 12 islands in ANI: North Passage, Cinque, Inglis, Viper, Bharatpur beach, Ramnagar beach, Karmatang beach, Dhaninallah beach, Kalipur beach, Rutland, North Bay, and Great Nicobar-B quarry. According to a press release dated April 2018, the Ministry of Home Affairs has declared that projects in Smith, Long, and Aves islands were ready to be launched.

## Management of MPAs in the Andamans

In 1984, the GOI commissioned the Wildlife Institute of India to review the adequacy of the existing network of PAs in the country, so that the assessment could be used to inform plans for improving PAs. The project conducted a detailed analysis of baseline biogeographical information, species conserved, status of PA coverage (both wildlife sanctuaries and national parks), and then presented recommendations based on the gaps identified. One section in particular focuses on PAs in island ecosystems: Lakshadweep and the Andamans (Planning a Protected Area Network, 1984).

The 1984 report differentiates the Andaman ecosystem from that of Lakshadweep by stating that the former is far more sparsely populated, with the presence of evergreen tropical forests, as

opposed to the densely populated islands of Lakshadweep where little natural vegetation is said to have remained. However, this study is limited to terrestrial protected areas. Marine protected areas, few as they are, have generally been overlooked as a part of the Protected Area network of the country. Therefore, although this study spells out the status and gaps of the PAs in India fairly comprehensively, they fail to capture marine spaces, which may have produced vastly different results. Still, some of the gaps and recommendations made in the report may perhaps be applicable to MPA as well. For instance, placing of personnel on outposts or demarcation of boundaries remains inadequate in marine spaces and a cause for contestation. Often, the boundaries are not even clearly identified, let alone demarcated on water (Planning a Protected Area Network, 1984).

## Management of Mahatma Gandhi Marine National Park

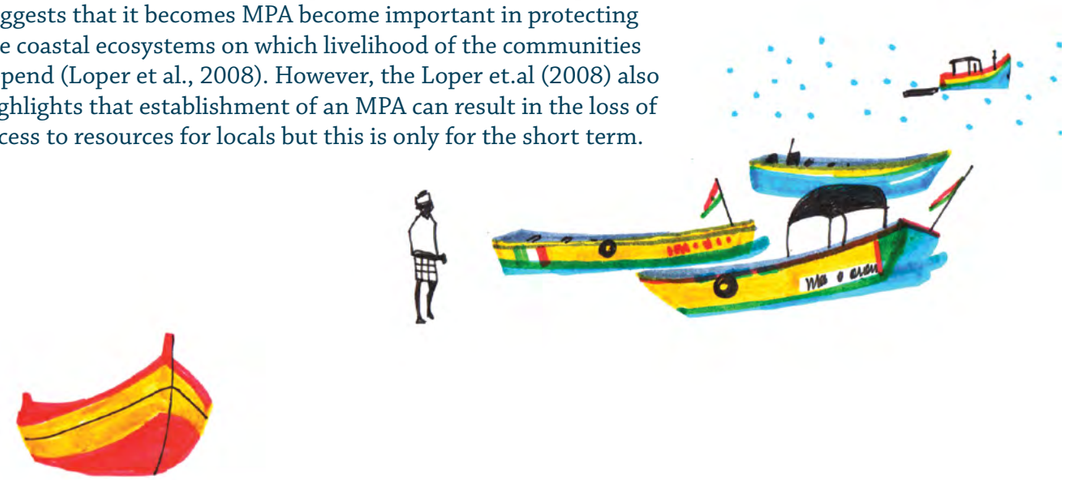
The Mahatma Gandhi Marine National Park (MGMNP) is at present, the only marine protected area with a written and updated management plan. The first of the management plans for MGMNP aims to scope out the existing state of conservation in the national park, the baseline ecological information, as well as socio-economic conditions of the space, and accordingly set goals and conditions for the management of this space so as to ensure conservation of biodiversity. Its objective is to "protect and preserve biodiversity and their ecosystems, to restore habitats, to maintain biological productivity and enhance benefits to villagers (MGMNP Management Plan, 1997-2002)." This objective also highlights the effects of the protected area on the wellbeing of the community that shares this space. However, "benefit" in this case can be interpreted in several ways, the implementation of which would depend upon the interpretation of the concerned management authority.

The management strategy stresses on implementation through demarcation of boundaries with buoys and boundary pillars. Another important strategy is the management of a buffer zone around the park, which would be designated for tourism and recreational activities to "preserve the genetic diversity and protect the natural features of the area" (MGMNP Management Plan, 1997-2002). The association of recreational activities with the conservation of biodiversity suggests that the intention of the planners was to promote ecotourism within the park.

The plan is also explicitly in favour of tourism development, and states that tourism must be opened up in more islands, as it boosts the local economy and generates employment and increases revenues. It therefore aims to expand tourism activities from Redskin and Jolly Buoy to Chester and Alexandra islands. Additionally, the plan briefly mentions the need for administrators and enforcers of protection in the park to be armed with weaponry so as to carry out protection more "effectively" (MGMNP Management Plan, 1997-2002). The plan also divides the protected space into zones, intended to segregate usage of the space. These zones are the core, buffer, and multiple use zones. The core is further divided into the biological zone, scientific zone, and the research zone, each of which are supposed to be monitored regularly. The buffer zone is set aside for tourism and recreational activities and is classified further into the water quality and replenishment zone, recreation zone, and education zone. The multiple use zone is outside the boundaries of the marine park and is not meant to be under the same management system (MGMNP Management Plan, 1997-2002).

Another study, conducted recently in early 2018, aimed to understand the perception of communities with respect to MGMNP, and highlights loopholes in the management of the park (Mondal, 2018). For example, there is no clarity on the boundaries as well as the restrictions over the use of the park by local communities. The report suggests that local communities are neither consulted by the authorities with respect to managing the park, nor are their grievances addressed. Communities felt that tourism is the central focus of the authorities and so most of the infrastructural development in the park is only for the tourists. Though tourism has also benefited locals to some extent, it has brought more restrictions on their access to the park. For instance, fishermen were asked to stop using the Wandoor jetty, which is now meant for tourists only. The report also highlights inadequate management practices of the authorities. For example, a crocodile attack was reported from inside the safety nets which were installed in the water just a year ago - this indicates a lack of understanding of safety measures and poor control over animal-wildlife encounters within the park.

