
Building an Islandscape:
Discourse, Livelihoods, and Development in
the Andaman Islands, India

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Building an Islandscape

Discourse, Livelihoods, and Development in the
Andaman Islands, India

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Glossary and Abbreviations

<i>Bhaaga</i>	Local system of sharecropping (Bangla)
<i>Bhiga</i>	Local term for 1/4 th of an acre (Hindi/Bangla)
<i>Crore</i>	Indian numbering system unit, equal to one hundred thousand
<i>Dalit</i>	Member of a lower caste, earlier 'untouchable' (Hindi)
<i>Dhaan</i>	Local short-grained rice cultivar (Hindi/Bangla)
<i>Doongi</i>	Country fishing craft (Andaman Hindi)
<i>Gobar</i>	Cow-dung
<i>God</i>	Indian unit for bananas, denoting 10 kilogram bunches (Hindi/Bangla)
<i>Kalapani</i>	Black/dark water (Hindi)
<i>Khaad</i>	Soil, also denoting fertiliser (Hindi)
<i>Kharif</i> crops	Indian agricultural crops sown in monsoons and harvested in autumn
<i>Lakh</i>	Indian numbering system unit, equal to ten million
<i>Macchi</i>	Fish (Hindi)
<i>Maund</i>	Indian unit of mass, equal to 40 kilograms
<i>Panchayat</i>	Village council
<i>Rabi</i> crops	Indian agricultural crops sown in winter and harvested in spring
<i>Seth</i>	Influential landowner or moneylender (Hindi)
<i>Shaheed Dweep</i>	Martyr Island (Hindi); previously Neil Island
<i>Supari</i>	Areca nut (Hindi)
<i>Swachh Bharat Abhiyan</i>	Clean India Mission
<i>Swaraj Dweep</i>	Self-rule Island (Hindi); previously Havelock Island

List of Abbreviations

AAJVS	Andaman Adim Janjati Vikas Samiti
ANC	Andaman and Nicobar Command
ANI	Andaman and Nicobar Islands
ANIIDCO	Andaman and Nicobar Islands Integrated Development Corporation Limited
ANPATR	Andaman and Nicobar Protected Area Regulation, 1956
ASEAN	Association of Southeast Asian Nations,
ATR	Andaman Trunk Road
BJP	Bharatiya Janata Party
DAP	Di-Ammonium Phosphate (fertiliser)
DDT	Dichlorodiphenyltrichloroethane (organichlorine)
EEZ	Exclusive Economic Zone
ENSO	El Niño–Southern Oscillation
FAT model	Fisheries Agriculture Tourism model
FGD	Focus Group Discussion
HVA	High Value Agriculture
IDA	Island Development Authority/Agency
IPCC	International Panel for Climate Change
IUCN	International Union for Conservation of Nature
km	kilometre
km ²	Square kilometre
LVI	Livelihoods Vulnerability Index
m	metre
MCB	Mass Coral Bleaching
MGMNP	Mahatma Gandhi Marine National Park
MIRAB model	MIgrations, Remittances, Aid, and Bureaucracy model
MNP	Marine National Park
MPA	Marine Park Area
NGO	Non-Governmental Organisation
NITI Aayog	National Institution for Transforming India (Policy Mission)

List of Abbreviations (continued)

NTFP	Non-Timber Forest Produce
PHC/PHSC	Primary Health Centre/Primary Health Sub-Centre
PPP	Public Private Partnership
PRI	Panchayati Raj Institutions (Local village councils)
PTG/PVTG	Primitive Tribal Group/Particularly Vulnerable Tribal Group
RAP	Restricted Area Permit
RJMNP	Rani Jhansi Marine National Park
SC/ST/OBC	Scheduled Caste/Scheduled Tribe/Other Backward Class
SCUBA	Self-Contained Underwater Breathing Apparatus
SHG	Self-Help Group
SIDS	Small Island Developing States
SLA/F	Sustainable Livelihoods Approach/ Framework
SNIJ	Sub-National Island Jurisdiction
SSI/USI	Semi-/Un-Structured Interviews
SST	Sea Surface Temperatures
UT	Union Territory

A Note on Terminology: The terms *indigenous*, *tribal*, and *aboriginal* are used interchangeably. The *Andaman* and *Nicobar Islands* are referred to variously as *ANI* or '*the Islands*'. A conscious decision has been made to use the original names *Havelock* and *Neil* for the islands which were renamed during the course of this research as *Swaraj Dweep* and *Shaheed Dweep* respectively. This is done to decrease confusion and to respect the islanders, who were not consulted in this decision and still refer to them in the original terms.

Acknowledgements

“There lay the islands in the night, suspended between the stars and the sea’s bottom with the abstraction of thoughts: the stages of a thesis that was still to be unravelled.”

- Patrick Leigh Fermor, *The Traveller’s Tree*

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Prologue

“Poseidon had not checkmated our puny civilization. He had cleared the board with one swipe of his ruthless hand.”

Shamsher Bahadur Singh Deol,
All Hell Broke Loose (2012)

On the 26th of December 2004, I was in India’s western coastal state of Goa, attending a friend’s wedding. After a day of merriment in India’s most sought-after party destination, we were embarking on a boat in the Mandovi river, headed out to sea for the sunset vows. It was then that the captain took a few of us aside, and in a serious tone revealed that we could venture no further than the river. The Indian Coast Guard had warned him of dangerous sea levels after a tsunami that had hit the Andaman and Nicobar Islands earlier that day. My stomach sank. My father lived and worked in the northern Andaman Islands, posted there as the chief of police. The captain went on to say that a massive earthquake off the coast of the southern Nicobar Islands coast had resulted in a tsunami, which had affected even the western seaboard was affected. By now, I was almost in tears, for my father was presently in the Nicobars on an official visit. Frantically dialling all his numbers yielded no result and I called my mother in New Delhi with a growing sense of dread. Her voice was grim, but she assured me he was safe. An unexpected visit from a high-ranking official had cut his visit short, and he had flown back to the northern Andamans two days ago. The magnitude of the earthquake had been unprecedented, but the Andamans had been spared the worst of the tsunami. The boat was held up for me, and I’m sure it was a beautiful ceremony, for I was no longer present. I kept thinking about what a tsunami even entailed, having seen it in only in movies. In the days that followed, I spoke to my father in short bursts, for he was constantly busy. Only when I could visit him, five months later, did he tell me his story.

The official gone, Shamsher Deol had planned a police picnic on a nearby island that fateful day. An early start meant the police bus wound its way to the Chidiyatapu jetty from where

the group would travel by boat to a nearby island. About 20 minutes into the trip, in a rattling bus on South Andaman's potholed roads, the group saw people outside running in every direction. As the bus came to a halt, but was still rattling, they heard shouts of '*bhookamp*' (Hindi for earthquake). Disembarking onto a violently shaking ground, Deol looked up to see a bird struggling mid-flight – the shockwaves were rising from the ground. The earthquake lasted for 10 excruciating minutes, and no one moved for a long time after, in shock and fearing aftershocks. After radioing the boat to stay out at sea, the police group drove back to Port Blair to get to work. The first reports came in barely an hour later - each revealing only the loss of radio contact with island after island in the Nicobars. The months and years that followed would be full of tragic loss, pain, and heartbreak for all the islands' inhabitants.

At 9.3 Mw on the moment magnitude scale, this was the second largest earthquake since the invention of the seismometer¹, the most powerful in 40 years, and the longest duration ever recorded. One source credited it with releasing 'as much pent-up power as several thousand atomic bombs' (<https://www.history.com/news/deadliest-tsunami-2004-indian-ocean>). The epicentre, off the west coast of Sumatra Island (Indonesia), was barely 100 km from the Nicobar Islands. Within 30 minutes, the first wave hit Banda Aceh; within 35, the Nicobar Islands. Each wave was higher than the last, finally reaching almost 10 metres. Over 5000 islander lives were lost that day, from a population of 50,000 in the Nicobars. Most of these were members of the Nicobari indigenous tribe. Bodies may not wash ashore on islands, hence a large number were initially deemed 'missing'. The Indian government insisted that only bodies found *and* identified could make it to the death toll - which stood at seven people even as hundreds of unidentifiable bodies were found (Deol, 2014).

In the official's visit, my father had nothing short of a miraculous save, but others were not so lucky. During his trip, Deol visited the lighthouse at Nicobar's Indira Point, India's southernmost location. Its staff requested he speak to concerned officials in Port Blair for a transfer, as many had spent much longer than their average tenure there. He promised he would. At the helipad on his way out, he met a group of scientists who were flying in to study the nesting habits of Olive Ridley Turtles. They were accompanied by Saw Agu, a local Karen conservationist working with an NGO, the Andaman and Nicobar Environmental Team. Deol invited them to visit him in Port Blair when they got back. All these people, and many others, met a tragic end. The one exception was Saw Agu. Managing to crawl up a tree in the nick of time, he was lashed against it by wave after wave. The next few days saw him badly wounded and barely clinging to life on the tree, with debris, dead bodies, and salt water crocodiles milling below. On the 11th of

¹The first was the Valdivia Earthquake in Chile, 9.4-9.5 Mw.

January, after a harrowing seventeen-day ordeal, he staggered into the village of Shastri Nagar².

In the days after the tsunami, many Indians of my generation realised they knew little about the Andaman and Nicobar Islands. The political outlines we drew as children did not include these secure territories, even as we were encouraged to include contested ones such as Pakistan Occupied Kashmir. Geography lessons blithely proclaimed the southernmost point of India to lie in continental Kanyakumari. Only in History lessons did we recall some mention of these islands as '*kalapani*', conjuring images of rocks in black waters where the heroic martyrs of the Revolt of 1857 were sent to languish, the islands a parenthesis or full stop in their stories of sacrifice. Research reiterated scarce mainstream presence, and even the national/international development sector, which generally privileges marginal regions, had little to do with these islands before the tsunami. Strangely, many 'all-India' development studies routinely left them, and India's other island territory, the Lakshadweep Islands, off the map³. Much of the ANI seemed restricted as nature or tribal reserve; even Indian citizens were generally not permitted to travel to the Nicobar Islands. Was it to protect these island and its aboriginal populations? They seemed to be languishing in administrative and economic isolation but had a strong military presence. Were they deliberately being kept out of the mainstream, to protect India's strategic geopolitical interests, or had the islands really fallen off our map?

²His story, and that of the scientists who tragically lost their lives, is documented by Manish Chandi (2009, March 1.)

³Island geographies are no strangers to being left out of maps. The hashtag 'getnzonthemap', started by New Zealanders to point out regular omissions of their islands on world maps, has been leveraged into a tourism campaign for the country, 'getnzonyourmap'.

Chapter 1

Introduction

“...glimpses of islands, islanders and island lives...are, for the moment, largely driven either by the lofty rhetoric of tourism marketing initiatives, or by considerations of economic and environmental vulnerability that reinforce victim and deficit paradigms.”

Godfrey Baldacchino (2013a, p. 13)

Though far from the norm¹, it is the *small tropical island* that most people imagine when thinking (or dreaming) of islands. Yet the images can be contradictory: one of a timeless place, replete with sun, sea, and sand, the other a watery grave, signalling the end of time as we know it. Narratives of relaxation and escape mingle with fear and despair to render these islands tricky ‘emotional geographies’ for their main targets, a *continental* audience (Farbotko & McGregor, 2010). Beauty and fragility stand juxtaposed in images of exotic but endangered wildlife, azure waters ringed by garbage, vibrant fish amidst bleached coral, and native islanders standing in knee-deep water where once their house had stood. Prolific island scholar Godfrey Baldacchino notes that small islands have been subject to ‘the most lavish, global and consistent branding exercise in human history’ (Baldacchino, 2012, p. 55), one founded on conflicting dichotomies which ultimately serve the same end – bringing the world (and its gaze) to the island. More people visit tropical islands today than ever before, enticed by advertising, social media, celebrities, and reality television, and facilitated by budget airlines and package tourism.

India’s Andaman and Nicobar Islands (ANI) are no exception. Since the 1990s, each tourism campaign and slogan has been savvier than the last. After the ‘Emerald Isles’ and ‘Exotic Andamans’, tourists were invited to the ‘Incredible Andamans’ to indulge in some ‘Vitamin Sea’

¹Almost 90% of the world’s islands lie in the sub-polar and polar regions (Meeker, 2011, p. 202).

and experience 'Emerald. Blue. And You'. Exaltation of ANI's beauty has come from surprising sources. Reproduced at some length below is the official Andaman and Nicobar Administration website, if only to capture the rare instance where Indian bureaucrats are moved to stilted poetic prose:

"These are the paragon of beauty and present a landscape full with scenic and picturesque extravaganza. These islands shimmer like emeralds in the Bay of Bengal. The dense forest which cover these islands and the innumerable exotic flowers and birds create a highly poetic and romantic atmosphere... The unparalleled beauty of these islands, create in men a love of nature with a caressing tenderness, a wistful fondness for all its delicate nuances. The enveloping atmosphere with its subtle harmonies of light and shade, fragrance and exhales the paradise, visionary splendours, and the music of the birds that defies definition would develop creative and constructive feelings in the hearts of those people who come here to enjoy the beauty of nature."

Andaman Administration website, 2021

All this marketing has been to good effect, and the year 2019 saw 500,000 tourists visit the Islands, which is more than the current population of this Union Territory. This rapidly growing attention has left environmentalists and anthropologists alarmed, for despite conservation efforts, both the endemic species and indigenous populations of the Islands have long been regarded as precarious. Though national legal frameworks since the 1950s have sought to conserve large portions of its area as tribal reserves or protected areas, these have also contributed to keeping the Islands on the margins of the Indian nation-state. One may argue that the 2004 earthquake and tsunami brought India's gaze back to these Islands, and the rising geopolitical 'Chinese threat' has kept it there. Juggernauts of change, in the form of big military, shipping, and tourism development projects, now threaten its protected areas, spurred by the Indian Government, the primary economic actor in the region.

Currently in its second term, the National Democratic Alliance led by the Bharatiya Janata Party government and Prime Minister Narendra Modi, has consistently valued industry and construction over India's environment and citizens. In 2014, the newly elected Alliance removed bans on factory construction near protected areas as well as in eight industrial belts. It also stripped the National Board for Wildlife from fifteen to three members to approve 99.8% of all industrial projects, and undermined the National Green Tribunal, India's independent environmental watchdog. This was followed by changes in Coastal Zone Regulations and National

Forest Policy, and the de-notification of tiger reserves, protected mangrove forests and wetlands, wildlife sanctuaries, and tribal reserves to enable river-linking, coal mining, transport, and industrial development projects. Within four years, fifteen Indian cities were the world's most polluted, and the country slipped in the Environmental Performance Index from a rank of 155 in 2013 to 177 in 2018 (out of 180 countries)(Rathee, 2019, April 19).

The pressures of global change² have fallen on India's poorer citizens. Facing the brunt of demonetisation, they have had their citizenship questioned through BJP-instigated communal and caste-based violence, draconian laws targeted towards Muslims, and skewed farmer legislation. Citizen protest has consistently been met with overt violence, intimidation, and arrest. The Citizenship Amendment Act has revoked citizen status for refugees of the 1971 Indo-Pakistan War, and the National Register of Citizens compiled for the state of Assam, which borders Bangladesh, has omitted almost two million people, mostly Muslim men. As broken families find their main breadwinners languishing in Assam's detention centres and facing an uncertain future, peaceful student and sit-in protests in New Delhi have been met with police violence. Amidst a raging COVID-19 pandemic and a harsh winter, farmers from neighbouring states have been protesting at Delhi's border against three Farm Bills, which they claim would demolish the little bargaining power they possess. These have also been met with violence and attempts to destroy credibility. Constantly stressing India's economic growth to its burgeoning middle class, government response has revolved around a Hinduised version of hyper-nationalism. Those critiquing the government in any vein, or supporting Muslim refugees, are told to 'go to Pakistan', while protesting farmers, many of whom are Sikhs, are discredited as separatists fighting for an independent Khalistan State. Farmer suicide rates have been increasing steadily since 2010, and at least 60 farmers have died since the protests began in September 2020, and continue at the time of this writing, six months later.

This assault on environment and citizen is evident in India's island territories as well. Massive tourism projects put forth by the government's think-tank 'NITI Aayog' envisages their 'sustainable or holistic development' to transform them into 'another' Maldives or Singapore. This has signalled the destruction of fragile lagoons and corals in the Lakshadweep Islands, and the de-notification of forest and tribal reserves in the Andaman and Nicobar Islands. In the latter islands, the past three years have seen the opening of 29 new islands for tourism, and during the COVID-19 pandemic, plans to fast-track a trans-shipment project which requires de-notification of an important wildlife sanctuary and nesting site for endangered Leatherback

²By global change, I mean the combination of anthropologically-induced environmental degradation and climate change.

turtles, and another mega-project to convert an island housing the dwindling Onge indigenous tribe into a 'Greenfields city' with a financial, leisure and nature zone, on the lines of Singapore³ Perhaps the steepest slippery slope is the little-reported 'compensatory afforestation projects' being undertaken on barren parts of the Indian mainland in order to access and de-reserve large tracts of ANI's protected forests for 'sustainable development'.

1.1 Research aims and contributions

At this vital political and environmental juncture for India and its islands, and in a time of increasing global change and globalisation, it is imperative that development research take a wider, relational approach. The objective of this work is to 'build an Andaman islandscape', by identifying contending gazes or visions which shape the Andaman Islands, and revealing a set of tensions, flows, and fluxes as visions and discourses entangle or collide. The complex human-environment relationship on islands is mediated by their physical characteristics, socio-political histories, and the practices of both state-making and place-making. Islands often have 'continental' visions of development thrust upon them, which may adversely impact island ecologies and silence islander voices. As centrally governed Union Territories, India's two island geographies are subject to the full force of the state's power. The provenance of these islands reveals that the legacies of colonisation, settlement, and globalisation are diachronically embedded into their earliest documented histories, and remain imprinted in their physical and social environments, configuring their present-day 'landscapes'. One common theme under each regime or rendition of power has been of the marginalisation and subservience of these island territories to the needs of the Indian sub-continent, or 'mainland'. However, this 'islandscape' is also shaped by the lives, livelihoods, and labour of islanders. Livelihood practices mediate the human-environment relationship but are today being affected by multiple drivers of change: weather variability, climate change, disasters, globalisation, development, and fluctuations in the wider political economy. Discourses which produce islands and their socio-political marginalisation fuse with multiple 'drivers of change' to increase stress on island ecosystems and inhabitants, affecting their material space and their 'sense of place'. The author endeavours to build an 'islandscape', a compendium of island imaginaries, visions, discourses, and claims concerning the islands and how to know them. She expands the relational concept of an

³Vague ideas of displacing the Onge to 'some other island', citing their dwindling numbers, accompany others to open 'alternate nesting sites', suggesting that even globally migrating marine turtles fall within the ambit of the Indian state.

islandscape to examine these discursive interactions and relational dynamics in the Andaman Islands of India. In doing so, the work shifts scale, from the global to the local, and perspective from hegemonic to islander discourse, and moves in a somewhat chronological fashion. The islandscape emphasises connection: between humans and their environment, the land and sea, and islands and other geographies. This disturbs ideas that islands are static or isolated, revealing processes of power and marginalisation between continental mainland and islands, and even within archipelagos. Combining historical discourses of power and state-making with the more contemporary ways in which islanders make their places also reveals various forces or 'drivers of change' impacting the current islandscape. How islanders perceive their vulnerability to these drivers, and how they respond to them, is crucial to understand the future of their islandscape. Thus an 'islandscape approach' provides an analytical thread to explore changes across time and space.

