Changing perceptions of environmental change, vulnerability, and adaptation in the Andaman Islands

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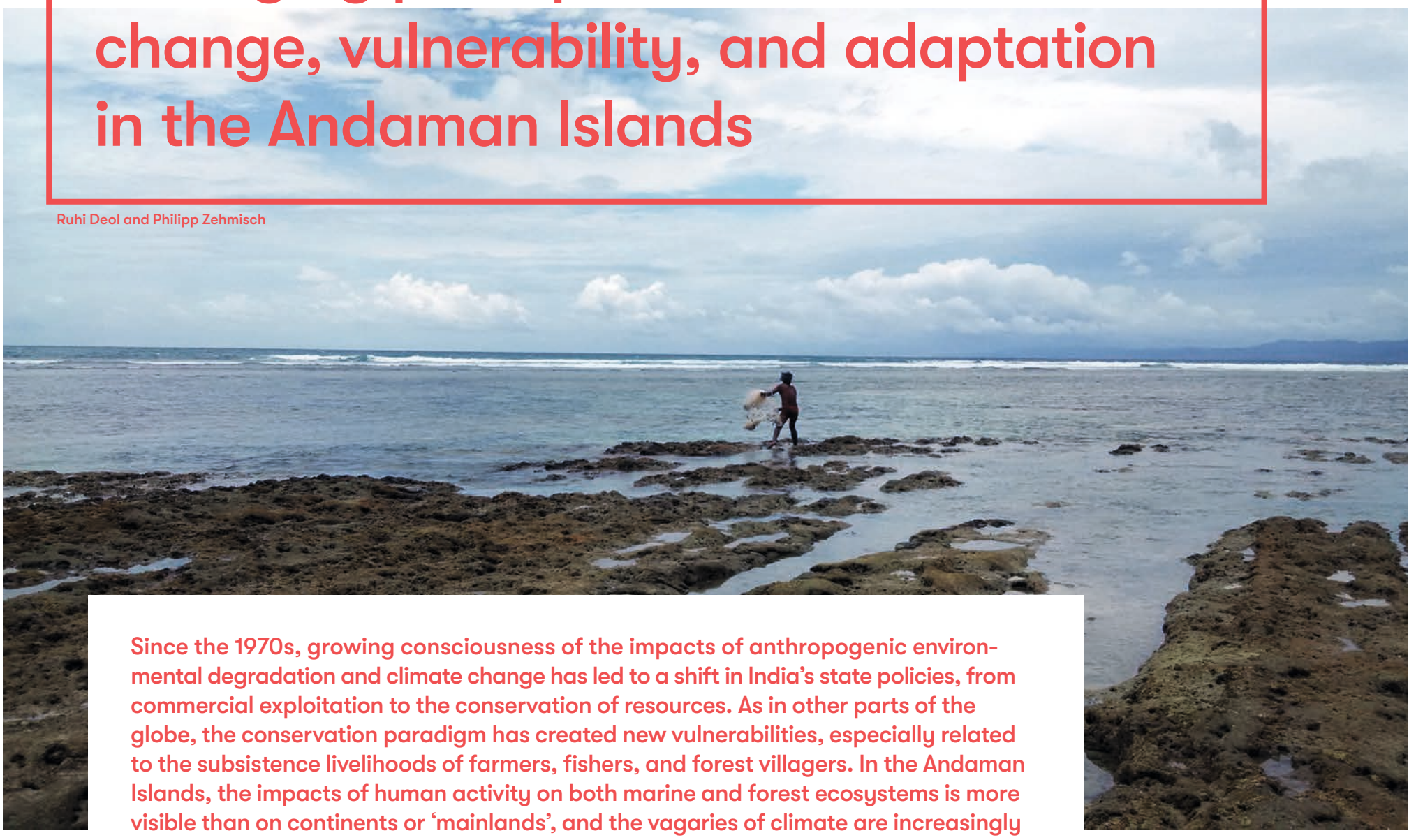

Off-shore fishing on an exposed reef in Ritchie's Archipelago. Photo by Ruhi Deol, 2016.