The SocMon report by Loper et al. (2008) on the socioeconomic assessment in South Asian countries, including India, Pakistan, Maldives, Bangladesh, and Sri Lanka, show a heavy dependence of coastal households on the marine resources, especially for those who live below the national poverty line. Fisheries constitute their main source of protein. Therefore, the report suggests that it becomes MPA become important in protecting the coastal ecosystems on which livelihood of the communities depend (Loper et al., 2008). However, the Loper et.al (2008) also highlights that establishment of an MPA can result in the loss of access to resources for locals but this is only for the short term.



# Smith and Ross Islands

## Description and History

The connected islands of Smith and Ross, located in the North Andamans, are amongst the most popular tourist destinations in the archipelago and well-known for the sandbar that connects them to each other and is visible at low tide. The islands are a part of the Sagardweep forest beat of the Diglipur range. Smith also comes under the marine beat.

From the 1970s onwards, the government decided to convert most small and uninhabited islands into wildlife sanctuaries and reserves, so as to protect them from commercial development. As a result, Ross was notified as a Wildlife Sanctuary in 1987. The island spans nearly 101 ha. Smith, on the other hand, covers an area of 2470 ha. It is inhabited by three villages, namely Sagardweep, Balu Dera and Smith, all under the Diglipur tehsil. Of the three, Sagardweep is the main revenue village. In 2008, the forest land in the Smith Island excluding Sagardweep village was notified as Reserved Forest area (Annexure VII, Vol. 2, Working plan Diglipur, 2016-17 to 2025-26). Smith Island now has 2105.73 ha. of Reserve Forest area, and 364.27 ha. of non-forest area. Additionally, around 65 ha. of land has been encroached post 1978 by individuals, according to the Working Plan of Diglipur.

In the late 1780s, the British administration ordered a survey of ANI, owing to its strategic importance and the availability of natural resources for the use of the East India company (Roychowdhury, 2004). In 1792, Archibald Blair identified Diglipur, then known as North East Harbour, as an ideal location for British colonisation (Roychowdhury, 2011). However, their attempt to start the settlement failed due to unfavourable weather conditions and constant sickness and mortality because of malaria (Roychowdhury, 2004). The British eventually left the island. But after the 1857 Indian mutiny, they started bringing the convicts under the Penal settlement code to Port Blair (Roychowdhury, 2004). Settlements in the Diglipur area go back to the post-independence period when in 1952, the Bengali refugees from East Pakistan were settled in the uninhabited parts of Andamans (Mujtaba, 2013; Roychowdhury, 2011).

From 1956 onwards new colonies of Bengali refugees were established in Diglipur and Smith Island. They were given loans to buy livestock, agricultural inputs like seeds, manure and build their houses. However, many left Smith Island because at

high tide they remained isolated from Diglipur, where the rest of their family was based. Considering the outflow of people and availability of 125 acres of paddy fields in Smith Island, in the early 1960s, the government started settling tribals ("the Ranchis") from the Chotanagpur region of Bihar. They were employed primarily by the Forest Department and the Public Works Department. Initially, there were 20 Ranchi families on Smith Island (Roychowdhury, 2011). Today, the name of the settlements in Sagardweep village in Smith Island are known by the number of families that were settled there, like

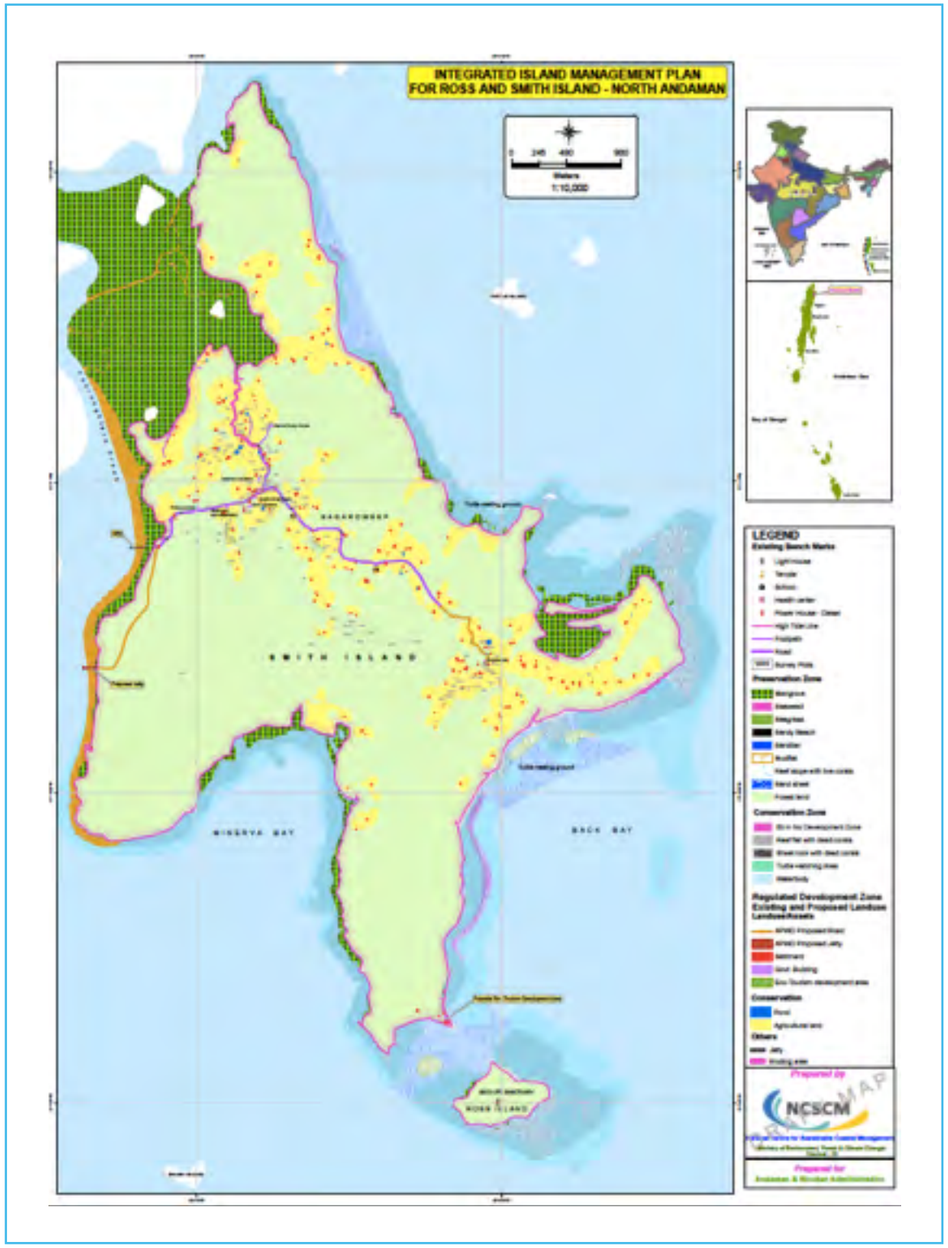



**FIGURE 2:** A detailed map of Smith and Ross Islands (Source: Tehsil Office, Diglipur)

"17 families", "8 families", etc. It was later reported that these settler families were increasingly encroaching into the forests.