This work is divided into two parts. Part One –The Continental Gaze– identifies and analyses aspects of dominant discourses employed to control, manage, and marginalise the Andaman and Nicobar Islands since their British colonisation in the late 1700s to their present-day status as strategic Indian Union Territories. It introduces the various discourses or aspects of the hegemonic discourse of power to illuminate what she dubs the 'Continental Gaze' which have historically produced the Andaman islandscape. The wider research question intriguing the author here is as follows:

How have histories and legacies shaped the Andaman islandscape and configured their place within the world today?

To answer this question, she wonders:

- Which discursive 'projections' have regimes of power used to justify the appropriation, colonisation, and development of the Andamans?
- How have the 'projects' or practices engendered by these 'projections' impacted the current islandscape?

She borrows a global-scale discursive framework put forth by modern historian Greg Bankoff (2001a; 2018) and adapts it to island geographies in particular. Bankoff postulates that the discourses or notions of *tropicality*, developmentalism, vulnerability, and resilience are all facets of an essentialising and continuous 'hegemonic or dominant discourse of power' which have evolved through history with the 'zeitgeist', or spirit of the time. It is these discourses which have consistently bifurcated the world, along similar geographical lines, into tropical vs. temperate,

Third World vs. First World, and global South vs. global North. These seemingly symbolic ‘projections’ have had real-world impacts through the ‘projects’ they have justified, keeping certain geographies exalted at the expense of others. Discursive regimes have borrowed from those that came before or parallel regimes to maintain a power status quo that has changed little since the pre-colonial era. In the background of this framework lies another another constructed bifurcation: between *islands* and *continents*. ‘Islandism’, like Orientalism, produces islands as ‘other’ to a continental ‘self’, and as small, isolated, insular, and marginalised places, which can then be materially or metaphorically appropriated for continental ends. Research in island regions must therefore understand the inherited nature of their ‘islandscape’, a palimpsest of the discursive projections and projects of each regime. Forms of ‘state-making’ mobilise the practices of ‘othering’ and ‘spatialisation’ to project and reconfigure space in the frames of the dominant power, eventually ‘territorialising’, and appropriating it for its own ends. Here the islandscape may be framed as ways of seeing and ordering space, which are then realised through performance and practice. And what of islanders in this configuration? Do they adopt facets of this dominant way of seeing within their own discourses and practices which produce their islands? And how do their livelihoods practices mediate their relationships with their islands, facilitate interactions between land and sea, or create trans local connections? Part Two - An Islander Vision - employs participatory methods and livelihoods approaches to uncover islander discourses and reveal how an ‘islandscape’ is also shaped through the quotidian practice of livelihoods and labour.

Historiography reveals an overwhelmingly continental perspective of the history of islands, perpetuated by the ‘victors’ or ‘coveters’, and a plurality of historical discourses is hard to discern (M. Thompson & Rayner, 1998). Amongst the dominated, discourses of resistance are often silenced, or the same discursive vocabulary as the dominant regime is discernible. The former is true of ANI’s indigenous groups; the latter of its settler populations, but little work has been carried out on ANI islanders that is not mired in the overwhelmingly continental academic frames of anthropology or history. Continental academics may add another colonising layer, and the author is aware of her own continental provenance and positionality, discussed at the end of this chapter. In Part Two –An Islander Vision– she attempts to comprehend some of the realities and challenges faced by islanders on the neighbouring islands of Havelock and Neil. The wider question pertinent to this grounded analysis is:

How do the trajectories and practices of livelihoods shape the Andaman islandscape, and islander visions of their own islands?

Going deeper, she asks:

- How do past interactions between islanders and their island environments shape their vision of the islandscape today?
- How do islanders identify and perceive changes affecting their islands? How do they perceive their own vulnerability to drivers of change such as ecological degradation or climate change? And how are they responding to these changes?
- How do livelihoods mediate or facilitate connections within the islandscape?

A livelihoods lens reveals historical and contemporary entanglements between land and sea, humans and the islands, and between these islands and other geographies. All these connections are constantly in flux and make the islandscape more than the sum of these parts. The evolution of the predominant livelihoods of their settled populations, farming and fishing, involve island ecologies and their natural resources, political practices of state-making and place-making, and individual understandings of capabilities and risk. Livelihoods are repositories of culture, knowledge, symbolism, and legacies. Their practice determines the human-environment relation and mediates an islander's 'sense of place'; they shape the material islandscape, producing interconnections between the land and the sea; and they spread beyond the territorial limits of an island in terms of mobility, migration, and even resources. They are affected by external stressors, such as institutional frameworks, global change, globalisation, and development, and have adapted in various ways. A coupled human-environment narrative highlights the mutual interactions inherent in the historical trajectory of both livelihoods and the islandscape. Grounded research on livelihoods allows insight into islander discourse while revealing the specific external factors which affect the islands and their inhabitants. Aspects of global changes and globalisation affect all islands, but their character and impacts differ between islands. Each island is different in its geology and physiology, its species and biodiversity, its histories of change and migration, and interaction with the wider world.

For instance, sea level rise is touted as *the* issue for islands, but is more pressing for flat low-lying islands, while islanders on hilly islands may have other concerns, such as erratic precipitation or soil erosion (Nunn, 2003b). Reconciling notions of 'the island' with research on 'specific islands' identifies problems and development solutions put forth by islanders themselves, while revealing the variegated nature of notions of 'islandness', 'island development', and 'island vulnerability/resilience'. A comprehensive Livelihoods Vulnerability Index is used to understand contemporary islander discourse surrounding the islandscape and identify the stressors of change perceived by each island's inhabitants. Islander perceptions of vulnerability within livelihoods are compared, revealing differences and interlinkages between each

island. Finally, how island landscape connections are facilitated and mediate by livelihoods is revealed through the human-environment and land-sea relationships in Havelock and Neil, their connections to each other, the wider Andamans, and to the Indian mainland. Their interconnections with other geographies sheds light on power dynamics inherent in the archipelagic relationship between the two, and in their relationship with the wider Andaman Islands. This explodes the myth of islands as static or isolated, and advocates for an island landscape/archipelagic vision when approaching islands as sites of research. Processes of global change, globalisation, and development, and continental interests affect the island landscape, but modes of islander resistance, discursive entanglements or collisions, migration and mobility flows, and fluid livelihoods means islands too 'speak back to their mainlands or continents', causing shifts in power dynamics and uncertainty in mainland political circles. Livelihoods response strategies include diversification, collectivisation, and changes in livelihoods practices. To conclude, the author lists a set of islander recommendations which may strengthen cooperation between the state and the islanders and improve response.

1.1.1 Research contributions

There are three major contributions this work hopes to make. The first is to further the use of an island landscape approach in grounded research. With an opportunity to bridge specific island contexts and their histories with the experience of the wider 'island' or the intervening quality of 'islandness', an island landscape could potentially integrate representational and non-representational approaches, and even metaphor and reality. It reveals the relations and connections of islands and their realities, which are not isolated, insular, or bounded, but connected to a wider world through natural forces, rhizomatic lines of migration, the ebb and flow of currents, movements across time and space, and 'roots and routes'. Here the island landscape is used as a conceptual thread to analyse both statist and islander discourse and practice across time and space in a specific island context but is also used in conjunction with grounded livelihoods research to contribute to a more practical use of the concept which may inform policy-making and development on the islands.

The second contribution is to explore the dimensions of the human-environment relationship with regard to specific islands within the Andamans and their communities. In contrast to its mountainous, coastal, and riverine regions, India's island geographies have received little attention, and are largely absent in South Asian, Southeast Asian, Indian Ocean, and imperial landscape studies (Anderson, Mazumdar, & Pandya, 2016; Sivasundaram, 2020; Vaidik, 2010).

Environmental or conservation studies have brought much-needed attention to the islands but are mired in dual frames of continental colonial-era ideology, doing little to decrease island marginalisation and even vilifying those they should be trying to recruit (Stepan, 2001). As one Andaman scholar notes, conservationists may have indirectly led to further island degradation by depicting pristine landscapes devoid of humans and fuelling the tropical paradise imaginary later appropriated by tourism interests (Mazumdar, 2016a). This imaginary contributes to the lack of attention paid to the islands in terms of livelihoods, development, or vulnerability scholarship. Even all-India studies tend to exclude them (in both analysis and occasionally on maps too, e.g., O'Brien and Leichenko 2000). Issues of vulnerability, if discussed, feature top-down perspectives of climate change, sea-level rise, or inadequate development, with an absent islander voice. Island society tends to be studied in compartments and hierarchies, where the vulnerability of the indigenous supersedes that of other populations and keeps the two divided and separate. Settler populations, their histories and contemporary worlds, quotidian lives and struggles in a changing remain understudied and undervalued (Abraham, 2018). The author came across a single study which used concepts of vulnerability involving islanders to assess the post-tsunami situation in the Nicobar islands (Tripathi, 2018). In India, vulnerability assessments tend to be applied in work with Himalayan mountain communities, which display similar issues to islands, such as isolation, distance, and resource conflict. Findings from one geography could inform the other (as they have done in this work), while integrating the two and addressing the constructed binary between islands/coasts and the mountains.

The third contribution is to the state of spatial and relational approaches being increasingly adopted in scholarship on the ANI. Much work in humanities and social sciences in the region tend to be dominated by classical frames of history and anthropology. Historiography reveals overwhelming emphasis on the colonial metanarratives of the 'Revolt and the Jail', referring to the incarceration of 'freedom fighters' of the Indian Revolt/Mutiny of 1857 in the penal settlement and later Cellular Jail in Port Blair. The figure of the colonial officer-cum-anthropologist and resulting frameworks have also persisted in consideration of their indigenous tribes, but the past decade has seen scholars turn to critical and reflective approaches to dissect aspects of this dominant history (U. Sen, 2010; Vaidik, 2010), highlight alternate histories and cultures (Heidemann & Zehmisch, 2016; Lorea, 2020; Maiti, 2004; U. Sen, 2018), unpack power and political ecology dynamics between communities or in island-mainland relationships (Anderson et al., 2016; Krishnakumar, 2009; Zehmisch, 2014) and trace new lines of flight, connections, and cartographies (Abraham, 2018; Pandya, 2013). These calls for critical engagement, shifting perspectives, and calling attention to previously little-heard voices, have

all inspired the focus as well as much of the knowledge within this thesis.

1.2 Introducing the Andaman and Nicobar Islands

Before going further, we must orient the reader with these fascinating islands, their location, geology, geography, ecology, history, and society. This section also introduces the chosen islands of study for this work, Havelock/Swaraj Deep, and Neil/ Shaheed Dweep.

1.2.1 Basic geography and ecology

Located between 06 45'N and 13 45'N, and 92 15'E and 94 00'E, the Andaman and Nicobar Islands (hereafter 'ANI' or 'the Islands') stretch across 1100 km in a north-south crescent from Cape Negrais in Myanmar to the Banda Arc of Indonesia. Their arced appearance suggests they are summits of the now-submarine Arakan Yoma mountain range, and they are said to form a 'natural boundary' between the western Bay of Bengal and the eastern Andaman Sea (Ray, 1982; Rodolfo, 1969). Geological origins point to a gigantic upheaval in the upper Cretaceous Age and subduction of the Indian plate under the Eurasian plate (Chhibber, 1934; Curray et al., 1979). It is believed the Islands arose due to the simultaneous (and ongoing) processes of volcanic land subsidence and coralline animal elevation (Dhingra, 2005). The Islands are therefore seismically active, with the Andaman-Java trench located parallel to their west coast and are believed to be shifting in a north-northeast direction at the rate of a few centimetres per year (S. Reddy, 2018). Of 572 islands (or 840 if one counts rocks etc.), less than 200 bear names (Directorate of Economics and Statistics, 2021), and a mere 38 are inhabited. This means approximately 400,000 people live in 10-15% of its 8,249 km² (Government of India, 1961). The Andaman group is separated from the Nicobar group by the 150 km-wide Ten Degree Channel, which has heavy tidal flows and reaches depths of 400 fathoms. This makes travel and communication between the two groups challenging.

The ANI are a Union Territory administered by India, despite lying over 1000 km from the Indian mainland. The tip of North Andaman is barely 200 km from Myanmar, while the southern point of the Nicobars lies 150 km from Indonesia. The Andaman group thereby shows greater climatic and zoogeographical contiguity with Myanmar, as does the Nicobar group with Malaysia and Indonesia. They may be more aptly described as a 'Southeast Asian land that belongs to India' (Abraham, 2018, p. 2). The Nicobar group is much smaller, with 24 islands contributing only 22% (or 1841 km²) to ANI's total area. Further sub-divided into the Northern

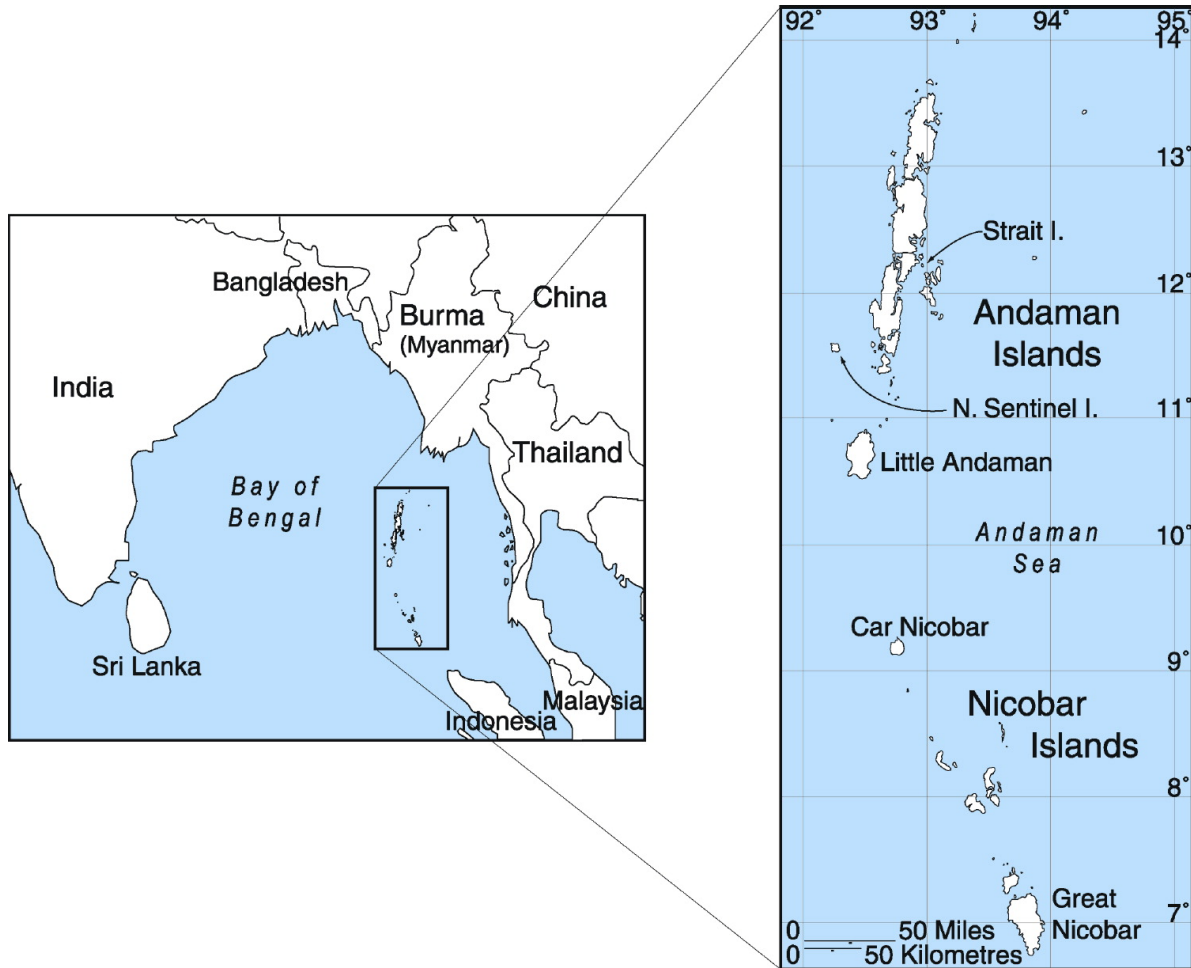


Figure 1.1: Map depicting the location of India's Andaman and Nicobar Islands. Source: Thangaraj et al. 2021.

and Southern groups, most of its population lives in the southern islands of Little Nicobar and Great Nicobar. The Nicobars are more 'contained' and scattered in comparison to the Andaman group, which is much larger, closer together, and intersected by waterways which create multiple points of confluence between the Bay of Bengal and the Andaman Sea (Dhingra, 2005, p. 1). With 548 islands and 78% of the area (6,408 km²), it is comprised of the Great Andaman landmass (North, Middle, and South Andaman) with Little Andaman to its south, Landfall Island to its north, North Sentinel Island to its west, and the East Volcano Islands of Barren and Narcondam to its east. The undulating terrain of the ANI contains north-south ridges and east-west spur hills, with narrow valleys. There is little flat land, though the Nicobars are considered the flatter of the two. Saddle Peak, at 732 metres asl, is the Andaman group's highest point, followed by Mount Thullier in the Nicobars at 670 metres asl (Andrews & Sankaran, 2002).

Both groups have a tropical to sub-tropical climate, with warm, humid, and equitable weather. Temperatures range between 23 and 30 degrees, with 70-90% humidity (P. Bandopadhyay & Carter, 2017). There is little annual temperature variation and heat extremes are moderated by oceanic breezes and high levels of precipitation. The ANI are annually visited by two monsoons; the stronger, advancing southwest monsoon which lasts from April-May to August-September, and a milder, retreating northeast monsoon between October and December. Much of this monsoon rain hits the Andaman group, where annual rainfall averages 3000-3500 mm, as compared to 500-1000 mm in the Nicobars (Indian Meteorological Department, 2021). Almost 70% of this rain falls during the southwest monsoon, when roaring winds and cyclones create the windswept and stunted forests of Great Andaman's southern and western shores (Krishnakumar, 2010). The retreating northeast monsoon is relatively drier but also known for cyclonic weather. The dry season lasts from January to April, resulting in water shortages towards its end. Water is perhaps the most valuable resource for the islands and islanders alike. Despite the hilly terrain and high rainfall, few perennial streams or large underground reservoirs exist. This is due to ANI's soils which are a mix of volcanoclastics (basalt, lava etc.), mudstone, sandstone, limestone, and shale (Allen, 2003). The hilltops contain alluvial, heavy clay, the ridges and valleys are mostly diluvial, and the coastal flats have sandy, silty clay mixed with coral lime. The soils are medium to heavy in the lower and middle layers, but with a thin 2-5 metres cover of topsoil, are highly porous with low moisture-retention (ANET, 2003).