Since the 1970s, growing consciousness of the impacts of anthropogenic environmental degradation and climate change has led to a shift in India's state policies, from commercial exploitation to the conservation of resources. As in other parts of the globe, the conservation paradigm has created new vulnerabilities, especially related to the subsistence livelihoods of farmers, fishers, and forest villagers. In the Andaman Islands, the impacts of human activity on both marine and forest ecosystems is more visible than on continents or 'mainlands', and the vagaries of climate are increasingly felt. This article reveals in which ways aspects of the conservation discourse impact local perceptions of environmental change in the Andamans. We argue that the 2004 Tsunami functioned as a 'revelatory shock' for the island population. Accompanied by the popular conservation paradigm and the rapid rise of tourism in the Andamans, the event of the Tsunami triggered both ecological awareness as well as debates on the vulnerability of the islands' ecosystem and its populace. In some respects, local migrants and settlers internalize these vulnerabilities; in others, they develop contextual ways to cope, respond, or adapt to their changing environment.

Circulations and flows: legacies of Empire

The Bay of Bengal is a geographically and culturally diverse region. Owing to ancient forms of mobility and connectivity such as trade and periodic expansions of maritime state power, the region embodies an intersection of multiple movements of ideas, peoples, and goods. These movements intensified during the age of imperialism and colonialism, despite the Bay being (and remaining till today) a highly volatile region. Located in a level 5 seismic zone, at the edge of the Pacific Ring of Fire, and in a region of high cyclonic activity subject to El Niño Southern Oscillation (ENSO) events, the populations living in and around it are exposed to various natural hazards.

As the only large archipelago in the Bay, the Andaman and Nicobar Islands are especially susceptible to climatic and geological stressors. In recent history, they have experienced a devastating earthquake followed by a Tsunami (2004), several cyclonic storms, including the Very Severe Cyclonic Storms 'Lehar' (2013) and 'Gaja' (2018), and unprecedented coral bleaching through ENSO events (2010, 2016).

Lying between the Bay of Bengal and the Andaman Sea, these islands are also a heterodox space where cultural exchange processes, mobilities, and socio-economic activities converge. Here, assemblages of ideas, discourses, materials, and species from across the Indian Ocean world and beyond, create a unique social and cultural landscape, containing multiple histories and possible futures.

This heterodoxy has unequivocally altered the ecology and environment of the islands. The British Empire constructed the Andamans as a permanent penal colony from 1858 onwards, using convict labour to clear large tracts of tropical forests, dredge swamps, and to eventually create settlements for rehabilitated prisoners. The colonial project gained another dimension with the formation of the Andaman and Nicobar Forest Department in 1883, which aimed to capitalise on the huge potential of forestry. Timber extraction and export, especially of valuable hardwood species like Andaman Padauk, formed the main commercial activity for more than a century to follow. Andaman timber, among many other uses, adorned Buckingham Palace and formed the 'wooden backbone' of the Indian railway network. The increasing demands of the Empire, and the two World Wars in between, meant that felling increased exponentially, without any thought to scientific management or conservation. Between 1858 and 1951, the primary forests of the Andaman Islands were decimated at a shocking pace.

Territorial expansion into the forests also influenced the social composition of the islands. Increasing timber extraction in the first decades of the 20th century led to the contracting of specialized migrant labour forces from the tribal regions of central India, the so-called Ranchis.[1] Further, in 1925, the Karens from Burma were given land by the British to increase the zone of settlement to the Northern parts of the islands. The population of the penal colony and settlement grew in correspondence to the decline in numbers of the Islands' indigenous hunting and gathering communities. Thus, apart from drastically altering the ecological landscape, the colonial will to transform 'empty land' and 'unproductive' forests into commercial resources led to displacement, habitat destruction, and near-extinction of the indigenous population.[2] After India gained Independence in 1947, the exploitation of both environment and people continued in similar ways. Refugee settlers from East Bengal, repatriates from Sri Lanka and Burma, and landless communities from all over the Indian subcontinent were settled through rehabilitation and colonization schemes. In this process, roughly 5000 families of Bengali settlers were cast as "agricultural pioneers".[3] Characteristic of a specific, localised form of settler colonialism, indigenous communities and multiple species were still considered as "wilderness", and subordinated to settlement priorities. By and large, development continues to follow a land-oriented imagination and practice fashioned by mainland policy-makers. "Island vulnerability", though a key factor in scientific analyses, did not always penetrate at the level of governance.