In the early 1990s, the government regularized up to 1 ha. of land per family that had lived there before 1978. In reality however, people were often in possession of extra land, up to 2.5 acres, that was not declared to officials. In 2002, the Supreme Court, with the recommendations of the Shekhar Singh Commission, passed an order for such families to vacate their encroached land and move to the lands that were officially allotted to them. The families had old coconut plantations on the encroached land and therefore it was established that since these trees were older than 40 years, the land must have been in possession for just as long. There was a litigation filed against the eviction order and the case remains unsettled. But most families have now sold their land and moved to Diglipur.

According to tehsil office of Diglipur, about 90% of land licenses or patta in Smith Island has been sold to buyers from the mainland. Some families continue to stay there to look after it on behalf of the buyers. In recent times, around 40 to 50% of the land bought is in the name of two sister private companies based in Delhi. The tehsil office, however, does not have records of any individuals in possession of land on Smith. According to the norms of the tehsil office, they can only sell land to companies that are "determined to develop Andaman and Nicobar Islands" like the Andaman and Nicobar Islands Integrated Development Corporation Limited (ANIIDCO). The National Institution for Transforming India (NITI Aayog) and TATA, who are also interested in high-end tourism ventures, are acquiring land through ANIIDCO. Therefore, the islands of Smith and Ross are now amongst the main targets for this high-end tourism whilst also being presented as model islands for biodiversity conservation since they harbour a Wildlife Sanctuary. Management of conservation and governance in this environment is likely to see a drastic shift as a result of these plans.

## Existing Management System

### Institutions and stakeholders involved

The nature of protected area establishment and management in India today remains state-centric, wherein all mechanisms are directed from top to bottom, i.e. government departments, under the supervision of the central government, hold the monopoly over governance and functioning of protected spaces. Such a scenario is also present at the Ross Wildlife Sanctuary, the Reserved Forests of Smith Island, and the seas that surround them. The Diglipur Forest Division is largely in charge of monitoring the space for land encroachers and for the implementation of the Wildlife Protection Act of 1972 by

checking the hunting of Schedule I species. They also set the boundaries of the Protected Areas and the rules for what activities may be permitted within these boundaries. For instance, the Forest Division at Diglipur has prohibited fishing around the Ross Wildlife Sanctuary and tourists are allowed to visit the space during a given timeframe. The Forest Department employs one Ranger who patrols Smith island once or twice a week. The Wildlife Department also has a check post to issue permits to tourists visiting Smith and Ross Islands. There is only one staff from the Wildlife Department posted at Ross Island, who goes to the island up to thrice a week. The Department of Fisheries oversees fishing activities around the area, issues licences, regulates catch and ensures that fishermen do not cross state boundaries or bring in protected species. The Department of Tourism oversees the coming and going of tourists and tourist boats from the island, while also issuing permits for the same.

Since ANI is located along the international boundary, the Coast Guard has a regular presence on the islands to ensure maritime law and security. It is meant to work in close cooperation with the Indian Navy, Department of Fisheries, and the Revenue Department of the local administration. In Diglipur, the Coast Guard regularly patrols the area, checking for irregular vessels and making sure of the safety of passengers. Only if requested by the Forest Department do they take on additional duties such as preventing the entry of a vessel into a specified area.

The role of communities in this system of management remains limited. The Forest Department has primary control while other stakeholders, specifically local communities, are merely meant to play by the rules in order for the management to function effectively. As it stands, community engagement is restricted to notifying the Forest Department if and when people notice deviant activities such as poaching taking place in the Protected Area (PA), after which the Forest Department can take action.

## Funding

As described in the previous section, the Forest Department is almost entirely in charge of initiating management and conservation measures within the PA. Therefore, funding for the same comes from the Central Government and the regular funds diverted to the department for carrying out their functions. As per the Forest Division of Diglipur, they have so far received no external or project-specific funds from national or international NGOs, trusts, etc. However, the collection of fines, permits and entry fees for Protected Areas also serves as another valuable source of income, indicating the department's reliance on tourism as a source of income.

**Children catch small fish along the jetty at Kalipur while their fathers are out fishing at sea.**

## Rules and mechanisms of management

Governance and management of a space typically consists of both hard and soft rules. The former being legally binding, and the latter inclined towards non-binding social norms. At Smith and Ross, hard rules as described by the Island Coastal Regulation Zone (ICRZ) notification of the Environment (Protection) Act of 1986 are imposed, such as a no-take policy for fishing within 500m of the High Tide Line around the island, in addition to the ban on private development and water sports in and around Ross Island. On Smith Island, a designated tourism area controlled by the Forest Department is maintained solely for tourist visits, swimming, and snorkelling along the shore.


**The designated tourist site at Smith Island.**


**Forest Department board for tourists at Smith Island.**

However, tourists are generally discouraged from entering the Revenue Forest area of the island, where the villages are located.

Similarly, a price mechanism is used to keep most locals away from the tourist areas and the Wildlife Sanctuary on Smith and Ross Islands. The price of the permit required by the Department of Tourism for tourists to enter these areas is set at a rate which is only affordable to mainlanders or foreigners. Local families often cannot afford these permits and have therefore stopped visiting the islands as often as they did before the imposition of these permits in the 1990s. Additionally, regulation by the Department of Tourism only allows for private boats to ply to the sandbar between Smith and Ross Islands. The rent for these boats is as high as Rs.3,500 for a group of 5 people, which again is too expensive for most locals. The islanders feel that the imposition of price barriers is a result of the government's attempts to

sanitise the space of locals who make it “dirty and crowded”, in order to maintain its attractiveness to tourists from outside.