The hydrological cycle also links and supports the diverse terrestrial, littoral, and marine ecosystems of the ANI. Rainwater falls on thick evergreen and moist deciduous forests on the slopes, making its way to a vast littoral ecosystem of forests, mangroves, and beaches, and finally to the sea where it regulates salinity and supports its coral and seagrass beds. The dense, mixed tropical rainforest is a mix of Indo-Myanmar and Indo-Malayan flora with an average canopy height of thirty metres (Prasad et al., 2010). Swathes of tropical wet evergreen, tropical semi-evergreen, tropical moist deciduous, and littoral and swamp forests support over 2200 plant varieties, of which more than 200 are endemic (Forest Survey of India, 2019). Over the last 150 years, valuable timber species, such as Andaman *Padauk*, *Gurjan*, *Chuglam*, *Koko*, and *Dhup*, have provided for the needs of the islands and beyond. Littoral forests consist of *Mahua*, *Pandanus*, and *Coconut*, and at least 25 true 'mangals' (or mangrove forests) include the *Rhizophora*, *Nypa* and *Avecennia* strains and 93 mangrove associates (Dam Roy, 2003). Mangroves are breeding ground for 250 species of fish, and host a variety of other species, such as saltwater crocodiles, monitor lizards, and long-tailed macaques. The spectacular fringing reefs boast a coral biodiversity of almost 400 species or 80% of the global maximum, rivalling the 'coral tri-

angle' found between the Philippines, Indonesia, and New Guinea (Srivastava, 2012). They are home to 1200 species of fish, 400 species of crustaceans, 8 of shark, 112 of sponge, and many more gastropods, molluscs, giant clams, sea snakes, and turtles (Chandi, Deol, & Shetty, 2012). Scattered sea grass beds in northwest Andamans, Ritchie's Archipelago, and the Nicobars support the shy dugong or sea cow, which is the designated 'state animal' of the Union Territory and officially classified as 'vulnerable to extinction'.

1.2.2 Brief history and society

The Andaman and Nicobar Islands were known to sailors, merchants, and travellers from the start of the Christian Era. Popular belief today ties the name 'Andaman' to the Hindu mythological epic *Ramayana*, believing it to be another name for the monkey-god Hanuman (Roychowdhury, 2004). Ptolemy called them '*Agadaemon*' in the 2nd century, I-Tsing referred to them as '*Andaban*' in the 7th century, and Marco Polo dubbed them '*Angamanain*' in the 13th century. The word 'Nicobar' is believed to be derived from the 1st century Chola Empire's word '*Nakkavaram*', which Marco Polo called *Necuverum*, both meaning 'land of naked people' (Dhingra, 2005; Murthy, 2005). The Nicobars were first colonised by the Danish East India Company in 1756, and the Andamans by the English East India Company in 1789. Both settlements lasted less than a decade and were abandoned due to rising morbidity. In the Andamans, the next attempt in 1858 was spearheaded by the British Crown in 1858 established a penal colony for prisoners of the 1857 Indian Mutiny. The Danes ceded the Nicobars to the British in 1869, where a lesser-known penal colony was established. By 1906, convict labour in the Andamans built the panopticon Cellular Jail, where convicts were imprisoned in tiny, isolated cells. The isolation of the islands and brutality of jailers earned the Andaman settlement the dreaded moniker '*kalapani*', or 'dark waters'. The judicial pronouncement 'saza-e-kalapani' was effectively a death sentence as few returned. Over the years, the rise of the Indian Independence movement, failure to rehabilitate, and mounting administrative expenses signalled the near closure of the penal colony. With little by way of defence, the ANI were easily captured by Japanese forces during the Second World War. From 1942 to 1945, the Islands experienced what is still known (and remembered) as the most brutal occupation of the Islands. The population was culled by starvation and suspicion, the forests decimated, and British infrastructure and records were destroyed. Though the British recaptured the battered Islands in 1945, Indian independence was close at hand, and on 15 August 1947, the ANI became part of the Indian

Union. The State Reorganisation Act of 1956 declared them an official Union Territory⁴, which they remain to this day.

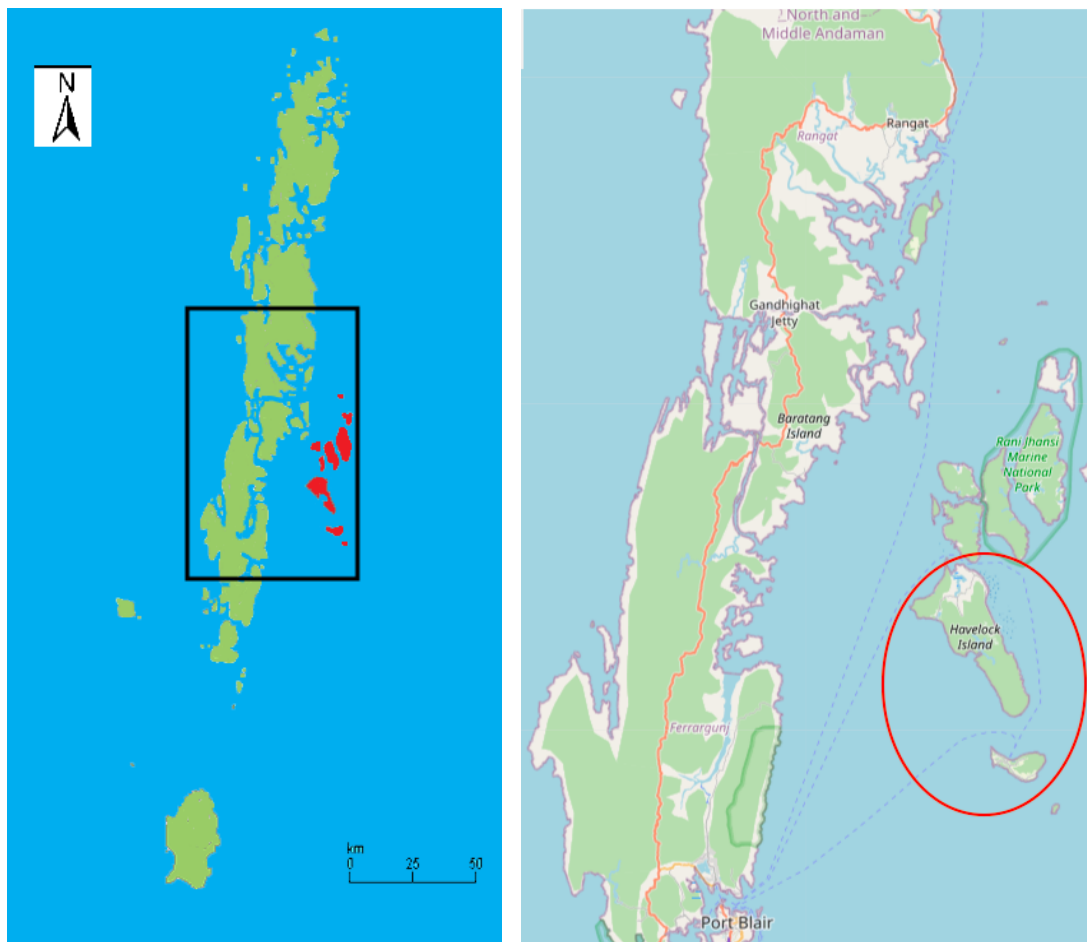
The ANI were originally home to seven indigenous hunter-gatherer communities, five in the Andamans and two in the Nicobars. The term ‘Andamanese’ refers to the collective group of Negrito origin in the Andaman Islands; the Great Andamanese, the Jarawa, the Onge, the Sentinelese, and the now-extinct Jangil. Estimated to be living in the islands for millennia (Portman, 1899), all were forest-dwelling hunter-gatherer communities (Krishnakumar, 2009; Sekhsaria, 2001). When the British first set sights on the Andamans, it had a ‘sizeable population’ of 8000 to 10,000 Andamanese (Portman, 1899) living in demarcated territories. The term ‘Nicobari tribes’ refers to the Mongoloid groups of the Nicobar Islands, the Nicobarese and the Shompen. It is believed the Shompen were the earlier inhabitants, with the Nicobarese conjectured to be descendants of Malayan tribes. The descendants of the penal colony and other colonially settled groups were joined by waves of Partition refugee settlers from East Bengal and other ethnic groups between 1949 and 1980. Settlement through the ‘colonisation and rehabilitation schemes’ of the Indian government was supplemented by large-scale in-migration for government and forestry jobs, and a settler population of 30,971 in 1949 has grown to 38,0581 in 2011, expected to be *at least* 40,2000 today.

The current settler population predominantly speaks Hindi, Bengali, Tamil, Telugu, and Malayalam (Directorate of Economics and Statistics, 2010). Predominant livelihoods of the settled population revolve around forestry, agriculture, fishing, and tourism. Their economy, which initially relied on the primary sector, has shifted over the years to a rapidly rising tertiary sector, with little growth in the secondary sector. Today, the ANI are known as a tourist destination for nature-lovers and honeymooners, and for their militaristic and geostrategic importance. More than 150 years of violence, disease, ‘civilisation’, and mainlander settlement has led to the extinction of one tribe (i.e., the Jangil) and the steady decline of five others (i.e., the Great Andamanese, the Jarawa, the Onge, the Sentinelese, and the Shompen) to less than 800 people collectively today. Though all ANI tribes are declared ‘Scheduled Tribes’ by the Government of India, these five tribes are designated ‘Particularly Vulnerable Tribal Groups’. The Nicobarese are the only ANI tribe to have increased in strength since colonisation, from 6000 to 28,000 people today. Even so, they suffered devastating loss and livelihoods destruction in the 2004 Indian Ocean earthquake and tsunami, the epicentre of which lay barely 150 km away from the Nicobars. The ANI lost 7000 people, of which more than 3000 were believed to be Nico-

⁴Unlike India’s States, its Union Territories are governed directly by the Centre through a President-appointed Lieutenant Governor.

barese. The impact of this unprecedented event is still etched in islander memory and even in the physical landscape and continues to affect and reconfigure the ANI's 'isandscape'.

1.2.3 Situating Havelock and Neil



(a) Source: Wright, n.d.

(b) Source: OpenStreetMap, 2021.

Figure 1.2: The map of the Andaman Islands on the left shows Ritchie's Archipelago in red. The map on the right is a close-up of the black rectangular section on the left. Islands of study are encircled in red.

The journey from India's political capital, New Delhi, to the archipelagic islands of Havelock or Neil, is a long-winded affair. If one can afford the luxury of flight travel, the first three-hour flight is to the mainland ports of Chennai, Kolkata, or Vishakhapatnam, on the edge of the Bay of Bengal. One may also embark on a 3–4-day sea voyage from either of these ports, but if stopping to refuel or change planes, it is another two-hour flight to ANI's capital, Port Blair. If arriving before late afternoon, and weather permitting, one can now rush from the airport to

the jetty to catch a pre-booked ferry that takes two or three hours, winding its way up the east coast of Great Andaman to the islands of Havelock or Neil. Within a day, the traveller is on the road, in the air, on the sea, and on the beach by sunset.

Both islands lie five kilometres from each other, nested in larger 'localities and realities'. Geographically, they are part of Ritchie's Archipelago, an island cluster of twenty-odd islands, islets, and rocks. Named after hydrographer John Ritchie, who mapped the area prior to the first British settlement in the 1870s, their nine major islands are a real 'who's who' of the British colonial endeavour. The islands of Havelock, Neil, Sir Hugh Rose, John Lawrence, Henry Lawrence, Peel, Wilson, Outram, and Inglis were all named after officers who fought to suppress the Indian Mutiny of 1857 (Cadell, 1889). Geologically, their foundations of soft fossiliferous limestone, mudstone, and chalky shale (Dhingra, 2005, p. 2) suggest they are a truncated part of the Arakan Yoma range, part of the 'Archipelagic series' which differs from the 'Port Blair series' of grey sandstone and slaty shale that makes up most of the Great Andaman landmass. This coralline formation gives the Archipelago comparatively better groundwater reserves (J. Sharma & Kar, 2013). Anthropologically, their original habitation by the Great Andamanese Akar Bale or Aka-Balawa-da tribe still reveals itself through the remains of kitchen middens across the Archipelago (Z. Cooper, 1997). After the extinction of the sub-group in 1931, the Archipelago was used only as forest outposts by the British. Post-Independence, settlement drives needed islands of adequate water resources, size, and accessibility (Dhingra, 2005), and only the islands of Havelock and Neil were deemed suitable in the Archipelago.

Havelock Island was originally known to the Great Andamanese as *Thilarsiro*, or 'island of turtles' (Abbi, 2013), before being christened after General Henry Havelock in the 1860s, and renamed Swaraj Dweep in 2018. Located 40 kilometres northeast of Port Blair, between 11 96'N and 93 00'E, it is one of ANI's largest self-contained islands, with an area of 113.93 km² and a population of more than 6315 people (Census of India, 2011). A long, narrow island, it has broad white sand beaches, tidal backwaters, dense mangroves, and hilly and littoral forests. Close to 84% of its area is designated Reserve Forest, with 16% revenue land for settlement and agriculture. Its coastline spans 58.5 kilometres and over 20% of the land is hilly, with a maximum elevation of 168 metres. Its waters contain fringing coral reefs and seagrass beds which are frequented by the shy dugong or sea-cow (*Dugong dugon*). The island contains five revenue villages, all named after devotees or aliases of the Hindu deity Lord Krishna (also known as the eighth avatar of Vishnu the Preserver) depicted in the epic *Mahabharata*: Govindanagar, Bejoynagar, Krishnanagar, Shyamnagar, and Radhanagar. These are administered under two *panchayats* (village councils), the Govindanagar council which administers the villages of



Figure 1.3: Map of Havelock Island/Swaraj Dweep. Source: OpenStreetMap Foundation (Open Database Licence, ©OpenStreetMap contributors).

Govindanagar and Bejoynagar, and the Shyamnagar council which includes the villages of Krishnanagar, Shyamnagar, and Radhanagar. All this gets confusing for the islanders, who often switch to the numbers which were used during the time of settlement to designate subsequent forest camps and their environs. Thus, one travels on the road across Govindnagar from the jetty (No. 1) to the market (No. 2) to Bejoynagar, which contains the fishing settlements (Nos. 3 and 5), and the paddy fields (No. 4), and so on – there is even a No. 6.5!

Neil Island lies 36 kilometres northeast of Port Blair between 11 83'N and 93 04'E. Known to the Great Andamanese as *Tebi-siro*, or 'shores of the open sea' (Abbi 2012), it was named after

General James Neill⁵ before being renamed Shaheed Dweep in 2018. A relatively tiny island at 18.9 km², it is home to more than 3040 people. With only 35% Reserved Forest, more than 65% of the island is under settlement. It has almost 20 kilometres of coastline, and little over 1% of hilly land with a maximum elevation of 100 metres. This flat island has wide beaches, mangrove forests, and its waters have larger seagrass areas, and fringing coral reef. Like Havelock, Neil contains five revenue villages, of which four are named after deities depicted in the epic *Ramayana*, the story of Lord Rama (or the seventh avatar of Vishnu the Preserver). Bharatpur, Sitapur, Lakshmanpur, and Ramnagar are joined by Neil 'Kendra' ('centre'), which contains both the jetty and the market. They are all administered under the single Neil Kendra *panchayat*.



Figure 1.4: Map of Neil Island/Shaheed Dweep. Source: OpenStreetMap Foundation (Open Database Licence, ©OpenStreetMap contributors).

For administrative purposes, the Archipelago is part of the South Andaman district, and the Port Blair *tehsil*⁶ Though varying portions of Havelock and Neil are designated Reserved Forest, with settlements allowed only on revenue land, the other uninhabited islands of Ritchie's

⁵Over time the last 'l' was dropped both colloquially and officially. The word '*Neel*' in Hindi also means 'blue', which is a poetic reference to the colour of the surrounding sea and a mythological one to the colouring of Lord Shiva, after he consumed poison.

⁶*Atehsil* is smaller than a district, and sometimes denotes a township. South Andaman is divided into three *tehsils*: Port Blair, Ferrargunj, and Little Andaman.

Archipelago are designated Reserved Forests and Wildlife Sanctuaries or are simply part of the Rani Jhansi Marine National Park (RJMNP). Notified in 1996, this MNP was named, in a symbolic gesture of resistance, after Queen Lakshmibai of Jhansi who fought against the British in the Mutiny of 1857. In its original demarcation, the MNP included the surrounding waters and islands of Henry Lawrence, John Lawrence, and Outram. The islets of the Buttons National Park (North, Middle, and South Button) and Inglis island were added over the years, and today legal protection of the Archipelago's terrestrial, marine, and reef resources extends across an area of 256.14 km². The MNP contains moist deciduous, littoral, and mangrove forests, as well as a diverse coral reef ecosystem of boulder, fringing, and branching coral thriving on ridges, ledges, banks, gorges, and pinnacles. It is renowned for the highest diversity of coral, fish, and butterflies found in the ANI (Chandi et al., 2012; Devy, Ganesh, & Davidar, 1998).

The neighbouring islands of Havelock and Neil, both in Ritchie's Archipelago, are chosen as the sites of study, for a number of reasons. First, they were settled, like other places in the Andamans, in the 1950s and 60s but have had different societal trajectories owing to their characteristic island environments. These have differed between the islands as well, but they now face similar uncertain futures owing to multiple drivers of change. The regional endowment of natural resources means both islanders are today able to engage in what are generally regarded as the three main livelihoods in small islands: fishing, agriculture, and tourism. No other region in the Andamans has developed the capacity for all three livelihoods yet, or to such success. Second, exploring the interactions between their livelihoods and the island environments can reveal how islanders both shape and view their islandscapes, and how they develop a 'sense of place' on the islands or perceive their 'islandness'. Third, no other region experienced such rapid change in their livelihoods over this short period. Renowned not so long ago as hubs for agriculture and fishing, today they are the main touristic destinations in the Andaman Islands. In light of the administrative push towards mega-tourism projects and the opening of 29 new islands for tourism, they may be viewed as harbingers of change which provide lessons to other islands or regions in the wider ANI. Fourth, their societies are predominantly made up of the progeny of East Bengal refugee-settlers (some of whom are still alive) who were settled by the Indian government. Given land and amenities, these settlers share a complicated relationship with the state. They are still highly dependent on its subsidies and provisions, but also wield some power and can collectivise in protest. They are major vote banks, and accomplished farmers and fishers, and tourism development has led to high demand for their property. Statist discourse is variously resisted, subverted, or wholly appropriated for their own ends. Finally, the academic marginalisation of islands over continents notwithstanding, touris-

tic islands are especially eschewed in academic research (Connell & King, 1999; King, 2009). Small tropical islands with white sands and azure waters may not be considered in the realm of serious academia, but they are precisely where academic focus is required (and urgently) on issues of over-development, livelihoods loss, changes in culture, and change in social-ecological systems.

1.3 Methodology, methods, and limitations

1.3.1 Discourse analysis

This is a work of 'interpretative geography', and in its production, develops new representations of the social world it attempts to describe (Eyles, 1988; Schwartz & Jacobs, 1979). A discursive analysis is essential to reveal dimensions of why the Andamans have been rendered vulnerable today. Discourse is 'a system of possibility for knowledge' (Foucault), or the broad shared meaning of a phenomenon, where homogeneous means of expression or communication convey a homogeneous message (Adger, Benjaminsen, Brown, & Svarstad, 2001, p. 685). All discourse is thereby a performative nexus of knowledge and power arising from the ubiquity or omnipresence of power, which permeates all forms of life and thereby knowledge (Foucault, 1980). This Foucauldian knowledge-power-complex reflects a topic and/or actor while simultaneously producing them and informing and shaping the socio-cultural reality in which they are located (Foucault & Ewald, 2003). A 'hegemonic or dominant discourse' dominates thinking enough to be translated into institutional arrangements (Hajer, 1993, p. 60), which are then internalised across the hierarchy, even by the dominated (M. Thompson & Rayner, 1998). Hegemonic power structures can only exist if supported by similar ones on the micro-level, within society's smallest units (Foucault & Schaanning, 1995). Thus, populist discourse will always contain elements of the dominant discourse, though it may mould some for its own purposes while resisting and subvert others.