From exploitation to conservation

The settler-colonial framework influenced policy-making processes in post-Independence Andamans on various levels, principally adhering to the imperial ideology of rendering the environment productive through subjugation and exploitation. This ideology was, however, not uncontested. During colonial times, scientists and administrators working in tropical regions had already started to warn of environmental and climate change – their warnings came especially from tropical islands where the bounded optics allowed easier comprehension of the ecological impacts of colonial plantations and timber extractions. This led to what historian Richard Grove referred to as "green imperialism";[4] protectionist ideals, which were formulated in the colonial period, continue to function as the foundation of the contemporary global conservation ideology.

Initially, both colonial and postcolonial regimes paid lip service to these ideas, but the 1960s and '70s heralded the rise of a global conservationist agenda that could not be entirely ignored. The Andaman Islands came to be gradually recognised as a bio-diversity hotspot with a high degree of endemism; a hotspot that was, however, environmentally degraded as a result of a century and a half of resource exploitation without regard for conservation. Massive deforestation, infrastructure development, and the needs of a constant flow of settlers and migrants created enormous visible impacts on the islands' ecology: the loss of multiple species; the introduction of invasive species; soil erosion; damage to littoral, coral reef, and mangrove ecosystems; and the overall disruption of a fragile ecological balance.

Around the turn of the millennium, conflicts over resource management, prevalent across India since the inception of the Forest Department, led to pressure on policy-makers to increase indigenous and environmental protection. This created a "paradigm shift" – in the words of an official – in the Andaman Forest Department, from resource exploitation to conservation of the bio-diverse eco-system. Such significant changes must be regarded as being heavily influenced by a landmark order of the Supreme Court in 2002. The order was based on a report submitted by a former bureaucrat, Shekhar Singh, who had conducted

Migrant farmer in his field, yielding uneven growth. Photo by Ruhi Deol, 2016.

a seven-week long survey about the condition of the ecology and the state of protection of the indigenous islanders. The order included, among others: a ban on logging of naturally-grown trees, with some exceptions for plantation wood and bona fide use by the local population; a ban on timber export to the Indian mainland; the closure of the Andaman Trunk Road leading through the reserve of the indigenous community of the Jarawa; stopping sand mining from beaches; the removal of post-1978 encroachers of forest land; and the reduction of immigration from mainland India. Though in parts problematic and still contested, this order had long-standing consequences for the forest and marine environments as well as the islanders themselves. It has helped the forests visibly regenerate in the last two decades. However, by redefining the institutional agenda of the Forest Department, it has also made thousands of workers redundant, increased conflicts with local businessmen, and imposed harsh measures on so-called encroachers and poachers.

Local perceptions of environmental change

This shift in policies was accompanied by the rise of tourism in the Andamans in the 1980s and '90s. According to the Andaman Tourism Department's website, the number of tourists visiting has increased from 10,000 in 1980 to almost 500,000 in 2017. The conservationist agenda was strengthened through reports and plans by environmental organizations and academics suggesting the promotion of sustainable ecotourism and development. Beyond government policies, the shrinking resources and space available to the dwindling indigenous communities became part of local discourse through journalistic and civil society endeavours. Further, interactions with tourists, service providers and government servants moulded local perceptions of environmental change. Consequently, the need to conserve the Islands' fragile marine and forest ecosystems came to be slowly internalised by the populace.[5]

Empirical evidence from our fieldwork with local communities reveals that the 2004 Boxing Day Tsunami, which devastated not only wide parts of the Bay of Bengal, but also the Andaman and Nicobar Islands, functioned as a "revelatory shock"[6] for the local migrant and settler population. This watershed event, apart from the human dimensions of damage to life and property, wrought long-term and large-scale ecological destruction to mangrove and coral ecosystems, as well as to forests and agricultural land through subsidence, inundation, and salt-water intrusion. Fifteen years later, the Tsunami remains the cataclysmic event that creates a common periodization into 'before' and 'after' in local memory and ecological consciousness. Environmental change, occurring for decades, is now more evident, and climate change, interpreted by some as being caused by the Tsunami but by most as having escalated since, has entered local discourse. Amongst others, perceptions include the decrease in rainfall, leading to drought and falling water tables, a corresponding increase in heavy rainfall events, causing soil erosion, and a rise in both land and sea surface temperatures. Farmers, fishers, and forest dwellers have started to link climate change to other environmental hazards and the idea of ecological balance (or imbalance) has gained ground.