Some rules, however, are skirted by means of bribes and friendship between fishermen and wildlife staff, which allow for occasional or late-night fishing in the waters around the sanctuary.

## The Role of Tourism

Tourism, in fact, is responsible for the current management plan at Smith and Ross. With the advent of high numbers of tourists after the 80s and the growing focus on Smith and Ross, the Forest Departments notified the space as a sanctuary, and began to regulate entry and activities in the area to maintain its recreational and biological prestige.

After the 2004 tsunami, the central government started promoting intensive tourism in the Andamans. Smith and Ross Islands were shortlisted for these developments. According to a 2008 report titled “Rethink Tourism in the Andamans - Towards Building a Base for Sustainable Tourism”, in order to promote post-tsunami tourism in ANI, the Department of Information, Publicity, and Tourism identified 50 sites spanning 15 islands in the Andamans. Protected Areas overlapping with these sites were later excluded from the plan as a result of objections raised by the Ministry of Environment, Forest and Climate Change (MoEF&CC). Finally, 23 sites were shortlisted, including Havelock (Kalapathar, Vijaynagar, and Radhanagar districts) and Smith and Ross Islands. The report also mentions that the government of India issued a memorandum in 2005 to introduce Leave Travel Concession (LTC) for central government employees to visit ANI, which led to a boom in the number of visitors to the islands.

In 2002, the Shekhar Singh Commission, appointed by the Supreme Court, submitted a report on the status of forests and other allied matters in the Andaman and Nicobar Islands (Annexure XLI, Working Plan of Diglipur, 2016-17 to 2025-26). The report specifically mentioned concerns about the impacts of tourism in the islands. It highlighted problems related to the limited resource availability in the islands, required to sustain the growing tourist influx. The report also mentioned that the benefits from the tourism industry to the locals are minimal, and therefore recommended a focus on ecotourism. Further, it also suggested that tourism infrastructure in the forests should be made of makeshift material such as temporary wooden structures, which should be managed by the Forest Department.

The ecotourism projects come under the schemes of the central government and Five-Year Plans, for which the Forest Division is in charge of making proposals. The objectives of ecotourism largely

**Many fishing boats set out from Kalipur jetty. Smith and Ross Islands in the backdrop, only a few hundred meters away.**

focus on promoting tourism activities that will create employment opportunities for the locals while preserving biodiversity and help in creating a knowledge base of the environment and culture.

At present, Saddle Peak National Park, Smith and Ross Islands, mud volcanoes at Shyamnagar, Kalipur, Lamiya Bay and Ramnagar beaches are popular among tourists in Diglipur (Chapter XII, “Ecotourism Overlapping Working Circle”, working plan of Diglipur). Smith Island, Ramnagar, Kalipur, and Lamiya Bay are also well-known turtle nesting grounds. The Working Plan therefore proposes ecotourism as a solution to reduce the human-wildlife conflict. The Green sea turtle, Hawksbill, Leatherback, and Olive ridley turtles are Schedule I species under the Wildlife Protection Act 1972 but they also attract tourists during the hatching season. They are considered perfect subjects for ecotourism so the working plan lays out provisions for tourists to witness turtle hatching, with specifications on how their accommodation on the beaches must be constructed so as to prevent overcrowding and disruption to the turtles.

Under the Swadesh Darshan scheme of Ministry of Tourism, coastal circuits between Long Island, Smith and Ross Islands, Havelock Island, Baratang Island, and Port Blair are now underway. The vision of this scheme is to make India a globally popular tourist destination by promoting its culture in an ecologically sustainable way through theme-based tourist circuits that will be able to bring economic development to local communities. In ANI, 42.19 Crores was sanctioned in 2016 for a 24-month long project focusing on improvement of facilities at beaches, scuba diving centers, transportation in Andaman, etc. Similarly, the Sagarmala report on Human Resource and Skill Requirement study for 21 coastal districts of India by Ministry of Shipping and the National Skill Development Corporation has identified tourism as one of the key drivers in ANI. 592.15 crore INR is proposed to be invested in over 10 tourism projects in South Andamans. In Havelock and Neil Islands, resorts of the “highest standards” have been proposed.

**Eco-friendly huts constructed by the Forest Department on Smith Island.**


## NITI Aayog and the Future of Tourism

NITI Aayog, the central government’s think-tank, has clearly stated its intention to promote tourism in Smith and Ross, Long and Aves Islands. This is a part of a three-year action agenda for 2017 to ‘20 for the regional development of coastal areas that are otherwise geographically isolated from the mainland, and to put the Andaman Islands on the global map of high-end tourism. It has made a final ‘site development potential’ report, concept development plans and detailed master plans for the holistic development of these three islands. The report draws parallels with beach tourism in Bali, Sentosa, and Antalya and

aims to replicate in ANI to attract foreign tourists. The master plan also has recommendations for building high-end hotels and resorts in partnership with private investors. For instance, in Smith Island, a jungle resort will be constructed on 25 ha. of revenue land in Sagardweep village. The resort will have tree houses facing the beach and camps with luxurious facilities. In addition, there will be activities like snorkeling, scuba diving, game fishing, etc. and Aerial Bay will become a water sports training site.  Land-based activities for tourists like trekking trails, bird-watching, and light houses are planned for Ross Island.  The plan also sees potential in starting agro-tourism, cultural tourism, creek tourism, film tourism etc in Smith Island. The report predicts that the development of tourism and supporting infrastructure will initiate development in Smith Island and holistic development of ANI in general. These plans will can trigger significant changes in the land use, demographics, stakeholder engagement and overall management of space. Smith Island is also a turtle nesting site. Such massive plans by the NITI Aayog will also significantly affect the ecology of the islands.

# Challenges for Management

### Intersecting jurisdictions

Within the space of Smith and Ross Islands, there lacks a single authority or system of management. Different activities and procedures are regulated by different departments, often without consultation or awareness of each other's activities. For instance, although fishing is regulated by the Department of Fisheries, the catch of some species such as those on Schedule I of the WPA is regulated by the Forest Department. Additionally, the tourist area and infrastructure of Smith and Ross is almost entirely governed by the Forest Department. However, for the tourists who do visit, the activities conducted in that space and how it is used is entirely under the purview of the Department of Tourism.

### Limited role of government staff

Besides the existing staff shortage, another problem faced by MPA managers is that the few staff who are employed to patrol Smith and Ross, have limited roles in terms of marine protection. First, their duties are restricted to terrestrial areas. Patrolling on water is only conducted by the Coast Guards, who patrol mostly for external invasions and not conservation or protected area management. Additionally, the duties of this staff with respect to conservation are limited to charismatic species protection, such as extra patrolling and watch during the turtle hatching season.