A plurality of discourses can be difficult to discern when all voices are forced to use the dominant discursive vocabulary, as is the case for the colonial period or under dictatorial (and even some so-called 'democratic') regimes today. Those who resist domination are silenced altogether through discourse itself, which provides justification for this silencing. Analysing discourse then is a complicated task, as it has many different meanings 'in as many different places' (Hajer, 1993, p. 43). Scholars delving into relationships between top-down 'statist or managerial' discourse and bottom-up 'community or populist' discourse admit to stylised di-

chotomies (Adger et al., 2001). Analysis of hegemonic discourse requires identifying configurations of socio-spatial, economic, and political vectors or milieus, while unearthing populist discourse may require concerted ethnographic research. Elements of analysis include identifying regular expressions or 'projections' of the discourse and the actors who (re-)produce, resist, or transform it, and the 'projects' which arise from discourse, with real-world impacts on space and society (Forsyth, 2008). These are often presented in a chronological narrative which includes an ever-changing archetypical cast of actors - heroes, villains, and victims (Adger et al., 2001). In discourse surrounding environmental issues, for instance, analysing both discourses may still not reveal local-level environmental change or realities (Ibid.). The aim is nevertheless to reveal connections between the two 'levels' as well as across time and space and understand how they produce their environments through politics and power.

The discourse analysis in Part 1 claims originality only in the synthesis of different scholarly ideas and notions within a chosen overarching framework. Analysing the notions and language found in surveys, reports, anthropological and historical accounts, scientific studies, conservation reports, government documents, newspaper articles, and geopolitical or political economy analyses, the author reveals the outlines of different discourses and the continuities and disjuncture between discourses. I rely predominantly on the work of others, especially those who have inspired this work by incorporating spatiality and relationality in their work on the ANI. Archival research was conducted in the State Library, and the library of the Archaeological Survey of India, both based in Port Blair. Other valuable information on the islands was collected from the ANET library, the Department for Agriculture, the Directorate of Economics and Statistics, the Department for Fisheries, the Ministry of Environment and Forests, and the Tourism Department in Port Blair, and their branches in Havelock and Neil. Material was photographed and scanned via mobile phone to be digitised later. Temperature and rainfall data from 1949 to 2019 were collected from the internet database of the Directorate of Economics and Statistics.

1.3.2 Livelihoods approaches

'Livelihoods approaches' emerged as a response to a model of developmentalism which strengthened the state level over the local level, doing little to improve ground livelihoods or reduce environmental degradation (Vayda & Walters, 1999). A livelihood is defined as the capabilities, assets and activities required for an individual or household to earn a living or provide for a means of living (Chambers & Conway, 1992). Livelihood assets or 'capitals' refer to the resources required to conduct one's livelihood, and is often visually expressed as a pentagon

of five broad categories: Natural Capital, which refers to availability and access to the natural resource base of land, trees, or fish stock; Human Capital, or the quality and quantity of productive individuals; Social Capital or the sum of trust and socio-political relationships such as kinship; Physical Capital, also referred to as produced capital, which includes livelihoods inputs or infrastructure; and Financial Capital, such as savings, investment, credit, remittances, or insurance, which sustain and grow livelihoods (Carney, 1998)⁷. A livelihood is considered sustainable when it 'can cope with and recover from stresses and shocks, and maintain or enhance its capabilities and assets, while not undermining the natural resource base' (ibid. p 6).

The Sustainable Livelihoods Approach or Framework (SLA/SLF) emerged as a conceptual tool to improve livelihoods of people in living in poverty. The SLF identifies livelihood resources and strategies, and institutional processes that determine the livelihoods of different groups of people living in different geographies or nations (Scoones, 1998). The ecological system is conceptualised from an anthropocentric perspective, as a source of influence on livelihoods but also as a source of capital to sustain livelihoods. Both ecosystems and livelihoods are also intensely affected by institutional structures (public and private) and dynamic processes of law, policy, and culture. Access to both assets and activities is enabled or hindered by the policy and institutional context of livelihoods, including social relations, institutions, and organisations. Access is also affected by external factors, sometimes referred to as the vulnerability context, comprising trends and shocks that are outside the control of the household or individual. In small islands, limited access to physical and financial capital means social and natural capitals, including the interactions between them, play a more central role (Allison & Ellis, 2001; Pretty, 2003). Participatory methods are applied in these frameworks, to give voice to local perceptions. These are normally critical of top-down approaches, being 'used with' rather than 'applied to' the community (Chambers, 1994). They are vital to tease out place-based and household-level interpretations of discourse, narrative, and meaning, as well as to observe livelihoods, their resources, and the household's access to them.

The SLF forms the basis of Livelihood Vulnerability Assessments, such as the Livelihoods Vulnerability Index (LVI) used in this work, where exposure to stressors and sensitivity towards them are often combined, and response or adaptive capacity emphasised (Moser, 2010; Smit & Wandel, 2006). Exposure and sensitivity refer to the dependence of households on climate-sensitive assets and livelihoods, patterns of resource use, and frequency of exposure to stressors (Eakin & Bojorquez-Tapia, 2008) while response or adaptive capacity is dictated by livelihood

⁷Others have added to this pentagon e.g. the resource of time that is commonly used in work on gender and livelihoods

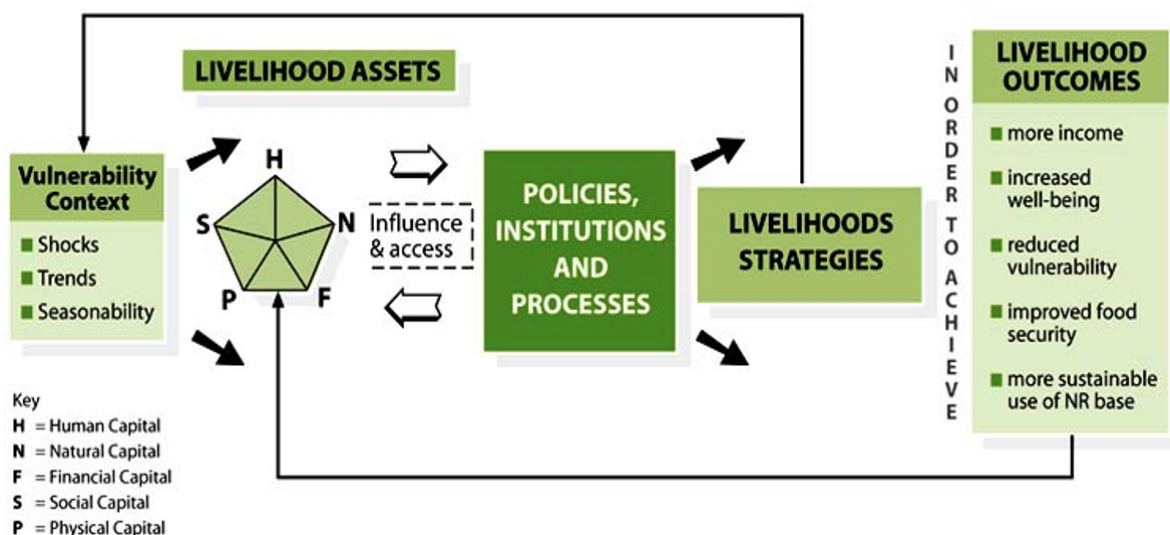


Figure 1.5: Sustainable Livelihoods Analytical Framework (Scoones, 1998)

assets, but also by culture, the resource bases, individual decisions, and capabilities. Livelihoods themselves are determined by myriad factors; accident of birth, gender, inheritance, education, migration, external pressures, conflict or war, and survival or desperation (Chambers & Conway, 1992). Livelihoods approaches are a valuable tool to reveal the complexities of social life and power dynamics in a distinctive locality (Scoones, Amanor, Favareto, & Qi, 2016). Critics note that these approaches may isolate communities further, ignoring extra-local drivers of change or connections with other regions, as well as historical factors. This absence of temporal and spatial scale ignores the (re-) production of global discourses at the local level, and they are also criticised for failing to engage with economic globalisation, climate and ecological change impacts, and either overplaying or underplaying power issues (Carr, 2013; Connell, 2018).

The author is also aware that with Livelihoods Vulnerability Assessments, she is employing a tool used predominantly in developmental policy, which is criticised throughout this work. However, it is one methodological tool in the analysis of a wider islandscape, which situates these islands in trans-local and global connections and networks. The visual depiction of the results of the LVI is simple enough to engage policy-makers and reveal areas requiring immediate intervention at a glance. Allowing comparison also reveals how no two islands, even within the same archipelago, are alike, no matter how closely they are clubbed together in the developmental imaginary. Primary data collection was conducted across eight months spread out between 2015 and 2018. An initial 5-month fieldwork visit was followed by a three month-long stints in 2016, 2017, and 2018-19. Initial scoping interviews and discussions were followed by household surveys to assess the Livelihood Vulnerability Index, supplemented by Interviews

and Focus Group Discussions. For the purposes of verification, triangulation, and corroboration, a range of secondary sources were used. These included master plans, conservation reports, agricultural and population censuses and surveys, climate records, archival communications, official documents, statistical data series and reports, as well as analyses by other scholars. Secondary data on Havelock and Neil were obtained from previous reports, particularly the SocMon report (2012) I was previously involved in, and the Master Plans for both islands created by the Andaman Public Works Department (2014). Navigational maps were obtained from local fishermen and port authorities. Revenue maps of Havelock and Neil were obtained from the Revenue office, as were the lists of residents.

1.3.3 Research methods

A combination of both quantitative and qualitative methods is considered salient for livelihoods approaches (Ellis, 2000; Scoones, 1998). This research uses a multiple or mixed method approach, combining qualitative methods such as survey techniques and official statistics with qualitative methods of participant observation, interviews and focus group discussions. This broader toolkit ensures a higher degree of corroboration, verification, and triangulation. Complex and dynamic concepts, such as livelihoods or vulnerability, benefit from mixed methods; qualitative methods provide depth to a quantitative analysis that can guide policy-makers in adaptive management or decision-making.

Participant Observation

Through participant observation, one experiences the daily lives of people, as well as the livelihood assets and strategies they employ (Patton, 1990), while gaining insight into the structural space the respondents inhabit and the power dynamics within them (Mack, Woodson, Macqueen, Guest, & Namey, 2005). Understanding the exigencies of islanders' daily livelihoods, their practices and use of resources involved farm visits, tagging along on fishing expeditions, and conversations with shopkeepers and small business owners in the jetty and market. Some willing informants were identified through officials in the Agricultural and Fisheries Departments, others were 'cold-called', or requested in the market or jetty where they came to sell their wares or congregate in the evenings. On many occasions, I immersed myself in these daily tasks, helping to spread rice or areca nut to dry, feed poultry, push boats out into the sea, or clean fish. Much was learnt over evening shopping in the market, impromptu fishing expeditions, cups of tea and games of carom at the jetty, as well as through conversations in ferries,

fairs, and festivals This helped gain a position of involvement, blurring the insider/outsider line a bit more and clarified certain power dynamics within the islands, between livelihood groups, ethnic communities, and even different classes (e.g., mainlander resort owners vs local resort operators). (Kitchin & Tate, 2013). All impressions were recorded in field notes.

Focus Group Discussions

Focus Group Discussions were divided into scoping discussions, livelihoods discussions, and confirmation discussions. Scoping discussions were organised in the initial phase of research on both islands, and participants included a mix of men and women, as well as the elders of the community, and a few panchayat officials. Here the intention was to tweak and validate the household surveys designed to collect data for the Livelihoods Vulnerability Index, and to introduce the research to key community leaders. This was followed by FGDs with livelihoods communities according to their distribution, which meant two FGDs with farmers, one with fishers, one with tours operators, and one with women's collectives, in each island. These provided insight into livelihoods challenges and strategies and contribute to the coupled human-environment narrative in Chapter 8 and the seasonal calendar in Chapter 10. At the end of research in 2018-19, a confirmation discussion/presentation was held in both islands to discuss the findings of the Livelihoods Vulnerability Index. This included many of the FGD participants who had been involved previously. A total of fifteen Focus Group Discussions were conducted throughout this research, seven in Havelock, seven in Neil, and one in Port Blair. These included one scoping and one confirmation discussion in each island, while the rest were with farmers, fishers, tour operators, women's collectives, and one with academics in Port Blair. A comprehensive list is given in the Appendix. From the participatory activities during these FGDs emerge the visual tools of a 'landscape profile' and seasonal calendars. The profile (like one created by Reenberg, 2001) reveals how islanders view the island space they inhabit and work in, and the place and spatialisation of livelihoods and communities within them. The use of seasonal calendars adds a temporal dimension to livelihoods, reflecting annual cycles within livelihoods, and even between livelihoods, revealing strategies of diversification or 'productive bricolage' (Batterbury, 2001).

Calculating the Livelihoods Vulnerability Index (LVI)

The LVI uses a composite index approach, and the LVI household surveys (Appendix A) contain questions on sub-components which make up each Major Component. The eleven

Major Components used here are: Knowledge and Skills (KS), Health (H), Socio-Demographic Profile (SDP), Social Networks (SN), Food (Fd), Infrastructure (In), Water (Wa), Ecosystems (Eco), Natural Disasters and Climate Variability (NDCV), Land and Income (L&I), and Livelihood Strategies (LHS). These are all equally weighted in this calculation, which implies that every sub-component contributes equally to the overall index. While other weighting schemes may be used, such as assigning different weights to indicators considered more important to a community, this necessitates more time and human resources. A simplified weighting system ensures the LVI can also be employed in resource-poor settings.

Sub-components: As sub-components are measured on different scales, the first step is to standardise each in the form of an index. This sub-component index $index_{s_d}$ is normalised over the total range of plausible values to standardise sub-components as follows:

$$index_{s_d} = \frac{s_d - s_{\min}}{s_{\max} - s_{\min}}. \quad (1.1)$$

Here s_d is the original sub-component value for island $d \in \{\text{HL}, \text{NL}\}$, where HL and NL represent the two islands of Havelock and Neil respectively, and s_{\max} and s_{\min} are the maximum and minimum values for each sub-component, determined from the sample data for both islands.

Major components: After each sub-component has been standardised, the contribution of each Major Component M_d is determined by calculating the average value or mean of all its sub-components. This is done for each island using the formula:

$$M_d = \frac{\sum_{i=1}^n index_{s_{d_i}}}{n} \quad (1.2)$$

where n is the number of sub-components constituting each Major Component. The value of n may be different for each Major Component. The above notation thereby introduces i as a counting index for $i = \{1, 2, \dots, n\}$ for each standardised sub-component $index_{s_{d_i}}$.

Livelihood Vulnerability Index: Finally, the island-level Livelihood Vulnerability Index (LVI), also known here as the Major Components LVI (to distinguish it from the other two iterations), is computed from the weighted average of the 11 Major Components for each island as follows:

$$LVI_d = \frac{\sum_{j=1}^{11} w_{M_j} M_{dj}}{\sum_{j=1}^{11} w_{M_j}} \quad (1.3)$$

where M_{dj} is the j^{th} resulting Major Component value for island d , computed using equation 1.2. The weighting factor w_{M_j} of each Major Component, is determined by the number of

sub-components that make up each Major Component. Using this approach, equation 1.3 can be simplified as follows:

$$LVI_d = \frac{w_{SDP}SDP_d + w_{LS}LS_d + \dots + w_{NDCV}NDCV_d}{w_{SDP} + w_{LS} + \dots + w_{NDCV}} \quad (1.4)$$

Capitals-LVI Framework: The Capitals-LVI rearranges the sub-components according to the five livelihoods capitals - Natural Capital (NC), Human Capital (HC), Social Capital (SC), Physical Capital (PC), and Financial Capital (FC), all of which are calculated using equation 1.3. These are then combined to determine the Capitals-LVI score for each island:

$$Cap-LVI_d = \frac{\sum_{j=1}^n w_{M_j}M_{dj}}{\sum_{j=1}^n w_{M_j}} \quad (1.5)$$

IPCC-LVI Framework: The IPCC-LVI rearranges the Major Components into the IPCC indicators which determine vulnerability i.e., exposure (e), sensitivity (s), and adaptive capacity (ac), and calculates each accordingly:

$$e_d = \frac{\sum_{j=1}^n w_{M_j}M_{dj}}{\sum_{j=1}^n w_{M_j}} \quad (1.6)$$

Following this calculation, the three indicators are combined using the following equation to obtain the IPCC-LVI score for each island:

$$IPCC-LVI_d = (e_d - ac_d) \cdot s_d \quad (1.7)$$

Household Surveys

An initial survey design for developing a Livelihoods Vulnerability Index (LVI) was presented various groups in the Andaman Islands in 2015. Scoping discussions were conducted in conjunction with the respective *panchayats* to contextualise and refine the indicators chosen. Inputs also came from presentations to professors and researchers at the University of Pondicherry, NGO personnel (in particular the Andaman and Nicobar Environment Team), scientists from the Central Island Agricultural Research Institute (CIARI), and members of the Andaman Science Association. The chosen Major components and Sub-components were modified accordingly. Household surveys were conducted in a total of 441 households, 312 in Havelock and 129 in Neil. These numbers reflect the differential populations of the islands (Table 1.1). Havelock's population of 6351 is divided into approximately 1641 households (Gov-

ernment of India, 2011), 52% (862) of which are located in Govindnagar *panchayat*, and 48% in Shyamnagar *panchayat*. Calculated at a confidence level of 95%, and a 5% margin of error, an ideal sample size for Havelock is 312 households. For proportionality, the sample includes 162 households from Govindnagar(52%), and 150 from Shyamnagar (48%). Neil's population of 3040 is divided into approximately 735 households (Ibid.). Neil's sample size is 129 households, calculated at a confidence level of 95%, but an 8% margin of error. This is attributed to the unavailability of enough respondents during the first fieldwork phase in 2015, when a heavier-than-usual tourist season coincided with a delayed annual rice harvest. Havelock's sample size is then 19% of households and population, compared to 17.5% for Neil.

Island Sample		Havelock (HL)	Neil (NL)
Total population (2011)		6 351	3 040
Sample population		1353 (21%)	734 (24%)
Total no. of households (2011)		1641	735
No. of households (sample)		312 (19%)	129 (17.5%)
Avg. no. of people/household (2011)		3.8	4.1
Avg. no. of people/household (sample)		4.3	5.7
Total no. of females (2011)		2820 (44.4%)	1415 (46.5%)
Total no. of females (sample)		631 (46.7%)	332 (45.2%)
Main Occupation	Farming	80 (25.6%)	71 (55%)
	Daily wage labour	108 (34.6%)	13 (10.1%)
	Fishing	79(25.3%)	9 (6.9%)
	Business	16 (5.1%)	24 (18.6%)
	Govt./social work	25 (8.0%)	9 (6.9%)
	Tourism	5 (1.6%)	2 (1.5%)
Ethnicity	Bengali	289 (92.6%)	123 (95.3%)
	Telugu	9 (2.9%)	3 (2.3%)
	Tamil	5 (2.2%)	3 (2.3%)
	Ranchi	5 (1.6%)	0 (0.0%)
	Karen	3 (1.0%)	0 (0.0%)
	Oriya	1 (0.3%)	0 (0.0%)

Table 1.1: Details of sampled households in each island, including main occupations and ethnicity.