New vulnerabilities and modes of adaptation

Changing policies and perceptions of the environment impact migrants and settlers' understanding of their own vulnerabilities, too. Forest villagers feel they are rendered socially vulnerable through the very discourse of conservation. Stricter enforcement of forest laws since the 2002 Supreme Court Order purport to protect the indigenous communities and the environment, but also vilify the settler communities. Many settlers have for decades used forest and marine resources for subsistence activities such as hunting, fishing, gathering, and utilizing forest produce for construction, etc.[7] Labelling land occupied 'with impunity' by several generations of migrants as 'encroachment' and evicting the occupants, can be interpreted to function as an attack in defence of an 'empowered forest'.

On the other hand, the Andaman Trunk Road has not been closed, in blatant ignorance of the Supreme Court order, citing its economic and development benefits. Running through the tribal reserve of the Jarawa, this road continues to be used in order to exploit the Jarawa and their land, in part through illegal poaching and hunting, encroachments, barter of illicit goods, and so-called '' 'human safaris', which implies that tourists travel through the reserve in buses or vans hoping to spot some Jarawa 'in the wild'. The selective aspects of the conservation paradigm adopted here seem to be furthering certain interests at the expense of both the settlers and the indigenous population.

Further, farmers and fishers are facing livelihood issues due to decreasing yields and catch. As policies often do not provide them with enough inputs, these communities, especially in the most popular tourist islands of the Andamans, are shifting *en masse* into the tourist business. However, the state-led agenda of promoting tourism as a panacea for economic development produces unintended and unwanted side effects. Apart from instabilities of the global tourism industry and the world market, mass tourism causes air and water pollution, waste problems, as well as rising prices for commodities and real estate.

Amongst these myriad vulnerabilities, one can identify modes of adaption on the part of the local communities. A standard response is to diversify livelihood strategies. Revenue generated through traditional agriculture and fishing, and now tourism, is supplemented by gardening, share-cropping, daily wage labour, and high-value plantations. Collective forms of organization centred on livelihoods, such as fishermen's associations or farmer collectives, have emerged and gained power. In some cases, they have challenged authoritarian rulings regarding environmental governance, such as the declaration of a marine national park and no-take zones without community consultation or participation. Further, actors have entered electoral politics on rights-based platforms, to represent their communities' interests. Forms of resistance have also emerged, circumventing administrative dominion through so-called 'black markets' for agricultural inputs, or decisions to collectively encroach forest land for subsistence activities and high-value plantations.

There is no denying that the State has played, and continues to play, a crucial role in the lives of the settlers. One can observe both collaboration and conflict between the two. Being a Union Territory, the Andaman and Nicobar Islands are governed directly by the Central Government in New Delhi, which result in more intrusive, and sometimes ignorant and alienating, decisions. The State's settlement, development, and economic policies have impacted the indigenous islanders deeply, a fact that is gaining recognition amongst the local settler population as well.

Battling environmental change and the vulnerabilities it produces can be regarded as deeply linked with social justice concerns, and must involve the participation of all the affected communities, including the indigenous populations. This needs to be a concerted effort, and foster exchange between different entities: governments and all their citizens, islands and mainland, inland and coastal communities, scholars and practitioners. Circulations and flows, perceptions of the environment, as well as vulnerabilities and modes of adaptation discussed here show similarities and contiguities with wider transoceanic and global realities. The incubation of a Bay of Bengal network presents one possibility to foster such collaboration by sharing knowledge and research across methodological, semantic, and physical borders.

Pillar of the Planet, commemorating 125 years of forestry in the Islands. Photo by Philipp Zehmisch, April 2009, Chatham Island

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Notes

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