### Lack of public facilities and infrastructure

Owing to the small population and remote location, the islands face a shortage of public infrastructure. There is limited public

**Forest Department *mazdoors* head to Smith Island to survey trees.**

**Forest Department staff travel to Smith Island in a *dunghi* to begin their daily patrols.**

funds, access to freshwater is meagre on isolated islands, transportation is vulnerable to the changes in weather, and communication is slow if not impossible given the sporadic networks. All of these issues of public infrastructure, amongst others, render the carrying capacity of the islands low. Furthermore, this also makes it difficult to develop management systems as the labour and infrastructure required for regular monitoring seems low. But in the wake of the NITI Aayog plans, the government plans to increase the footfall to Smith and Ross Islands from the current 100-150 a day to nearly 1000 per day. This can potentially worsen the existing problems unless they are addressed in a systematic manner.

### Boundaries

In marine areas, defining boundaries is still one of the biggest challenges for governing bodies. Firstly, the fluid nature of marine spaces and the constant movement of ecological components makes defining boundaries in the ocean more complex than on the ground. Additionally, the cost of physically demarcating these boundaries (if defined) with buoys or boat lines is also high. Given that the Forest Department is already low on funds and labour, boundaries remain undefined in most MPAs. This also means that enforcement of rules within a space is difficult. For instance, fishermen often claim that they do not know where the no-take zone ends, and they feel they are penalised unfairly when caught fishing inside it.

### Limited role of the community

It is difficult to govern and manage a space effectively without the support and involvement of the community that lives in and uses the place. At Smith and Ross, however, this involvement is nearly non-existent. The community has little engagement with the management mechanisms in the islands and bears the brunt of being excluded as formal users of the space. Although a few meetings have taken place between fishermen and officials from various departments, these engagements are infrequent at best (once or twice a year) and are held mostly for officials to give out instructions. However, complacency can be observed at both ends, as the fishermen too have found their way around the rules through bribery and subterfuge, and so have few formal complaints to bring up during these meetings. For instance, a fisherman described his only problem as that of the Coast Guard boats going too fast around the fishing zones, which scared the fish away.

On the other hand, another reason for their inactivity in challenging the methods of public affairs was described by them as the inability to speak out or protest in public. This was due to the small and close-knit nature of these communities, wherein reputation and sentiments of public image were strong, and engaging in protests is seen as an embarrassing activity.

# Rani Jhansi Marine National Park

## Description and History

Ritchie's archipelago comprises of Havelock Island, Neil Island, Peel Island, Sir Hugh Rose Island, Inglis Island, Henry Lawrence Island, Wilson Island, John Lawrence Island, Nicholson Island and Outram Island, in the South Andamans. The islands are named after British officers who had a role in suppressing the 1857 mutiny and RJMNP is named after Rani Laxmibai of Jhansi who fought against the British (Chandi et al., 2012). The renaming of islands has been critiqued by Sekhsaria (2017), who mentions that the islands have been renamed by the administration considering only 150 years of history, which overlook local culture and language of many thousand years. Chandi et al (2012) also concur that RJMNP was named by strategists in Delhi, with little idea of the historical context.

In an attempt to make all uninhabited islands in Ritchie's archipelago part of a National Park to preserve their ecosystem (Chandi et al., 2012), Rani Jhansi Marine National Park (RJMNP) was notified. It includes Henry Lawrence (2534 ha.), John Lawrence Island (1621 ha.), Outram Island (772 ha.), Inglis Island (137 ha.), North Button Island (17 ha), Middle Button Island (17 ha.), and South Button Island (1 ha.). North Button, Middle Button, and South Button Islands were recently included in RJMNP, in 2017. Apart from Neil and Havelock, all other islands grouped in the MPA are declared Reserved Forests and remain uninhabited as of 2018. There have, however, been cases of illegal extraction of timber, hunting for venison, and extraction of other natural resources in Outram, Henry Lawrence and John Lawrence Islands (Chandi et al., 2012). Cases of Burmese poachers entering the area have been reported from John Lawrence (Management Scheme of RJMNP).

In his book, Roychowdhury (2011) notes that in 1961, Bengali refugees from East Pakistan were settled in Havelock Island. The families were allotted 5 acres of paddy field for agriculture in the Havelock Island (Roychowdhury, 2011). Eight years later in 1969, fishermen communities from Andhra Pradesh were settled in Havelock (Chandi et al, 2012).