Households were selected through systematic sampling and a list of households was obtained from the islands' respective Revenue Offices. Starting from a randomly selected household, each third household was surveyed till the minimum sample size was covered. The number of households were also weighted according to the household density of the villages. The primary occupations of the household could not be determined beforehand, but the three main

reported occupations were agriculture, daily wage labour, and fishing, followed by business and government service. Interestingly, less than 2 % of sample households listed tourism as their main occupation. Similar percentages are reflected in the occupational break-up of both island populations laid out in the Master Plan (2014). Table 1.1 contains an occupational breakup according to the reported main occupations of the household. After explaining the objective and obtaining verbal consent from the (usually male) head of the household, each survey lasted approximately 45 minutes. Depending on levels of comfort, the survey was followed by an Unstructured Interview, which lasted another 30 minutes on average. The survey is reproduced in the Appendix, and the calculation of the LVI, indicators chosen, and results are given in Chapter 9. Survey data were coded and analysed in Microsoft Excel, a popular, simple-to-use, and easily available software. The meteorological data required for this research were acquired through the internet database of the Directorate of Economics and Statistics. Surveys and interviews were carried out in Hindi, and a handful were conducted in Bengali with the help of a translator. Most interviews were recorded (with permission) on a voice recorder or cell phone and transcribed into English at the end of the day. Oral permission was obtained before photographing people or private property with the disclaimer that they might be used in this work.

Interviews

Interviews allow for spontaneous personal responses and comments, clarifications on survey responses and meaning, and the introduction of issues considered vital to the interviewees' experiences (Hoggart, Lees, & Davies, 2002; Valentine, 1997). Unstructured Interviews (USIs) were conducted in most households after the surveys were complete. These consisted of open-ended questions about the island's development, or any issues respondents wanted to discuss, and yielded many anecdotes and stories. These were recorded in field notebooks or in the blank pages of the survey document. USIs were also conducted with wider members of the public, including tourists, ferry personnel, and farmers/fishers from other islands. These helped to identify candidates for in-depth Semi-Structured Interviews. Identified as knowledgeable informants on island matters, these included people from the following walks of life: Officials and employees from the Departments of Agriculture, Fisheries, Police, Disaster Response, Health, Veterinary Services, and Tourism in both islands as well as in Port Blair; journalists, academics, school teachers, and NGO workers; local *panchayat* leaders and heads of livelihoods associations/cooperatives; elders of the communities from the first and second settler batches; report owners, dive instructors, and other tourism entrepreneurs. A total of 69 SSIs were conducted, coincidentally 32 each in Havelock and Neil, and 5 in Port Blair. Significantly, only thirteen of

these were with women. A list of interviewees is given in the Appendix. Interviews were digitally synthesised at the end of the day, and all interviewees anonymised, and coded. Though SSIs tend to bring up repetitive issues (Dunn, 2005), they complement standardised surveys precisely because they are *not* standardised. They also reveal relationships and power dynamics within the islands. For example, in settler households, ethnicity and migration status took precedence in referral, while migrant households were more varied in their referrals. In Port Blair, the FGDs and SSIs revealed echoes of mainland-island dynamics in the relationship that Havelock and Neil share with South Andaman, their ‘parent island’. These were also insightful with regard to urban perceptions of the Andaman rural hinterland and the urban-rural divide.

1.3.4 Limitations and positionality

Employing multiple research methods adds to the breadth of research but each method has its limitations. The biggest limitation of this research involves the inability to solicit enough expert and administrator participation, particularly in Port Blair. Apart from a few enthused meetings, avoidance was a common tactic. Arriving for scheduled interviews to be told that the person concerned was on a ‘field’ or ‘mainland’ visit was common. A well-planned interview itinerary with the upper echelons of administration in December 2018, during the last phase of fieldwork, was waylaid by Prime Minister Narendra Modi’s last-minute visit to the ANI. In a last-ditch attempt, I emailed 35 people a short expert opinion survey; only three replied. Analysis of state discourse has thereby relied heavily on secondary data, academic scholarship, newspaper articles, and interviews with local island officials. Sifting through secondary data, especially statistics, elucidates partial and situated perspectives, and inconsistent or missing data is a source of frustration. Administrative departments and websites have mismatching figures in different measurement units with little detail, which mysteriously change over time. Checking tourist arrivals, I was surprised to find figures on the Forest Department website which were inflated by almost 200,000 in certain years compared to those in the Directorate of Economics and Statistics database. Whether this is a typo, or corrected to portray a better tourist economy, remains a mystery.

For developing indices, such as the Livelihoods Vulnerability Index, the use and customisability of composite proxy indicators is valuable. Yet their choice is admittedly subjective. Often informed by previous work in other contexts, proxies may distil or oversimplify a complex reality, or introduce bias. To minimise these limitations, interviews combined with scoping and confirmation discussions can be used to guide the research. . Its customisable nature also has

a downside; the LVI cannot be replicated in toto in other contexts. Longitudinal comparison studies would have to follow the same research design down to the sample and methods of standardisation and weighting (Vincent & Cull, 2010). The use of weighting is also contentious. In this work, a balanced weighted approach is used for simplicity and replicability, though other weighting schemes may better elucidate the priorities of respondents (Eakin & Bojorquez-Tapia, 2008). The index is further computed under the assumption that the responses obtained are unbiased and fair. In certain situations, respondents may be prone to exclude or over-/under-state certain information, such as income, help given and received, money borrowed and lent, or extent of political participation. As an example, in this research, some respondents openly declared, their encroachment on government-owned forest land while others were understandably reticent on this point. Finally, the assignment of directionality, and what constitutes *more* or *less* vulnerability, is always a normative exercise. In some cases, this directionality is unclear; for instance, a joint family may imply less vulnerability for its elderly and children but may indicate more vulnerability if a small number of working members is supporting a disproportionately large dependent group. Similarly, the fraction of female-headed households in a population is a debatable indicator of vulnerability (Hahn, Riederer, & Foster, 2009; Shah, Dulal, Johnson, & Baptiste, 2013). It is thus incumbent upon the researcher to detail and justify what they mean by more, or less, vulnerable.

Participatory methods, though crucial for field research and understanding livelihoods practices, are sometimes unreliable, impressionistic, and on their search for further inclusion, may actually exclude sections of the community, such as women or the elderly (Cornwall & Jewkes, 1995). In this research, women formed a minority within Focus Group Discussions which were typically held in marketplaces or council buildings, though they were arguably more vocal during the household surveys in a domestic setting. Participatory methods position their subjects as knowledgeable authorities on their lives and worlds and seem immersive, but the researcher is still the go-between imbibing and portraying the construction of meaning in specific contexts and places (Cloke et al., 2004). Simply by entering the field, the researcher is said to influence the social world under study (Mauthner & Doucet, 2003). The researcher needs to be aware that they are a 'positioned subject' (Rosaldo, 1993), and and be consciously reflexive of the consequences of research decisions in action, interpretation, and relation to the field. The research act itself might be problematic in terms of power relations, yet the analytical views of the academic outsider may reveal connections absent in lay accounts by insiders who are mired in local politics, or within landscapes and everyday livelihoods. In this way, a researcher's particularities are not necessarily 'contaminants' to valid knowledge, a point argued

by feminist scholars who question whether detachment from the research process is possible or even desirable (Butler, 2005). How I approach, access, claim, and am offered data, and how I interpret and analyse information, will be shaped by my own identity, history, and characteristics as a researcher. It helps to orient the non-fixity of the island researcher - perennially off home ground, or at sea. Being accepted into small island communities, with their strong insider-outsider distinctions, can be challenging. As a middle-class academic from North India studying in Germany who has worked previously in the islands but also has a father who retired as a prominent bureaucrat from the islands and built a house there, I am a mainlander with one foot in the islands.

My previous work with a well-known local NGO in these islands still resonated with some islanders because of the multi-stakeholder Marine Park management platform it helped to create. In 2010, I lived between Havelock, Neil, Port Blair, and Wandoor over a period of 10 months, working on the socioeconomic monitoring of coastal communities. Many interlocutors and survey participants remembered me, though in the interim, certain events had transpired. The NGO had run into trouble with the local administration after the BJP government, led by Narendra Modi, gained power in 2014. NGO personnel at the time maintained that the NGO was victim to the nationwide crackdown on environmental and civil society organizations that followed shortly after (see the introductory chapter for more details). Its foreign funding was halted and its accounts scrutinised, and though cleared of any wrongdoing, its employees were surveilled and harassed, some into leaving the islands permanently. Accordingly, the NGO's work in Havelock and Neil was suspended for over a year before I returned for fieldwork. Though its reputation seemed largely intact, my new avatar as a PhD researcher affiliated with a German university was perhaps better received in the political climate. It bestowed me with more neutrality than if I had affiliations with local NGOs or Indian universities. Regardless, most islanders were more interested in where I was from (North India) than in my academic affiliation.

My father's posting in the ANI was also a delicate topic. Having served two terms as chief of police, he had managed the rescue operations during the 2004 earthquake and tsunami. The good will garnered by the police during this time and even in his second term is generally attributed to his able leadership and love for the islands. I include this, not to boast about my father (though I remain a proud daughter) but to highlight a few important points. Administrative power in the islands is yielded solely by mainlander bureaucrats appointed by the Home Ministry for a term of three to four years. The ANI are officially considered 'hard' or 'border' postings (and by some as 'punishment' postings). Most administrators installed by the centre are eager to get back to their own territories or to the centre of power, New Delhi. Islanders are

therefore wary of them, and tend to categorise their tenures in two ways, as characterised by: lassitude/indifference, or exploitation/corruption. A handful have been perceived as efficient and fair administrators who have attempted to understand island context and effect change, and my father is by and large one of them. Though he ruffled many feathers, and put service above family in the process, his acceptance of a second term was an important declaration for the islanders. His retirement from these islands was another symbolic gesture which tied him to the ANI more permanently. During his first term, the connections he forged with the people and the place in the wake of the disaster culminated in his buying a parcel of hilly land Havelock Island on which built a family home, a difficult task that took much longer than anticipated. Though it was little more than a construction site in 2010, by 2015 it provided much-needed (free) accommodation for my fieldwork.

I was hyper-aware of not only my father's history but of belonging to a privileged group of mainlanders who owned property on the islands and afraid this would lead to apprehension, resentment, and refusal to respond. I therefore chose to stay silent about both aspects and was determined not to 'use his name' to gain information or favour. Experts and bureaucrats warned that some might give wrong information, complain excessively about the administration hoping I would be able to help them, or hide their true feelings and seeing me as a spy of sorts. Consequently, I decided to forego the help of 'gatekeepers' for fear of being aligned with particular groups or introducing other biases. This non-affiliation led to more candid conversations on the state of the island's infrastructure, politics, and development than during my previous work engagement, and ensured that any bias in the data remained solely my responsibility. It did mean more time and legwork in gaining access to households and key informants, acclimatising to work rhythms (like waking up at 4 AM), and sensitising to island social dynamics (Marshall & Rossman, 2006, p. 77).

The use of participatory or ethnographic methods means researchers are also being researched, and in the course of fieldwork, my ethnicity, religion, education, family and marital status, even habits, routine, and dietary preferences, became common knowledge. No one refused to participate in the surveys despite this knowledge, and the fact that our house was a family home and not a hotel was generally perceived as a positive sign. Many respondents voiced concern about how I fed myself, or lived alone without fearing either ghosts and spirits, or snakes and centipedes. Surveys generally became longer after that, often accompanied by invitations to drink tea, or stay for a meal. Most field researchers in India are offered, and must drink, copious amounts of tea, but meals were usually politely declined, citing more work or wanting to get home before dark. I did acquiesce more to meal invitations during my last

phase of fieldwork, being treated to some excellent food and a whole lot of laughter. Academic research, especially on issues of vulnerability, is considered a largely specialised knowledge exercise with no direct material benefits to the community in return for their participation. I sensed no discomfort on the part of my interlocutors at talking to an (ex) official's relative and was importantly never asked for any favours. People participated wholeheartedly in group discussions, especially the confirmation discussions at the end of fieldwork when many thanked me for documenting a first-of-its kind comprehensive history of both islands (see Chapter 10). I therefore dedicate this work to the people of these islands and thank them for the warmth and kindness with which this mainlander was, and hopefully always will be, received.

1.4 Chapter summary

Chapter 2, Expanding the 'Islandscape' Approach, develops the islandscape as a relational approach that produces a complex assemblage. Taking from the spatial and relational turns in the fields of 'island studies' and 'human geography', it envisions an islandscape as 'ways of seeing and ordering', as well as 'ways of interacting'. 'Islandism' (like Orientalism) is one example of the former; 'islanding' or 'islandness' an example of the latter. The 'islandscape', like the 'archipelago' in this formulation, is more a way of thinking, a model than a geographical site. Connections inherent in the islandscape, between land and sea, humans and the environment, and between islands or islands and mainlands are expanded. The chapter ends with the reasons why the islandscape concept was chosen for this work. Part One – The Continental Gaze – identifies and analyses aspects of dominant discourses employed to control, manage, and marginalise the Andaman and Nicobar Islands since their British colonisation in the late 1700s to their present-day status as strategic Indian Union Territories.

Chapter 3, Discourse and the Islandscape, introduces the various discourses or aspects of the hegemonic discourse of power to illuminate what she dubs the 'Continental Gaze' which have historically produced the Andaman islandscape. She borrows a global-scale discursive framework put forth by modern historian Greg Bankoff (2001a; 2018) and adapts it to island geographies in particular. Bankoff postulates that the discourses or notions of *tropicality*, developmentalism, vulnerability, and resilience are all facets of an essentialising and continuous 'hegemonic or dominant discourse of power' which have evolved through history with the 'zeitgeist', or spirit of the time. It is these discourses which have consistently bifurcated the world, along similar geographical lines, into tropical vs. temperate, Third World vs. First World, and global South vs. global North. These seemingly symbolic 'projections' have had real-world im-

pacts through the 'projects' they have justified, keeping certain geographies exalted at the expense of others. Discursive regimes have borrowed from those that came before or parallel regimes to maintain a power status quo that has changed little since the pre-colonial era. The next few sections introduce each wider discourse and how it has been effectively used on the wider category of islands, especially tropical islands.

Chapter 4, *Savage Isles*, explores how notions of 'tropicality' were leveraged by the colonial British Empire to colonise the Andaman Islands for their proximity to vital trade routes and other coveted regions. Surveys and reports of the time projected the bountiful islands as 'bad tropicality', alluding to their wild nature and hostile seas, and borrowing pre-colonial constructions of their inhabitants as savage cannibals. The absence of agriculture now rendered the land a 'terra nullius' perfect for timber extraction, and the islands looked like natural prisons fit for the degenerate convicts of British India. Projects of civilisation and rehabilitation led to the incarceration of their indigenous populations in Andaman Homes and convict populations in the penal settlement, and later Cellular Jail. With the free labour provided by both groups, a commercially minded Forest Department instituted projects of timber extraction and mangrove dredging to tame the land-/sea-scapes. Their penal nature demanded isolation from colonial trade networks, the destruction of indigenous trade routes, and furthered the marginalisation of the Andamans. Through their strategic location, timber resources, and penal colonies, the Andaman and Nicobar Islands both served the expansion of the British Empire in India and beyond. The beginnings of an agrarian landscape notwithstanding, the ANI were underdeveloped, poorly defended, and non-productive liabilities. They were easily captured by Japanese forces in 1942. British 'liberation' in 1945 revealed a depleted, tortured, and starved convict population, and the Islands were reluctantly ceded to India upon its Independence shortly after. The projections of tropicality and 'islandism' used to appropriate and marginalise the Andamans were ironically the very ones that sabotaged the colonial endeavour.

Chapter 5, *Backward Isles*, examines notions of 'developmentalism' in the context of the post-colonial settler colony which emanated from the newly independent Republic of India. Rebuilding India after a bloody Partition and as a developing nation-state necessitated the same land and resources that had enriched the British colonial framework, and some ideological departures were offset by many postcolonial continuities, albeit in different terms. Projections of 'backwardness' now changed 'wild' to 'underdeveloped', 'savages' to 'primitives', and a de facto terra nullius into an ideal Indian territory. They would now serve the Indian mainland once more, but in its quest for rebuilding, self-sufficiency, industrialisation, and development. Thus, Andaman land and sea were now utilised for settlement, agriculture, and industrial raw mate-

rial. The management of primitives involved benevolent paternalism and their legal positioning as subjects rather than citizens, as well as anthropological objects imprisoned and isolated in demarcated 'tribal reserves'. Social hierarchies were entrenched with the state favouring certain groups over others: refugee groups from East Bengal were hailed as agricultural pioneers. Indebted to their new state, they were positioned as convenient buffers between the state on one hand, and the indigenous and British-settled 'pre-1942' groups on the other. The resource conflict and societal divisions this engendered persist today, as do the adverse effects of continental visions of development imposed on island geographies without contextual consideration. The project to spatially 'Indianise' the ANI involved further settlement from different parts of India, the valorisation of the Cellular Jail as the ultimate symbol of the Indian freedom movement, and their framing as an idealised 'Mini-India' free of caste, communal, or ethnic separations. Their status as Indian Union Territories mean all power and authority over the Islands now lay in New Delhi, India's centre of power which lies more than 3000 km away.

Chapter 6 – Endangered Isles – locates the Andamans within wider debates of 'vulnerability' to hazards and processes of global change i.e., climate/environmental change due to anthropogenic activity for economic ends. Conservation and anthropological concerns of the impacts of overdevelopment, ecological degradation, disaster, and climate change merge with those of geopolitical security to produce multiple levels of vulnerability. Disaster management, conservation, geopolitical, and scientific climate change discourses highlight the high exposure of their tropical location to cyclones, tectonic activity, and military invasion; the heightened sensitivity due to their 'island nature', historical despoliation, and Neo-Malthusian demographic pressure; and the low adaptive capacities of their 'particularly vulnerable' indigenous groups and 'Other Backward Class' status of settled populations. Both are dependent on the state for dole or subsidies, livelihoods, and even survival. The long-standing effects of the 2004 earthquake and tsunami disasters have added weight to these projections, portraying the islands and islanders as hapless victims. The project of conservation has now spatialised the ANI anew, in Protected Areas and Marine Protected Areas. The indigene-settler divide is maintained, with further hierarchies according to the time of settlement. Settler/migrant society is now blamed for the plight of the indigenous and the islands' islands' ecosystems; their indiscriminate, ignorant behaviour necessitates stricter protection of both, giving the state more power. Thus, society and livelihoods are engineered, dependent on administrative sinecures and subsidised inputs which deepen in-fighting and divisions ; legal frameworks and regulations are imposed with no islander participation; traditional mobility and livelihoods are curtailed by Protected Areas or military regulation. Their designation as Indian 'Sub-National Is-

land Jurisdictions' reveals a performative relationship with the Indian state and the constant exaltation of mainland military and historical legacies over island ones.

Chapter 7, Emerald Isles, brings us to the present-day shift away from the negative properties of vulnerability to positive ones of 'resilience' and the rhetoric of 'sustainable development' which portrays islanders as exemplars exhorted to change their practices while exploitation by industry continues unabated. The projection of the Andamans as tropical idyll involve ideas of 'good tropicality' or their marketing as tropical paradise, of a cosmopolitan 'Mini-India' society living in harmony, and ideal laboratories for a clean, green, smart, and sustainable interventions. Projects of consumption are visible in the commodification of land and sea, and its translation in economic terms and measurements. Ecotourism is now the panacean answer to conserving island ecosystems and livelihoods. Increased in-migration for tourist development has contributed to tensions between islanders and non-islanders, and between islander and state. The military is strengthening its role as economic and development actor to counter the growing threat posed by China, and the parallel development of both military and the privatised tourism industries, or 'militourism', is discernible. All this development needs more space, and the reversal or de-notification of protected areas and tribal reserves is also in motion. The Andamans now serve as tourist destinations, and the wider ANI as military strongholds, both of which further 'nationalise' them as homogeneous extensions or limbs of the Indian mainland.