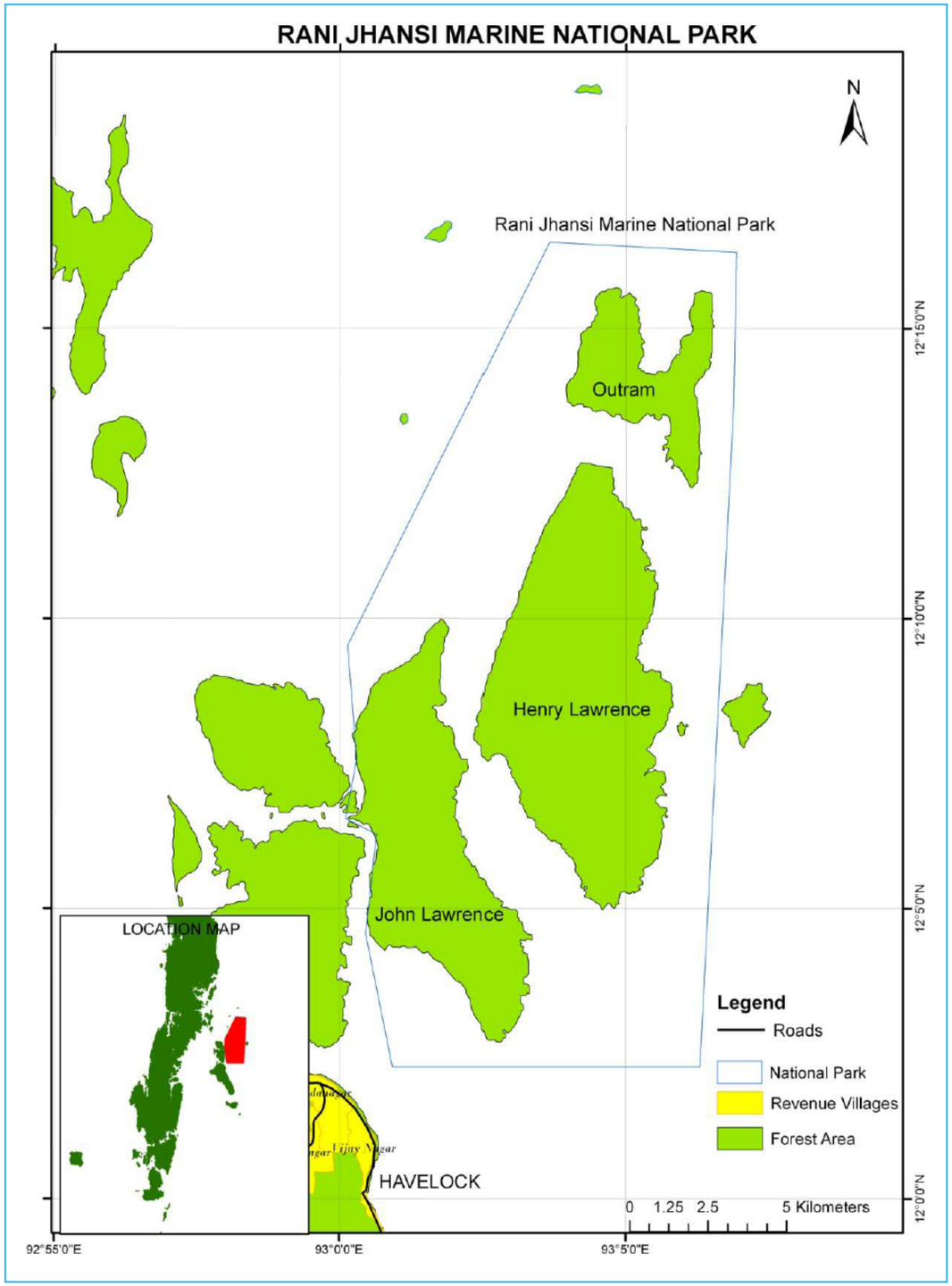



**FIGURE 3:** Rani Jhansi Marine National Park. (Source: Gazette of India, 2016)

# Existing Management System

## Institutions and stakeholders involved

The Forest Department remains largely in charge of managing the Rani Jhansi Marine National Park (RJMNP). After it was notified in 1996, the Forest Department has been responsible for patrolling the islands within the park, establishing the rules of usage, enforcement of the Wildlife Protection Act, and regulating activities that are allowed within and around the park. RJMNP falls under the Havelock forest division, which was a part of Baratang division until 2007. The wildlife wing of the Forest Department of Havelock is further classified into 3 divisions: John Lawrence, Henry Lawrence, and Outram. RJMNP falls under the jurisdiction of the John Lawrence division, which further consists of 2 foresters, 2 forest guard, and 1 ranger, all of whom are stationed at the Krishna Nagar office, on Havelock Island. Their duties include patrolling the islands and surrounding waters of RJMNP.

The presence of a shipping and boat lane that cuts through the marine park means that the Coast Guards too aid with the surveillance of this region by being on the lookout for vessels that stray out of this designated shipping lane.

The Department of Fisheries is meant to ensure that each licensed fishing vessel contains a GPS tracker that records the whereabouts of the boat and whether it has kept away from protected areas. This GPS tracking system is also enforced by the Department of Tourism with respect to game fishing boats. Such boats are required to submit their GPS track to the department after each trip, to ensure that they have remained within the area for which they received a permit.

Since tourism is, at present, forbidden within the park boundaries, the Department of Tourism plays little role in the management of the park. However, the recent imposition of the Inland Vessels Act requires dive institutes to acquire specific boats with licenses issued by the Department of Tourism. This gives the department a major role to play when it comes to people visiting dive sites around the marine national park. Despite there being a supposed ban on tourism activities within the park, some frequently visited dive sites are actually located within the park boundaries. On the other hand, with about 200-250 dive shops at Havelock, diving is one of the most active industries because it is popular with a majority of the tourists who visit the island.

Finally, as probably the most popular tourist destination in ANI, tourists at Havelock form a very important constituency from a governance perspective. In 2004, Radhanagar beach was declared “Asia’s Most Beautiful” beach by Time magazine. Since then, Havelock has become a popular destination

("Rethink Tourism in the Andamans: Towards Building a Base for Sustainable Tourism", 2008). Although not formally allowed into RJMNP, tourists are responsible for supporting the most widespread form of employment i.e. shops and private tourism. Tourists are therefore responsible, through their consumption patterns, for the direction in which developmental activities and management of spaces are planned. For instance, owing to the growing popularity of Havelock as a tourism destination, the local economy has accommodated to the same and a majority of the occupations on the island now rely on the tourism industry. The local administration too has taken this into account and aims to expand tourism and encourage local businesses by issuing more licences and encouraging the opening up of protected areas to ecotourism. Along the same trajectory, the new management plan for RJMNP, currently in the works, also emphasizes opening up the park to tourism.

### The role of the community

With the growth of tourism in Havelock, residents are also finding more opportunities in the tourism sector. There has been a shift in the occupational pattern, from agriculture and fishing to tourism and its associated industries, namely hospitality, water sports, and transportation.

After the tourism and hospitality industry, fishing and agriculture serve as the predominant sources of income for the inhabitants of Havelock. However, interactions between the authorities and communities are restricted to the giving and taking of instructions respectively. The forest department holds meetings about once a year, to update communities on the regulations of the park and ensure that they are followed. However, unionization of the fishing community has led to the formation of the Havelock Fishermen's Association. According to this association, the Forest Department began strictly regulating fishing sites and preventing entry within RJMNP only 5-6 years ago, which led to a sudden decline in the area available for fishing. Additionally, boats were not allowed to be anchored or berthed along the shores of the RJMNP islands.  This added to the strain on fishermen, as they often need to stop at these islands in case of bad weather or when they run out of rations. There were also tussles regarding the demarcation of boundaries, as the Fishermen's Association threatened the Forest Department stating that they too could write to the Supreme Court complaining that no-take zones cannot be enforced without defining and demarcating boundaries in the first place. After this, the attitude of the Forest Department towards no-take zone fishing has become comparatively flexible.

### Rules and mechanisms of management

As previously mentioned, the Forest Department has established that activities such as fishing, water sports, and tourist visits are prohibited within RJMNP. Before RJMNP was notified in 1996, fishing grounds were a common resource.