In Part Two, An Islander Vision, the author uses the 'isandscape' perspective to analyse the two neighbouring Andaman islands of Havelock (Swaraj Dweep) and Neil (Shaheed Dweep). Employing livelihoods approaches, the historical and contemporary relationships between the land and sea, islanders, and their environments, and between the two islands and other geographies are explored. As repositories of culture, knowledge, symbolism, and legacies, and as a medium of constant change in the isandscape, livelihoods reveal islander discourses and mediate their 'sense of place'. Livelihoods are also affected by external stressors, such as institutional frameworks, global change, globalisation, and development, and reveal islander perceptions of change and the strategies employed to adapt or cope with these stressors. Reconciling notions of 'the island' with research on 'specific islands' identifies problems and development solutions put forth by islanders themselves, while revealing the variegated nature of notions of 'islandness', 'island development', and 'island vulnerability/resilience'. It integrates aspects of the wider discursive analysis in Part One with the grounded livelihoods data collected in Part Two to 'build an isandscape' of Havelock and Neil. With different histories and development trajectories, the two face similar futures in terms of vulnerabilities and adaptive capacities. Revealing connections between the two islands, other 'parent' islandscapes (of Port Blair and the

wider Andamans), and the mainland breaks the myth of islands as static or isolated while stressing processes of marginalisation and power even within archipelagoes.

Chapter 8, *Trajectories of Change*, traces the mutual historical interactions between the island environments and the development of islander livelihoods in Havelock and Neil, creating a 'coupled-human environment narrative'. It also identifies aspects of the discourses (or discursive notions of the hegemonic discourse of power) put forth in Part 1 which relate to the historical settlement and development of these post-colonially settled islands. From the time of settlement by East Bengal refugees to the advent of tourism, a coupled human-environment narrative traces the impact of the island setting, its geology, topography, land-/sea-scapes, resources, as well as external factors, on livelihoods decisions and societal structures. These are also conditioned by the histories of place, by wider interactions with the colonialism, state-making, or the global economy. Further, individual circumstances (e.g., birth, gender, caste) or their decisions and capabilities (e.g., education, diversification) also determine livelihoods decisions.

Chapter 9, *Perceiving Vulnerabilities*, analyses and discusses the results of a Livelihoods Vulnerability Index (LVI) conducted on both islands between 2016 and 2019. Taking from Hahn et al. (2009), the LVI analyses eleven major components, categorised according to the five livelihoods capitals/assets of the 'asset pentagon' in the Sustainable Livelihoods Framework – Human, Natural, Social, Physical, and Financial (Scoones, 2009). Perceptions of wider change and livelihood vulnerability expose facets of islander discourse, local-level environmental realities, and future concerns. Each component is discussed in length and in tandem to reveal further interconnections within the islandscape, and to further an understanding of island-island relations within archipelagoes. Three variations of comparative LVI results are presented to highlight similarities and differences between the islands; the Major Components LVI, the Capitals LVI, and the IPCC-LVI (which further categorises components according to the IPCC indicators of sensitivity, exposure, and adaptive capacity). The last reveals that the smaller island of Neil is relatively less vulnerable than larger Havelock, challenging the myth that small islands are inherently more vulnerable than larger ones and mainlands.

Chapter 10, *An Islandscape in Flux*, integrates aspects of the wider discursive analysis in Part One with the grounded livelihoods data collected in Part Two to 'build an islandscape' of Havelock and Neil. With different histories and development trajectories, the two face similar futures in terms of vulnerabilities and adaptive capacities. Connections inherent in the islandscape are highlighted: human-environment, land-sea, and island-island/island-mainland. Both islands are experiencing rapid changes in both livelihoods and island ecology, visible

through the loss of forests, mangroves, seagrass, and reef cover and biodiversity. These are recorded in scientific studies and materially exposed in the practice of livelihoods, facets of which contribute to this change. Decrease in crop yields, and fish catch are discernible across the board, and biodiversity changes have led to expressions of islander 'ecological grief'. Connections with the mainland reveal processes of marginalisation and further consolidation of power. Even the wider Andamans employ aspects of the hegemonic discourse to marginalise the two islands based on projections of 'touristic islands' and resentment at perceived economic prosperity. Revealing connections between the two islands, other 'parent' islandscapes, and the mainland breaks the myth of islands as static or isolated and exposes processes of marginalisation and power even within archipelagoes. The chapter identifies points of interaction and departure between top-down statist discourse and bottom-up islander discourse. To cope with or respond to these changes, islanders diversify their livelihoods, embarking on what political ecologist Simon Batterbury 2001 dubs 'productive bricolage'. State institutions play an important facilitatory role in the ANI, but islanders also respond autonomously, relying heavily on their own resources and social capital (Adger, Huq, Brown, Conway, & Hulme, 2003). Livelihoods response to changes and multiple stressors include, amongst others, diversification, collectivisation, and changes in livelihoods practices. The chapter ends with islander suggestions on how to increase cooperation with the state, reduce vulnerabilities, and move towards a better future for the islandscape.

Chapter 11, Conclusion, reflects on the research questions guiding this work, and emphasises further research, especially the use of islandscape and livelihoods approaches. It calls for more research on 'touristic islands' which are in a state of societal and ecological flux, and new subjective conceptualisations or narratives of an islandscape.

Chapter 2

Expanding the ‘Islandscape’ Approach

First coined in archaeology (Broodbank, 2000; Frieman, 2008), the ‘islandscape’ concept has received further attention in environmental studies (Vogiatzakis, Zomeni, & Mannion, 2017), island studies (Cheer, Cole, Reeves, & Kato, 2017; Nimführ & Otto, 2020), and geography (Arnaud, 2008). The term ‘islandscape’ signifies myriad connections surrounding islands and their ‘human imprint’, past and present, which are indelible and continuously transformative. An islandscape then is more than the sum of its parts; it represents an ‘anthropogenic biome’ or ‘anthrome’, is relevant for any time period, and interacts with local, national, and global dynamics. In this work, the islandscape embodies connections between the ecosystems which make up the island’s land- and sea-scapes, between islanders and the island, and between islands and other mainland or archipelagic geographies. This focus on *connections* is vital for island geographies which are historically seen as the embodiment of socially constructed binaries of land and sea, nature and culture, and continent and island. Islandscape research sheds light on these constructions which have helped dominant continental powers to appropriate and manipulate islands for their own purposes. Judged in relation to continents and characterised as bounded, isolated, and insular, a ‘generic island’ has perpetuated through projections inherent in myth, metaphor, and mapping (Connell, 2003). This static form elides processes of change which constantly affect islands and change their characters. Oceanic currents, tidal flows, geological or tectonic dynamics all affect the movement and migration of biological species and inanimate objects between islands. The sea, far from barrier or boundary, becomes a highway, with stopovers or final destinations. ‘Island nature-culture’ expands through biogeographical processes and agents, and through societal connections which defy insularity (Broodbank, 2000; E. M. DeLoughrey, 2007). The islandscape is a product of shifting power relations, of territorial appropriation, livelihoods and social reorganisation, spatial segregation and struggles, but also

of the agency of the earth and nature itself (Cresswell, 2012; Pugh, 2016). This agency exists in the isandscape, acting on its people through physical origins, geology, landform, resources, sea depth, tides, currents, vegetation, and climate of islands. People in turn influence landscapes through myriad modes of production, culture, agriculture, fishing, architecture, roads, infrastructure, trade, mobility, and migration. The isandscape is then a complex assemblage, produced by the agency and interactions of nature and culture, of local and global, and of history and future. The next section brings together human geography concepts with the isandscape, the connections within it that inform this analysis, and its advantages and limitations.

2.1 Space, place, landscape, isandscape

'Island studies' has emerged as a field unto itself, answering the call to study islands (and islanders) 'on their own terms' (McCall, 1994). Anthropologist Grant McCall proposed the field of 'Nissology' to critically respond to marginalisation of islands in academic debate and scholarly thought and reject large-scale, capitalist structures as represented by continents and 'mainlands'. This radical turn was perhaps sorely needed to make a clean break from the Western, colonial, non-islander representation of islands, and the field of island studies followed in a more nuanced and inclusive vein, 'problematizing' the island in inter-disciplinary scholarship. Island studies gained much impetus from engaging with the social constructivist 'spatial turn' in social sciences and the humanities in the 1970s, and the 'relational turn' which followed. The spatial turn is predicated on the idea that all space is contingent, constituted by an ongoing interaction between material reality, representation, and lived experience (Lefebvre & Nicholson-Smith, 1991). Space itself is far from inert: society and 'spatiality' (the quality/properties of space) are mutually constructed, and a 'socio-spatial dialectic' inscribes geography into the very heart of social relations (1989). The 'social' is then 'actively emplaced in space and time in an explicitly historical and geographical contextualisation' (Soja, 1989, p. 11). Marxist geographers note that notions of space and time are not universal but differ between societies or cultures according to the needs of material and social reproduction (Harvey, 1990).

The socio-spatial dialectic also changes prior geographical notions of 'place' and 'landscape'. Geographer John Agnew (2003) puts forward a typology of 'place', where it may be used to denote location (such as grid coordinates), locale (the material and environmental setting where quotidian social relations play out), or a 'sense of place'. This last aspect is often used to distinguish it from 'space', and 'place' is now a lived particularity imbued with sentimentality, meaning, belonging, and attachment (Agnew et al., 2003; Withers, 2009). A 'sense of place' cap-

tures the affective bond between people and places (similar to Tuan's (1990 idea of 'topophilia') and is cited as the foundation of notions of 'habitats' or 'ecological niches' (Withers, 2009), as progenitor of national identity (especially in an increasingly globalised world), and even as the fundamental precondition for the rise of all society and meaning (Cresswell, 2004). In academic usage, space and place are used interchangeably, in conjunction, and even in binary opposition (Agnew et al., 2003). This author understands place as the inscription of societal notions of space and time on to an area or region, and the ascription of symbolic value accordingly; the first is done through modes of production, such as agriculture, architecture, and landscaping, and the second through cultural practices such as narrating, remembering, and depicting (Anderson et al., 2016). 'Landscape' viewed in the same vein adds the realm of the natural environment to these production processes, social relations, and forms of meaning-making, placing them in a dialectical relationship (Batterbury, 2001; Cosgrove, 1998; G. D. Nash, 1999; Wylie, 2007).

Evolving from humble origins as Alexander von Humboldt's 'total character of an area of Earth', landscape was long considered 'functional space' or the material setting for economic activity before Vidal de la Blache's 'genre de vie' integrated various aspects of human-nature interaction into the concept (Förster et al., 2012), with landscapes displaying the effect of human energy (Tuan, 1979). Landscape is today viewed as polysemic, dialectical, and multifunctional space, as a 'complex social-ecological system...moulded by both anthropogenic activities and biophysical factors interacting across multiple scales' (Junker et al., 2015, p. 27). All these ideas challenged the prevailing theoretical historicism of the time, revealing linkages between spatiality, nature, and the ideology, practices, and power relations within and between societies (Arias, 2010, p. 29), captured in philosopher Michel Foucault's (1980, p. 77) claim that 'geography must indeed necessarily lie at the heart of my concerns'.

They challenged notions of space as 'absolute' or fixed territorial containers (Agnew et al., 2003; Warf & Arias, 2008). The 'spatial turn' viewed islands as interconnected geographies, while the 'relational turn' articulated relations between the 'actors' (human and non-human) producing these interconnections. The socio-spatial dialectic is discernible on islands, as their finite geography and limited natural resources dictate island livelihoods, social structures, and cultures, and may heighten their inhabitants' 'sense of place' or 'landscape identity' (Baldacchino, 2004; Hay, 2006; Kerr, 2005). Once the backbone of the 'insularity' argument, in relational terms this echoes a 'Russian doll' situation; 'internal islands' (of interest, identity, or other assemblage forms) exist within islands within the ambit of other islands, archipelagoes, or continental 'mainlands' (Stratford, Baldacchino, McMahon, Farbotko, & Harwood, 2011, p. 116).

2.2 Isandscape as ways of seeing and ordering

This section elaborates on discourse as a way to approach the isandscape either from a top-down, hegemonic perspective, or from a bottom-up, grassroots vision of the islanders. Human geography debates on the concept of 'landscape' are referenced to denote ways in which hegemonic discourse 'views and orders' the isandscape through othering projections, and 'spatialises' it through projects which impose the dominant worldview onto the physical and social isandscape. 'Islandism' is one such viewpoint, which portrays islands as absolute space or bounded property, and as small, isolated, insular places in need of appropriation. Human geography debates on concepts of 'landscape' can be extended to produce the 'is(-)andscape' as usually framed by the powerful, but also as spaces of contestation between different views of the isandscape. We know that the vehicles of discourse, such as text, maps, illustrations, art, even the spoken word, all represent the world partially, are situated and embodied, and (re-) produce power-knowledge. All these vehicles are therefore not mimetic but metaphorical and rhetorical constructs, producing a 'fiction' that looks to gain validity through projection as 'truth' (Gregory, 1994, p. 8). Even the positivistic epistemology which claims scientific validity for cartography and rejects social influence is fictitious, as maps clearly create and further the power-knowledge construct (Harley, 1989). The world is then disciplined and normalised through text and maps, a form of knowledgeable manipulation. Thus, all discourse is representative, projecting static 'images' onto the 'homogeneous screen' of the cultural and/or natural world (Driver & Yeoh, 2000, p. 2).

The struggle over island spaces and their subsequent appropriation as territory through the exercise of power and practices of state-making is furthered through absolute notions of space. Geographical exploration rendered space bounded and unrelated. Absolutist notions of space were inherent in geographical exploration, which divided the world into 'discrete bits' based on classifications founded on Euclidean geometry, Ptolemaic cartography, and Cartesian philosophy (Clayton & Bowd, 2006; Smith & Katz, 1993, p. 75). Island spaces lent themselves well to this conceptualisation, looking like naturally bounded property, with shorelines that were self-evident, and non-negotiable (Baldacchino, 2005; Dodds & Royle, 2003). This 'bound-ness' created them as fundamentally different from continental and even maritime space, where demarcations were of an arbitrary nature, being culturally or politically inscribed, and thereby contestable (Dodds & Royle, 2003; King, 1993). By mapping and charting topography, bathymetry, and geology, geographers produced space as neutral and empty, devoid of people or relations, and in the ideological worldview of the imperial power, to be easily appropriated

as 'property'. The earliest impetus to geographical exploration came from imperial ambitions, funded by states and monarchs, and absolute notions of space are said to have laid the foundations of capitalism, imperialism, even patriarchy (Ibid.). Here power was exerted *by* cartographers or surveyors, through their own subjectivity, *on* cartography, through their patrons, and *with* cartography, through maps which responded to the 'juridical power' or forms of surveillance and control at the time (Foucault, 1980). Mapping coasts and naming capes or bays, island interiors were rendered 'blank and beautiful' receptacles to be 'filled' with imperial subjectivities and culture. Maps of islands seemed to possess a higher level of geographical 'truth' (Harley, 1989), thereby making them easier to manipulate and covet, and even offered the possibility of panoptic knowledge as 'spatial laboratories' (Connell & King, 1999). This entanglement with empire infuses the argument that geography is power-laden and variegated, a constellation of concepts and practices rather than an autonomous, value-free, or immutable discipline (Clayton & Bowd, 2006). Phantasmal travel writing and travelogues by the likes of Christopher Columbus and John Mandeville informed racial ideas of Enlightenment philosophers and fed the 'geographical imagination' of these places (Torre, 2016). Geographical knowledge is not innocent or removed from ideology: it creates war, through control and colonisation of massive expanses of the world from the strategic and political knowledge it produced.

Since its core conceptualisations (Harvey, 1973; Prince, 1962), the 'geographical imagination' has broadened to express literal and metaphorical ways in which people conceptualise and render space, embodying the spatialised cultural and historical knowledge that characterises social groups (Gregory, Martin, & Smith, 1994). Imaginative geographies produced geographical space in a way that constructs their socio-spatial identities in a relational manner, where the familiar is categorised as 'ours' or 'self', and the unfamiliar as 'theirs' or 'other' (E. W. Said, 1978, p. 54). For postcolonial scholar Edward Said, the 'Orient-Occident' is one such formulation. The mobilisation of power-knowledge systems allowed for the exercise of intellectual and material hegemony over space through the forces of imperialism and colonialism. Forms of 'knowledgeable manipulation' (Ibid. p. 55) produced distorted texts, images, and maps of the dominated space laden with the values and ideas of the dominating regime, thus creating the 'very reality they appear to describe' (Ibid. p. 327). Methods of classification, categorisation, survey, exploration, art, landscape painting, and travel writing then were no 'natural means of analysis' but contributed to the 'intellectual pacification and ordering of the world' (F. Cooper, 2005, p. 15). Maps and news emerging from the Second World War influenced the 'geopolitical imagination' that later produced the binaries of 'developed' and 'developing', while 'area studies' were driven by similar practices of knowledgeable manipulation during the Cold War

(Cosgrove & Della Dora, 2005; Sidaway, 2013). Other self-other imaginative geographies which emerged through these ideas and methods, in parallel or subsequently, include East vs. West, tropic vs. temperate, Third World vs. First World, underdeveloped vs. developed, global South vs. global North, periphery vs. centre, and island vs. continent (Harvey, 2004).

While Said's approach is immensely valuable, its overt reliance on the 'projection model' obscures the performative nature of these geographies and ascribes a degree of homogeneity and coherence to European systems of knowledge, threatening to reproduce the very thing it rails against. Knowledgeable manipulation did dominate the Orient but also concurrently produced Occidental identity (Clayton & Bowd, 2006). For instance, non-'western' cultures were represented as static, exotic and backward to paint western cultures in contrasting light as progressive and dynamic (Driver & Yeoh, 2000; M. Watts, 1995). Geographer Derek Gregory perceives imaginative geographies more performatively than imaginatively i.e., the Occident is also imagined and shaped by the Orient, though perhaps not to the same degree. Ideas arising from the Enlightenment, imperialism, and the colonial and capitalist endeavour¹ have effectively been brought into the 'colonial present'² (Gregory, 2004, p.7). Imperialism then is 'not a "one-way" phenomenon but a complicated process of exchange, mutual transformation, and ambivalence', which varies according to place, peoples, and history (Mitchell, 1994, p. 10). Gregory (2004, p.19) views imaginative geographies as 'performances of space' which encompass an *assemblage* of categories, codes, and conventions with which a particular geographical area is associated over a period. For instance, USA's 'War on Terror' hinges on similar historical constructions of the moral hierarchy of modernity and tradition to produce the 'Middle East' (cf. Islamic nations with oil) as a barbaric, hellish place where intervention and warfare is necessary and unavoidable. Seen in this way, global history no longer follows the standard narrative of the 'victor', in light of an essential opposition between the civilised European and the uncivilised, or yet-to-be-civilised, non-European, but centralises *interconnected* histories and *intersecting* geographies (Driver & Yeoh, 2000).

Discourses are thus performative and have material outcomes. They are not unproblematic reflections or mirrors of the world but interventions in the world, 'making' the land and society and clashing with realities. Ideas of otherness have influenced the 'material practices of imperialism', inherent in the colonial appropriation of space through forms of state ('state-making') which emphasised territorial control. The non-spatial characteristics of 'self' and

¹Imperialism refers to the philosophy (ideas, theories and perceptions) through which a dominating metropolis expands its power over other, sometimes distant, territories, while colonialism/colonisation refers to material practices, impacts and effects brought about by the philosophy of imperialism (E. Said, 1993, p. 9).

²Evident in practices today labelled 'postcolonial', 'neo-colonial', and 'eco-colonial'.

'other' already conflated what was essentially spatial distance with cultural and environmental distance, enabling even loose or non-contiguous geographies such as 'islands', 'peripheries', or 'frontier regions' to be regulated through similar and homogeneous forms of state-making (M. C. Frank, 2009, p. 71). 'Othering practice' informed much colonial discourse, perpetuating stereotypes and further re-ordering social and ecological relations through practices of 'accumulation by dispossession' and de- (and re-) territorialisation (Harvey, 1990; Sivaramakrishnan, 1999). For instance, indigenous or nomadic 'smooth space', characterised by ritualised movements and mobilities, was erased to create 'striated space', and classified and ordered to enable European control (Deleuze & Guattari, 1988). Landscapes of the 'jungle' and the 'swamp' were razed to reveal the farmland or neat gardens which characterised European landscapes. Curtailing a broad-spectrum economy for wholesale capitalist commodification and extraction had long-term repercussions on colonised space.

Like maps, the inclusion of landscape as derived in art and painting into the visual tools of geography in the 15th and 16th centuries provided a means to exert power over physical landscapes (Pugh, 2016). First, artistic landscape renditions were commissioned by those who owned the landscapes being depicted, which underscored and normalised the ownership of private property. Landscape representations then were acts of appropriation where dominant ideologies or power could be physically expressed and realised in the landscape (Bender, 2002). Thus, landscapes are framed by the powerful, and these frames may be borrowed and recast from fragments of other discursive regimes. Landscape as a way of seeing belongs notably to the privileged, whether feudal landowners, European colonial powers, the West, higher castes, or upper classes. For example, India's label as a tropical region was a landscape imposed on India by the British to signify their own relationship with external nature and order the relationship of the colonised similarly. The coloniser could change this landscape any time, but the 'existential insider (the feudal peasant, colonised, marginalised) who lived and worked within the landscape could not (Cosgrove, 1985, p. 15). Second, landscape renditions could represent idealised visions, or serve as 'blueprints', representing to-be-colonised areas in colonial ideological frameworks surrounding environment and nature. Idealised landscapes were a projection of the 'dreamwork' of imperialism, hiding a darkness that was ideological and moral-political – that of unrelenting resistance towards the colonial project, or its own ambivalence and fragility (Mitchell, 1994, p. 6). Engaging in a 'profound dialogue' with the islandscape and its historical dimensions is vital to foreground the conversion of pre-colonial productive landscapes into colonial ones of 'pristine wilderness' which layer understandings of conservation. Ways of seeing and ordering islands as others to the continental self are interspersed with phys-

ically expressing power and dominant ideologies, and the islandscape becomes both 'subject and object' (Cosgrove, 1998, p. 17). The islandscape is also a politicised arena shaped by practices of place-making and statecraft, and subject to contesting visions and conflict over nature, aesthetics, and use, themselves struggles over social identity and land or resources (Bender, 2002; Bryant & Bailey, 1997). Policies of resource management or capital investment shifts propel socio-ecological transformations, birthing projects which change landscape projections to fit the dominant framing.

2.2.1 Islandism

Islands have long been considered metaphorical 'others' to the continent, and the discipline of geography has imbued this 'otherness' with 'geographical truth' by emphasising the differences in spatial characteristics between continents and islands. The discourse of 'islandism' is perhaps fundamental, as it may be all that is required to justify continental appropriation (E. M. DeLoughrey, 2007). Since antiquity, islands have been vital spaces for continental powers for their trade or locational advantage. Coveted by continental powers as frontier regions, trading depots, or spaces of extraction/experimentation/incarceration, islands are produced as inferior other to the continental self, and this inferiority is symbolised in the spatial characteristics of smallness, boundedness, isolation, and insularity. Human geographer Yi-Fu Tuan (1990, p. 247) wrote that the four natural environments most invested with meaning, and which fuelled humanity's dream of an ideal world, were the forest, the shore, the valley, and the island. Given that an island may house the other three, the idea of islands as embodiment of paradise/Eden/heaven on earth has persisted from the time of the Ancient Greeks and their *Terra Australis*, to Thomas More's island of *Utopia* (1516), and even Aldous Huxley's *Island* (1962). For the societal psyche, islands were often imagined as an ideal settings for human life, built of a 'desire to locate the imagined earthly paradise in the real geographical present' (Haun, 2008, p. 44). Islands are even evoked in the absence of any relation to the realities of islands (Hay, 2006); our psyches³, families, cultures, property, ethnicities, and nations are all portrayed in insular veins (Farbotko, 2008), to say nothing of 'traffic/kitchen islands'. It is said that 'continentals covet islands', and this island fascination has stumped efforts to define it (McCall, 1994, p. 1-2). The island is considered by some to be 'the central gripping metaphor within Western discourse' (Connell, 2003; Hay, 2006, p. 2). For Gillis (2004, p. 1), western discourse tends to 'think with islands', referring to the neat categorisation of both thought and material space

³Consider John Donne's 'No man is an island, entire of itself' (*Meditation XVII*), or Paul Simon's 'I am a rock, I am an island' (*I am a Rock*).

into bounded, insular, discrete entities, a process he refers to as 'islanding'. Baldacchino (2012, p. 56), following many, provides a succinct argument for five mutually constitutive influences which have fuelled especially Western island fascination up to the present day – the economic and social importance of islands in the Mediterranean and Atlantic worlds; the construction of islands as 'outposts of aberrant exoticism' during the European age of discovery; islands as settings for male, heroic tales as odes to colonialism; the development of modern travel and the idea of islands as ideal vacation destinations; and the tourism-as-development route for island territories that contributes to their continued perception as tourist meccas.

Like the discourses of orientalism or tropicality, islandism uses the practices of othering and spatialisation to homogenise a vast environmental and cultural geography into a loosely contiguous one, constructed less through contact than discursive exchange between colonial powers (E. M. DeLoughrey, 2007). Islandism then portrays a static image of islands, one that has formulated over time through an interplay between the metaphorical and material uses of islands for continentals. The idea of a 'generic island' has emerged, always compared to a continent, often constructed through pejoratives such as small, isolated, bounded, insular, homogenous, and vulnerable. The island, thus, is an imaginative geography in and of itself, constructed through power structures and hierarchisations attributed to it by continental scholars schooled in western discourse to serve material purposes such as colonialism. Thus, islands are not islands at the outset, but are created as islands in contrast to mainlands and continents. They are, in short, 'islanded', and with this process of islanding comes a plethora of automatically attributed characteristics. Once islanded, they become small places, bounded by water, insular and homogenous, isolated and remote, fragile and vulnerable, dependent, and underdeveloped, created as other to the continental self. The 'visual bias' of geography has furthered this static image through travelogue illustrations, maps, and landscape representations. For instance, the text and maps pertaining to the Andamans produced by British surveyors in the 1700s and 1800s were repositories of colonial discourse which had been worked out in other time periods and contexts. Differences encountered in one place become labels and tropes with which to view another place that was geographically, culturally, and ethnographically different (Driver & Yeoh, 2000). These shaped the islands by (de-)legitimising projects that changed the physical and social character of the islandscape, making surveys and maps both a means and an end, simultaneously analysing *and* embodied the results of the analysis.

2.3 Isandscape as ways of interacting

Islandscapes are also embodied and 'ways of interacting'; they represent the unity, rather than dichotomy, of human and nature, and are produced by the everyday agency of the people working within them. The 'lived-in' isandscape exists in a mutually reinforcing relationship between the materiality of land, sea, climate, geology and geography, and the human's socio-political culture and agency (Jackson, 1984). A 'dwelling perspective' views humans as constituent parts of the landscape through the practice of labour, activity, and livelihoods, not as 'omnipotent outsiders' (Heidegger, 1971; Ingold, 1993). A focus on top-down projections and projects which make the isandscape needs to be supplemented by the 'grounded' livelihoods dynamics and everyday use of islandscapes (Batterbury, 2001, p. 44). Unlike state-making discourse, which is linear, compartmental, and 'orders' space, islander discourses of place-making forge informal 'rhizomatic' links'; they grow from the middle, connect to different 'lines of flight' in both place and time (Pandya, 2013).

However, people living and working inside landscapes also change them, and political ecological approaches reveal how productive labour and the practice of livelihoods shape islandscapes, creating a 'sense of place' where inhabitants are part of the isandscape, rather than positioned above it. Relational approaches and livelihoods dynamics and networks reveal islands as widely connected spaces, which are constantly in flux through processes of livelihoods, migration, and mobility and sociocultural expansion. Recognition of islanding, archipelagic relationships, and even 'islandness' emerges from grounded research. It elaborates upon the use and value of the 'isandscape' concept in this research and the connections between land and sea, humans, and their environment, and between islands and other geographies, and is followed by the methods employed in the research. The lens of livelihoods and development is then a fitting way to uncover islander discourses and reveal its interactions with the hegemonic discourse, where inherited situations are either internalised, subverted, or resisted through daily livelihood practices. Interactions between islanders and islandscapes are mediated by their livelihoods, but the kinds of livelihoods present on islands are themselves a result of their socio-political histories and physical environments. Contesting visions of landscapes embody conflicting views of nature, and struggle over landscape and its meaning overlaps with conflict over social identity, belonging and exclusion, and land rights and use (P. Walker & Fortmann, 2003).

Landscapes organised for 'practical production' or 'aesthetic consumption' (R. Williams, 1973, p. 124) for instance, may conflict but are also linked; the rural Arcadian aesthetic of In-

dian villages, beloved by foreign visitors, is a result of practical modes of production and labour of peasants and local communities, for whom subsistence and survival is an important motive. These were in turn shaped by the colonial vision of agriculture as the only way to rendering land productive, by the appropriation of labour, images, time, and control by powerful groups, but also by resistance and counter-struggles, and individual livelihoods decisions which are themselves influenced by myriad factors (Muir, 2000). Livelihoods are repositories of culture, historical legacy, and encompass much human connection with the environment, especially on islands. They are systems of local resources and networks intermittently connected to social, economic, political, and ecological relations at a particular place, but which also cross multiple scales (Barclay & Kinch, 2013; Ellis, 2000). What is contested in struggles over landscape meaning is usually livelihoods, which evolve in concert with ecological ones, as well as external stressors, such as global change, globalisation, and institutional frameworks.

In times of uncertain global change, strategies to respond, cope, adapt, or reduce vulnerabilities all stem from livelihoods, dictated by livelihood assets or capitals (i.e., natural, social, human, physical and financial). Coping strategies are often inherent in local livelihood systems, and even if these are reactions to climate variability, any step in this direction is an initiation of an adaptation response (Chen, 1991). Some studies reveal that the scarcest of these assets could limit a household's transition from coping strategies to adaptation responses (Osbaahr, Twyman, Adger, & Thomas, 2010). In the absence of strong institutions, much response to global change, especially by farmers or fishers in developing countries, is autonomous and 'facilitated by their own social capital and resources', but concurrently hard to gauge due to the multiple stressors 'impinging on development trajectories and experiences' (Adger et al., 2003, p. 192). Livelihoods strategies also include personal skill, circumstances, good management, and a technical repertoire (Gupta, 1998; Mayers & Bass, 2004). Most response requires a flexibility of livelihoods, where productive activities could be cycled, and institutions or rules altered to meet livelihood needs (Rennie & Singh, 1996).

2.3.1 Islanding and islandness

"Shall we make island a verb? As a noun, it's so vulnerable to impinging forces...let us also make island a verb. It is a way of living that could save our lives."

Teresa Teaiwa (2007, p. 514)

Teiawa's suggestion of 'making island a verb' acknowledges islanding as an action, a conscious emplacement of knowledge on islands and their production as 'imaginative geographies'.

It breaks down the static, homogeneous screen on which characteristics of isolated, insular, backwards, or vulnerable are projected. It further reminds island scholars that their islands are socially produced and mediated and that this is a constant process, of which they are also a part. 'Islanding' is then rendered a critical analytical and reflexive tool for approaching the study of islands, especially important in a field which problematises 'the island' in myriad ways. It can help to mediate the confusing 'oscillations' between the 'lurid dichotomies' which emerge in island study, between 'paradise and prison, openness and closure, roots and routes, materiality and metaphor' (Baldacchino & Clark, 2013, p. 129). Baldacchino (2004; 2006) proposes 'islandness' as one way to achieve this; the term implies a broad contour of island characteristics, such as smallness, boundedness, a strong sense of place or identity, marginalisation by or tension with larger 'mainlands', etc. These may be used to test wider island theories or hypotheses on small islands or adapt lessons from these small island for the global or 'pan-island' level. The islandness concept is intriguing but has a few pitfalls as Baldacchino himself acknowledges. Parts of this framing are too negative and may perpetuate the idea of small islands as perfect 'spatial laboratories'. Cultural geographers add a relational view, where 'islandness' is the sense of place typical of islands as well the multiple relations between humans, and between humans and their environments, so that islandness possesses 'as many forms as there are islands' (Gillis & Lowenthal, 2007; Vannini & Taggart, 2013). Islandness nevertheless allows for the study of specific islands within the ambit of 'the island' which offers, not an explanatory pattern, but loose contextualisation (King, 2018). 'Islanding' can reconcile the study of specific islands with those of '*the* island', contributing to both 'island matters' while reminding us that 'islands matter' (Hills, 1996).

2.4 Isandscape connections

Relational concepts and methodologies call for viewing island clusters and even the world as a 'sea of islands' rather than 'islands in a faraway sea' (Hau'Ofa, 1993), thinking with 'the archipelago' (E. M. DeLoughrey, 2007) or 'the aquapelago' (Hayward, 2012), rather than 'the island', and swapping 'dialectics' for the multiple entanglements inherent in 'tidalectics' (Brathwaite & Mackey, 1999); those between sea and land, diaspora and indigeneity, or 'routes and roots' (E. M. DeLoughrey, 2007, p. 3). The 'isandscape', like the 'archipelago' in this formulation, is more a way of thinking, a model than a geographical site. The relational turn in island studies seeks to break down the continent-island duality which maintains the status quo of power and reveals processes of 'world enlargement' or 'countermaps' (Arnaud, 2008; Connell,

2003; Hau'Ofa, 1993) which locate islands instead as nodal parts of complex cross-cutting (and cross-scalar) assemblages, networks, relations, mobility/migration regimes, and spatial flows and fluxes (E. M. DeLoughrey, 2007; Nimführ & Otto, 2020; Pugh, 2016). This explores aspects of power and agency, rejecting the discursive opposition of mainlands and islands, and the latter's characterisation as discrete, bounded, isolated, and insular (Pungetti, 2013; Sivasundaram, 2013). As performative relations that are constantly re-figured, islands are no longer 'spaces outside modernity' (Farbotko 2010a, 52). Island materiality and subjectivities are viewed as being in constant flux, in processes of 'becoming' across space and time.

2.4.1 Connecting land and sea

The boundary between sea and land is captured in the most common definition of islands as a piece of land surrounded by water. Yet islands are far from a geographically uniform or contiguous category. Scattered throughout the world, across temperate, tropical, and polar regions, islands are found in harbours, off continental shelves, and in the middle of oceans, but also in lakes, rivers, and lagoons. They are composed of coral, sand dunes, volcanic lava, or submerged mountain ridges, and classified as oceanic, offshore, land-bridge, atolls, archipelagos, disappearing tidal islands, fluvial islands, peninsular islands, or keys (Rackham, 2012). Some (such as Dubai's 'Islands of the World') are not even natural. Geographers and island scholars seldom agree on what constitutes an island, let alone the basic facts of how many or where they are (Dommen, 1980; Royle, 2002). The basic definition, as a tract of land surrounded by water, brings up anything between 800 million (Depraetere & Dahl, 2007) and 680 billion islands (Ronström, 2013). Other attempts to define 'island' involve classifications of size, habitation, or their oppositionality to continents⁴ (Holm, 2000; Mirasola, 2015).

Oceanic space is the norm, covering three-quarters of the world's surface and 99% of its space in comparison to land (Rozwadowski, 2013), but our land-based mode of survival and the human inability to survive underwater renders the ocean or sea an 'other' to land. Academic work is overwhelmingly land-based, and even island scholarship on materiality or imaginary tends to preserve a dichotomy between land- and sea-scapes, like that of culture and nature (Tuddenham, 2010). For continental, land-based scholars, studying the sea is costly and fear-inducing (Pungetti, 2013). The sea is rendered a two-dimensional unknown void to be feared,

⁴A case in point is the United Nations Convention on the Law of the Sea (UNCLOS) which defines islands as 'a naturally formed piece of land surrounded by water on all sides emerging above the surface of the sea at the highest tide, capable of sustaining human habitation or economic life on its own and whose dimensions are smaller than those of a continent'.

a separator, boundary, or the ultimate hurdle. This dichotomy between land and sea is perpetuated in the evolution of the scientific view of the ocean as 'insurmountable barrier' to the movement of plants, seeds, and species. One result is the high endemism of islands and the consequent fragility of their biodiversity.

Even today, the oceanic 'highway' aspect gets less attention, the ability of its currents, tides, and species to spread genetic or nutritional material across the world (Broodbank, 2000). Oceanic currents have also birthed human exploration, colonialism, capitalism, and globalisation (E. M. DeLoughrey, 2011). The production of oceans and seas as 'empty space' (*mare/aqua nullius*) allowed for their appropriation and classification through oceanic cartography and international maritime law, constructing the ontological binary of land and sea (Tuddenham, 2010). Interestingly, it is through this mapping and control of the ocean that the modern concepts of the land-based nation-state, the territorial political economy, and international law arose (Steinberg, 2013). Indeed, much of the subjective political geography of the world is dictated by boats, winds, currents, and tides, and the easiest maritime navigation routes (Arnaud, 2008). This carving up of the world and its oceans in absolute spatial terms impinges on indigenous and pre-colonial routes and restricts freedom of movement and migration (Nimführ & Otto, 2020). Geographer John Connell (2003, p. 572) views the phenomenon of contemporary migration of Pacific Islanders to the 'metropolitan fringes' of Oceania as a revival of past trading and settlement journeys, disrupted for centuries by colonial boundaries and legislation.

Delving into the etymology of the word 'island' reveals a composite of 'isle' ('watery') and land, signifying a complex relationship where the 'the land is surrounded by water; the water fills the shores' (Beer, 1990, p. 271). Both land- and sea-scapes are part of the island, and there is enough scientific evidence to prove the close contiguity, dependence, and interaction of land and sea ecosystems on islands. Natural scientists define the 'littoral zone' as the region between 16-33 feet below the low-tide level, with rich biodiversity and multiple land formations (Pungetti, 2013). The word 'littoral' also signifies 'border' or 'frontier', but 'liminal' might define it better - a zone of exchange, or even the arena of the eternal contest between land and sea, captured in the interplay of climatic, tidal, tectonic, and other erosive or accretionary forces. Island boundaries then are porous, mutable, and shifting, far from the natural boundaries we desire islands to possess (Denning, 1980). As archaeological site, the littoral offers insight on how past communities interacted with both land and sea. For instance, ancient Great Andamanese kitchen middens found on beaches establish not only their length of habitation, but their diet (of animal bones and oyster shells). The location of some, below the tidal line, suggests a changed littoral-scape (Z. Cooper, 1997). Colonial edifices, such as Japanese war

bunkers constructed on the beaches of Port Blair and Ross island, speak to later histories.