But the idea of making a national park was conceived by the authorities without involving fishermen (Chandi et al, 2012), and therefore, the rules of the park reflect the same.

Vessels that pass through the national park via the shipping route are also not permitted to halt, and the crew cannot disembark from the boat. Local dunghis can stop on the shores of the islands only to replenish their stock of freshwater while on a trip but cannot venture further inland.

While the Forest Department prohibits fishing within the park, little can actually be imposed without defined boundaries, as is the case at present. Therefore, fishing within the park still continues to some extent. Moreover, the Department of Fisheries does not impose any restrictions on gear, size, and quantity of catch.

Diving too still takes place within the park, despite a supposed ban on diving within 3 nautical miles of the Marine National Park. During the issuing of licences for diving, it was reported that neither the Departments of Tourism or Fisheries mentions the existence of a Protected Area and the rules about entering the same. There are also no restrictions on time spent at sea during a dive, whether in or around the marine national park. However, the only restrictions placed on the divers themselves (in terms of time of dives, depth, and gear) are all for health concerns and have little to do with their physical presence inside a Protected Area.

### Funding

A majority of the funds for managing this national park come from the central government. However, the wildlife wing of Forest Department sometimes receives project-specific funds for conducting conservation programs such as a dugong conservation and research project that was reportedly conducted in 2017. At present, the Forest Department has received funds from the central government to conduct a survey of mangroves. However, due to the lack of tourism within the park, there is no revenue coming from the sale of permits to visitors. The only permits sold are to scientists for conducting research and monitoring of biodiversity, and not for tourism.

**Tourists on Radhanagar Beach, Havelock Island**

## The RJMNP Management Plan

The management plan for the RJMNP is yet to be finalized by the Forest Department, but the Havelock Forest Division has a draft version for the period 2015 to 2025. The objectives in the draft largely focus on conservation of the marine ecosystem and species. They also mention that the aspiration of local communities need to be considered and that management of RJMNP should aim to create opportunities for ecotourism and research in the future. To accommodate the diverse interests of these user groups, draft proposes the division of the national park area into different zones.

Zonation as proposed in the RJMNP management plan is as follows:

#### 1. PROTECTION ZONE

Aimed at the conservation of valuable biodiversity, the Protection Zone will be further divided into Zone 1 for protection of mangroves, Zone 2 for the conservation of coral reefs, and Zone 3, that will cover an entire benthic area. The draft does not, however, specify which activities will be conducted within these different zones, but does suggest an evaluation of the status of each zone at present.

#### 2. TOURISM ZONE

The Forest Department of ANI have made a separate "Ecotourism Working Circle" to manage tourism. The draft suggests integrating tourism, conservation, and protection that will come under Forest Department's jurisdiction. In case of a conflict of interests, conservation will be given the top priority. The revenue earned from tourism will be directed toward the management of the Protected Area. The plan also suggests starting tourism on Inglis, South Button, Middle Button, and John Lawrence islands. For example, John Lawrence Island is set to be targeted for wildlife tourism while the beaches of Inglis Island will be opened for recreational activities like diving, snorkeling, boat operations and swimming. The beach will be further divided into different zones that will be demarcated by floating buoys.

#### 3. MULTIPLE USE ZONE

This zone comprises of all the areas that are not covered in either the Protection Zone or the Tourism Zone. The draft plan does not specify which activities will be allowed here, but it does propose an evaluation based on which there will be a proposal to introduce more such zones and bring in necessary regulatory changes.

In order to consolidate the boundary and the area of the national park, the draft plan also suggests putting buoy markers at every 1 km along the boundaries, illuminated by solar lights, so that even at night, fishermen will know when they are straying inside the national park. A transit lane has also been prescribed around the national park.

### Eco-Development Committees

A resolution was made by the government of ANI in 2011 to set up eco-development committees (EDC) for the collective management of forests and wildlife Protected Areas. Each EDC will constitute of Forest Range officer as Convenor, a Forest Guard, two adults (one man and woman) from each household, teachers and a representative each from the Panchayat, NGOs, and Wildlife Division. The operations of EDC are controlled by the Forest Department which is largely responsible for coordinating the meetings with community members, women groups, and other deprived sections. EDC will be a MoU with the Protected area management which will be responsible for the selection and demarcation of the PA area. The role of other local villagers as members of EDC is to report illegal activities. Additionally, people who lost their rights to access resources to PAs will be compensated for the loss of access. However, the EDC policy does not specify the compensation package. The funds for the EDC comes from the government, individual beneficiaries making 25% of the cost of their assets and thrift groups under social banking. EDC members will be trained as tourist guides. The revenue raised from the tourism will be used in the PA management. There are separate investment plans for individual and village-oriented activities.

## Challenges for Management

Through the surveys of the floral and faunal diversity of the RJMNP conducted by Andrews between 1993 and 1998, the final report identified that since the setting up of the park in 1996, no departmental infrastructure in terms of staff for management and monitoring had been set up. Only in 1997 did the wildlife wing of Mayabunder send a Ranger, Deputy Ranger, and one staff member to Havelock. However, the author reports that the department still did not have sufficient funds for equipment and monitoring activities in the park (Andrews, 2000).

The author therefore recommends an urgent need for the resident fishermen of Havelock, Neil, and Rangat areas to be informed about the declaration of the protected area, and the boundaries that the regulations are applied within, as the lack of awareness has led to problems in management and conservation (Andrews, 2000). However, this lack of awareness and information asymmetry persists till date.

Additionally, Rao and Khan (1989), Das (1996), Sankaran (1997), and Deb (1998) also identify large scale timber extraction, hunting and trade of animal products such as teals'

nests, shark fins, and turtle eggs, extensive deforestation, and destructive land use leading to erosion and siltation.

Additional problems identified through field research are as follows:

### Newly formed section of the Forest Department

As previously mentioned, the Forest Department at Havelock, which is the principle governing body for RJMNP, has only recently (in 2007) been made into a separate division of its own. Previously, it was a part of the Baratang division, and had little authority to make its own plans. This has also resulted in the division being new to bureaucratic processes, low on staff, and with a lack of preexisting plans. Therefore, development of a management plan for RJMNP has only since been in the works and is still being worked upon.

### Limited participation of the community

At present, local communities play a minimal role in the governance and management of the marine park and are not seen as legitimate users of the space. With little engagement and cooperation with the largest demographic of stakeholders, management plans can hardly be conceived and implemented effectively. Perhaps recognising this, the new draft management plan addresses this relationship and aims to develop groups of local management groups such as the eco-development committees (EDCs).

### Availability and quality of labour and public infrastructure

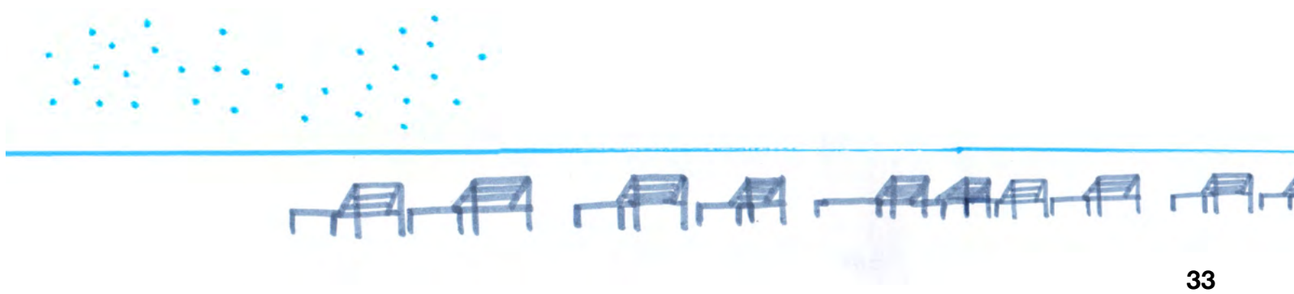
The village panchayat head himself reported that one of the biggest problems faced by the administration was the unavailability of labour to go about performing essential tasks of maintenance and public works, such as waste management. According to him, the people of the island have found niche businesses in the booming tourism industry, and hence more and more people are beginning to join the industry and get higher incomes. This leaves very few people with an income lower than that of public workers and therefore with the willingness to take up these jobs. Hence, basic construction of footpaths, collection of waste, and building public works comes to a standstill and is very slow to implement. In such a situation, it may be difficult to bring in new infrastructure or plans when existing processes are lagging behind and there is a serious shortage of local labour.

### Unclear boundary demarcations

The Forest Department has difficulties in enforcing restricted activities within an area when the boundaries for that area remain undemarcated. This has resulted in friction between fishermen and the Forest Department, as neither stakeholder is able to meet their roles and duties effectively. Fishermen are agitated because no-take zones have been forced upon them and there is no definition of boundaries - this has left them vulnerable to penalisation regardless of their location. On the other hand, the Forest Department too is unable to implement no-take zones for similar reasons. The tussles between the Havelock Fishermen's Association and the Forest Department intensified during a meeting between the two in 2015. As a result, the latter has since proposed a project for the redefinition of boundaries and the placement of buoys along the boundary lines. This project has now been approved, received funding, and will be executed by the Andaman Lakshadweep Harbour Works Department within the coming financial year.

### Disengagement with other public bodies

The Forest Department remains almost solely responsible for the management of RJMNP, with little to no interaction with other existing and potential stakeholders. Most other public bodies such as the panchayats are unaware of the existence of a marine national park around Havelock to begin with. This has created a lack of awareness that translates among other stakeholders such as tourists, divers, and other islanders, who could potentially aid in the governance and infrastructure of managing the park.



# Conclusion

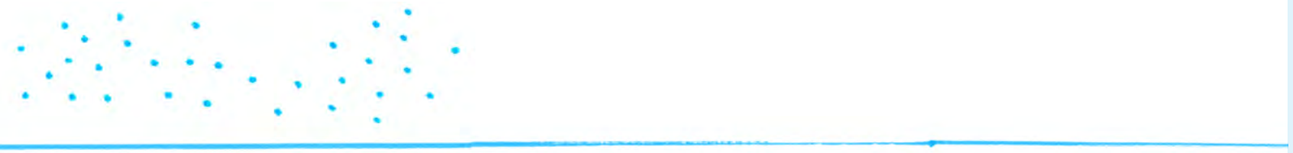
### Common challenges and opportunities

Although the nature of the protected space is very different in both sites, Smith and Ross as well as Rani Jhansi Marine National Park: one being a small but touristy Wildlife Sanctuary, and the other a large Marine National Park, some of the challenges with respect to their management seem to overlap. For instance, the lack of public infrastructure and mobility, inadequate Forest Department staffing and limited duties of those that are employed, and unclear or non-existent boundary demarcations crop up in both scenarios.

A significant problem that has also been described by literature on MPA governance is that of the imposition of terrestrial management approaches in marine spaces. If the aspects of governance as per the "interactive governance theory" can be described as a "system-to-be-governed' and a "governance system", each would heavily depend on one another. In a marine space, the system-to-be-governed remains literally fluid, with higher ecosystem complexity, diversity, dynamism, and vulnerability (Jentoft et al, 2007). This means that a governance system designed for terrestrial spaces may be inadequate in addressing the management of a marine space. However, the Indian Forest Department's vision remains aligned with that of terrestrial conservation, and this reflects in their approach to managing PAs in the Andamans as well. First, the Forest Department remains focused on the conservation of terrestrial components of MPAs as its role through history has been to preserve forests. Second, there is still an absence of a clear indication for a department dedicated to conservation and management in marine spaces. Different components of this marine space are governed by different departments, often with little coordination and overlap in plans and objectives. For instance, the wildlife division of the Forest Department remains responsible for Scheduled species in the seas, while the Fisheries Department looks after the fishermen who depend on resources from the sea, the Coast Guard is responsible for maritime security in the space, and the Department of Tourism overlooks the movement of visitors and other users of the space. Since this entire system lacks a single authority or coordinating agency, the role is taken over by the Forest Department, which still looks upon the system-to-be-governed through a terrestrial lens.

In this whole interaction, there remains little space and acknowledgement of local user groups such as fishermen in management practices. Therefore, future interventions

may perhaps be targeted at this relationship. However, such an intervention or management plan may be complex to implement, owing to the close-knit interaction between communities, ideological discrepancies, and the lack of will or forums for engagement on either end. Additionally, with the onset of large-scale tourism plans, it is imperative for administrators and private players to be made aware of these challenges, as the repercussions will be felt by all stakeholders. This will be particularly true for local communities given that they play an essential role in keeping the ecosystem and economy of the islands fully functional.





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