As the point of contact, arrival, and departure of species and goods, the littoral is an immensely biodiverse ecosystem; mangroves, littoral forests, tidal mudflats, seagrass beds, even shallow reefs all nurture and sustain a plethora of lifeforms, not least of all humans. These are connected intimately with each other, as well as with ecosystems within the landscape, through ecological, geo-chemical, hydrodynamic, hydrological, and climatic processes (de la Torre-Castro, Di Carlo, & Jiddawi, 2014). Climatic change and anthropogenic activity are changing seascapes, but other forces (such as king tides, seismicity, species migration/proliferation, or cyclones) also affect them. On smaller islands, land-based erosion changes sea-scapes, just as tidal and accretionary forces change the land. The ability of island spaces to keep objects out (or in) is always relative, even within archipelagoes. In the Andamans, coconuts and bananas skipped a few islands (such as North Sentinel), while the recent discovery of eight new mangrove species in the Nicobar Islands is chalked up to tectonic or hydrometeorological activity.

Ordered by the abstract concepts of distance, time, and directions, people also engage with oceanscapes materially; with both the surface and underwater world (Westerdahl, 2007). Shipping, navigation, and tourism/travel aside, fishers and divers engage with the sea in a three-dimensional way. Sometimes the sea is recreational destination, as in the case of cruise ships or live-aboard diving expeditions. Some, such as the 'sea nomad' tribes of Sama-Bajau or the Moken of Southeast Asia, even call the sea home. Small island populations are reliant on the sea for transport and contact, on the land for water and shelter, and on both for sustenance. Small island livelihoods then, even those which are land-based, depend on the sea for shipping. When the possibility of shipping is taken away, as in the monsoon or during cyclones, a sense of isolation is discernible, for it does not otherwise exist. Islanders do not perceive themselves as isolated by the sea for the sea is not a barrier but part of their lives (McCall, 1994), an ever-changing network of social, political, and economic interaction spheres where exchange and mobility are essential to life and survival (Broodbank, 2000, p. 89).

2.4.2 Connecting humans and their environment

This intimate connection between land- and sea-scapes on islands is also facilitated by the 'human imprint'. For instance, where deforestation and agriculture are prominent, rainfall as an agent of exchange can leach agrochemicals from the land into the seascape, changing the dynamics of reefs or mangroves. The agricultural imprint exists on even small, isolated islands or extremely fragmented pieces of land which in other areas would be considered too marginal.

The ecosystems prevalent in each scape have historically determined the colonisation, settlement, and development of islands which also affect the characteristics of their scapes. As 'workplaces', both scapes provide sustenance, fuel, recreation, and aesthetic pleasure, and are producers and transporters of livelihood inputs and outputs (de la Torre-Castro et al., 2014). Most islands possess 'agrarian-maritime structures' which ensure continuity and flexibility of livelihoods (Renes, 2014). When the landscape is under duress or rendered a 'pressure cooker' by demographic pressure or resource depletion, the sea functions as a safety-valve, and agriculture is suspended in favour of shipping or fishing. During strong monsoons or cyclones when fishing and shipping are not viable, agriculture takes centre-stage, as crops receive much-needed rain and aquifers are replenished (Ibid.). The absence of tourists and exit of migrant fishermen or workers may ease demographic pressure as well. Many islands have ceased agriculture in today's globalised age, while others specialise in certain crops, and still others employ their land and sea-scapes for tourism (Ibid.). Ecosystem changes may bring island societies together, but also hold the potential to divide or fracture them, through resource and culture loss.

2.4.3 Connecting islands, archipelagoes, mainlands

"We are all in the Caribbean if you think about it".

Junot Díaz, quoted in Jelly-Schapiro, 2017

Along with natural determinism and human social behaviour, studying islands necessitates an analysis of their geographical context (Arnaud, 2008, p. 26). The islandscape encompasses the island, intervening islands in the sea, nearby larger or satellite islands in an archipelago, as well as the nearest mainland (Broodbank, 2000). An islandscape approach allows for this, balancing the island as a distinct unit of study and its unique cultural development with the regional or archipelagic sphere of interaction (Boomert & Bright, 2007, p. 14). An island may be derivative of a 'parent landscape', as the Andamans are of the Indian mainland, or it might be a 'parent landscape' to other surrounding islands, as the Great Andaman is to the smaller islands of Havelock and Neil. Independent island states might retain some distinctive characteristics but other island geographies, such as 'Sub National Island Jurisdictions' (Baldacchino, 2010b), often have uniformity with their 'mainlands' imposed upon them (and internalised). Geometries of power within these geographies contribute to the marginalisation and stasis of islands, and the projections of insularity and isolation fall away.

Both 'insular' and 'isolated' both come from the Latin word for island, *insula*. Islands are distilled through a myopic (and mostly Western continental) lens, produced as isolated places

which have little contact, even little in common, with other places and peoples. The isolation of islands has remained a convenient myth, contradicted by the consistent visitation of the very people who perpetuate it: colonisers, shipwrecked sailors, academics, and tourists (E. M. DeLoughrey, 2007). From a geological or biogeographical viewpoint, islands are far from isolated. The ANI are believed to be extensions of the Myanmar Himalayas and maintain zoogeographical connections with their closest South Asian mainlands, despite being historically connected through colonial geopolitics to India (Arnaud, 2008). Insularity and a stronger sense of community has long been assumed to be a product of isolation but may be the opposite – a way to maintain distinctiveness in an increasingly homogenised world or to maintain identity in a globalising one. It follows that both island nature and culture are far from insular, but stretch across territorial limits, incorporating land, sea, and other geographies.

Insularity then is also relative; some island societies may have been insular (as Japan was for centuries) or still are (as the Andaman Sentinelese choose to be). Insularity and connection have changed islander culture as well, maintaining traditional cultures or even creating cultures of their own. Tourism brings other cultures of the world to islands now, while inclusion in globalised trading networks, such as Andaman's Grouper fish or Areca Nut trade, takes islander livelihoods to the world. Mobility, migration, and the internet⁵ has changed this (though the latter may still be problematic for many islands). Though decent internet is still problematic for many islands, the internet has surely decreased island 'isolation' as well; dispensing with travel agents, it is now easier than ever for hordes of backpackers and tourists to go 'off the beaten track' on an 'isolated island' somewhere. In a globalised world, insularity is increasingly difficult, and these connections and mobilities that are changing not only the physical structures of landscapes and seascapes, but also the emotional affinities of the people who either live and work in them or produce them from afar.

2.5 Why 'isandscape'?

First and foremost, the isandscape concept celebrates connections within islands, rejecting the dichotomies of nature/culture, land/sea, and island/mainland. This pushes specific islands and 'the island' beyond the static singularity with the tropes of isolation, insularity, vul-

⁵The author is part of two 'imagined communities' (Jasanoff, 2010) which share ideas and information concerning the Andamans; a Facebook group and a mailing list. The academic-heavy mailing list shares social and conservation issues in the Andamans and is dominated by non-islanders residing in the Indian 'mainland', while the Facebook islander group shares predominantly touristic photographs of empty islandscapes, and local, feel-good news.

nerability, and dependency which has contributed to its marginalisation (Stratford et al., 2011). It shifts the view from 'islands of the world' to a 'world of islands' (Hau'Ofa, 1993), bringing together island, archipelagoes, mainlands, and seas, in an interlaced and multidimensional isandscape, and challenging 'territorialisation' (Pungetti, 2013). Second, the concept allows for historical exploration of legacies which have shaped the isandscape, and which are still visible, those of colonialism and post-colonialism, settlement, development, and conflict, which embody change and leave behind both physical and ideological 'edifices', such as buildings, urban or rural characteristics, and administrative institutions. The colonial project has left a particularly indelible imprint, as we will discover in the case of ANI as well (Cheer et al., 2017). Third, the isandscape as continually in motion and flux widens the scope of enquiry across 'scales' of the local, national, and global, and its political and spatial (re-)production. Power dynamics reveal themselves in discourses of island governance and state-making, as well as island 'living', that of place-making through the material practices of labour and livelihoods, and the symbolic practices of perceiving, narrating, or remembering. Finally, approaching islands through this conceptualisation incorporates different subjectivities, voices, and viewpoints, revealing tensions between islanders and the state, between nations, and between imaginaries. It also explores dichotomies and categorisations of islander and non-islander, or 'those who find themselves 'in-between' (Grydehøj & Kelman, 2017, p. 12), through migration ebbs and flows which may expand island cultures beyond territorial limits or create 'internal islands' of identity and interest (Broodbank, 2000, p. 21).

In all these dizzying connections, subjectivities, movements, and flux, it is hard for the isandscape to be understood 'in its entirety'; it is shifting and fluid, relational and personal, and no single narrative can capture its myriad complexities. It is continuously being produced by multiple actors in time and space, with varying positionality and subjectivity. One way of comprehending the Andaman isandscape is presented in this work, and in attempting to capture both trajectory as well as 'snapshot', I am aware as a mainland academic of 'adding another layer of colonialism' and of the historical use of relational concepts such as the 'archipelago' to appropriate and colonise. Depending on their context of usage, terms such as 'Polynesian' or 'Caribbean' may reveal aspects of a 'repeating island' (Benítez-Rojo, 1992), where a dominant island shaped in the mould of colonial Britain or touristic 'sun-sea-sand' consumption is transplanted on the smaller islands, despite them possessing different histories of interaction with colonialism and capitalism (E. M. DeLoughrey, 2007). For these reasons, a humanistic approach and of grounded or ethnographic research is crucial to employ from the very beginning for any relational study of islands (Farbotko, 2008; Hong, 2018; Nimführ & Otto, 2020; Stratford, 2017).

Part I

The Continental Gaze

Chapter 3

Discourse and the Islandscape

This chapter introduces the various discourses or aspects of the hegemonic discourse of power to illuminate what she dubs the ‘Continental Gaze’ which have historically produced the Andaman islandscape. She borrows a global-scale discursive framework put forth by modern historian Greg Bankoff (2001a; 2018) and adapts it to island geographies in particular. Bankoff postulates that the discourses or notions of *tropicality*, developmentalism, vulnerability, and resilience are all facets of an essentialising and continuous ‘hegemonic or dominant discourse of power’ which have evolved through history with the ‘zeitgeist’, or spirit of the time. It is these discourses which have consistently bifurcated the world, along similar geographical lines, into tropical vs. temperate, Third World vs. First World, and global South vs. global North. These seemingly symbolic ‘projections’ have had real-world impacts through the ‘projects’ they have justified, keeping certain geographies exalted at the expense of others. Discursive regimes have borrowed from those that came before or parallel regimes to maintain a power status quo that has changed little since the pre-colonial era. I apply this framework against the backdrop of another constructed bifurcation: between *islands* and *continents*. ‘Islandism’, like Orientalism, produces islands as ‘other’ to a continental ‘self’, and as small, isolated, insular, and marginalised places, which can then be materially or metaphorically appropriated for continental ends. Research in island regions must therefore understand the inherited nature of their ‘islandscape’, a palimpsest of the discursive projections and projects of each regime (some of which are also of an ambivalent nature). Forms of ‘state-making’ mobilise the practices of ‘othering’ and ‘spatialisation’ to project and reconfigure space in the frames of the dominant power, eventually ‘territorialising’, and appropriating it for its own ends. Here the islandscape may be framed as ways of seeing and ordering space, which are then realised through performance and practice.

The next few sections delve deeper into each discourse and how it has been effectively applied to the wider category of islands, especially tropical islands. The following chapters in Part One then narrow focus to the Andaman Islands. Each chapter begins with a brief discussion of historical developments and regimes or actors, followed by a section on the predominant projections used to justify appropriation and the material projects which affected the islandscape. The next section focuses on the projects engendered by these projections, and their indelible socio-spatial impacts on the islandscape. The Andaman islandscape here is envisioned in three parts: the land and sea, the societal structure, and connections between the Andamans and the outside world. A running theme is the severance of socio-political connections with its South-east Asian littorals for an inexorable and deepening connection with India, and their constant exploitation for, and subservience to, mainland goals and ambitions.

3.1 Islands and tropicality

Coined by historian David Arnold (2006, p. 10), 'tropicality' refers to a set of discursive notions which construct the tropics as 'other' to the temperate 'self'. Earlier referred to as the 'equinoctial' or 'torrid' zones (Stepan, 2001, p. 17), the 'tropics' denote the zone between the Tropics of Capricorn and Cancer (Arnberger & Arnberger, 2001). Notions of tropicality emerged with the shocking 'discovery' of the New World and matured with European imperial expansion in the 18th and 19th centuries, a period of the 'most intense penetration' into geographic spaces near the equator (Arnold, 2006; Cosgrove, 2005). At a time when the Orient was considered Europe's cultural other, the tropics signified its environmental other, where differences of climate, topography, flora, and fauna took centre-stage (Bankoff, 2001b; Clayton & Bowd, 2006). Through travelogues, maps, surveys, and botanical illustrations, the tropics were first created as scientific project, scenic ideal, and bounteous haven (Baldacchino, 2007). The immense natural wealth of this region was dubbed incongruous in the hands of its techno-socially primitive peoples, who were deemed unfit to exploit its full potential (Abraham, 2018, p. 8). Where the basic ideas of agriculture (or even clothing) were unknown, colonial powers took it upon themselves to bestow the 'gifts of civilisation' to tropical peoples. Both the land and people were positioned as 'fertile yet primitive estate awaiting the civilising and modernising intervention of the West' (Clayton & Bowd, 2006, p. 210). Land appropriation and colonisation were now couched in civilising or reformatory projects, inherent in the British 'white man's burden', the French '*mission civilisatrice*', and the Dutch 'ethical policy' (Bankoff, 2001b, p. 27). This strategy cleverly transferred the burden of colonialism onto the colonised, reducing tropical lands

to the commodified value of their natural resources, and tropical peoples to their human utility (Vaidik, 2010, p. 33). With the success and proliferation of colonial plantations in the late 18th century, the homogenisation and otherness of the tropics was complete. They were rendered a geographical space possessed of a 'high degree of common identity' which was 'environmentally and culturally distinct from Europe' (Arnold, 1996, p. 2).

It is in European encounters with the Pacific Islands, that the ancient perceptions of utopic islands converged with this tropical otherness (Haun, 2008, p. 44). Their perceived natural boundedness gave islands the qualities of 'property', coveted for their wondrous and exotic nature. Surveying, mapping, and exploration combined with the romantic projections of art and literature to further the 'knowledgeable manipulation' of the region. This is exemplified in what one scholar dubs the 'South Seas Project' - an effective packaging of the region for European audiences between 1769 and 1835, which laid foundations for their eventual appropriation (Kitson & Fulford, 2001). The narrative produced bounteous, warm, and mild islands with people who lived in harmony with nature, a prospect industrialised Europe pined for. The conflation of island nature and culture is evident in Rousseau's exotic landscapes, the feminine 'soft primitivism' of Gauguin's Tahitian nudes, and the masculine 'hard primitivism' of Rousseau's 'noble savage' (Stepan, 2001, p. 89). Though various scholars have identified a 'Polynesian or South Seas myth' which incorrectly portrays Pacific islands as 'a self-contained environmental paradise where a perfect (generally leisured) life may be enjoyed' (Cosgrove, 2005, p. 212), (Connell & King, 1999), remnants of this narrative endure and spread to this day in contemporary celebrations of the 'tropical island' as Edenic paradise. As travelogues became more fantastical and novelists revelled in themes of cannibalism, black magic, and dangerous exotica, tropical *islanders* seemed more primitive than tropical *continentals*. This was later attributed to the spatial characteristics of islands, and their smallness, isolation, and boundedness gradually became synonymous with a heightened lack of civilisation (Vaidik, 2010, p. 26).

One can argue then, as Arnold does, that tropicality is a highly 'ambivalent discourse', which borrowed from pre-colonial or Orientalist ideas, differed according to coloniser and colonial endeavour, and changed over time. As colonial expansion and plantations necessitated increased labour movement and slave trade, a 'disease exchange' ensued of increasingly virulent strains of syphilis, cholera, malaria, and yellow fever (Curtin, 2003, p. 87-90). The miasmatic theory of disease prevalent at the time claimed races were geo-medically suited to their 'ancestral environments', which meant Europeans naturally suffered in tropical climes, to which acclimatisation was deemed impossible (Harrison, 1999). The rising morbidity of Europeans needed to be addressed in a manner which would not endanger the carefully nurtured idea

of a *fundamental* difference between temperate coloniser and tropical colonised (Ibid.). The term ‘tropical disease’ (cf. ‘Oriental disease’) emerged in 1787, along with the field of ‘tropical medicine’, whose journals displayed only the diseased bodies of tropical peoples. These images merged with similar portrayals in natural science and anthropology to equate race, place, and disease. Tropical areas came to be viewed in contradictory light, where ‘a landscape of seeming natural abundance and great fertility was also paradoxically a landscape of poverty and disease’ (Arnold, 2000, p. 7), and a shift occurred in the notion of ‘tropical’, from beautiful exotica to pestilential malevolence (Stepan, 2001, p. 152). This was fuelled by discourses of climatic racism, tropical/moral climatology, and environmental Eurocentrism (Livingstone, 2010), which merged to ‘routinely exalt... the moderate and hard-working’ temperate regions over the ‘extreme and indolent’ tropics (Clayton & Bowd, 2006, p. 209).

The presence of disease even expanded the tropics beyond their geographical definition; places further from the equator, such as Algeria, were labelled tropical (Stepan, 2001). The ‘tropical’ label then served as a means of identity formation, justifying further appropriation, and the use of violent force. Arnold claims that India’s entry into the tropical fold in the 1800s was an attempt to quash growing resistance and repaint the Orientalist image of a rich and advanced culture in backward, pestilential hues (Arnold, 2006). As trade posts and shipping junctions, islands were hubs of disease and ¹, but largely escaped the ‘pestilential’ tag (Arnold, 2006; Connell, 2003). This reveals the chequered use of the label but more importantly the importance of islands to the colonial endeavour. Even the presence of malaria in the Nicobars or Ceylon did little to dissuade plantations or trade. Islands do, however, seem to differ in their characterisation as ‘good’ or ‘bad’ tropicality. These labels were a function of whether an island’s environment was tameable, and how advantageous its location, size, and resource wealth was for the colonising power. An additional determinant was likely the attitude of the colonised towards the coloniser, whether benign or resistant (Connell, 2003; Haun, 2008). The sum of these factors dictated the island’s use, spatialisation, and relationship with the wider colonial universe. Some islands were subsumed into globalised trade networks, as plantations, mines, or trade depots, while others were isolated, to act as frontier regions, or areas of extraction/internment/experimentation (Baldacchino, 2012; Connell & King, 1999).

Though an ambivalent discourse, notions of ‘good’ tropicality have informed those of development and developmentalism. The persistent agrarian vision of the colonisers was based on the myth of ‘tropical fecundity’ and the need to inscribe a European-style agrarian landscape in the tropics. Colonial ‘development’, in the form of programmes for health, educa-

¹Port Blair was even dubbed a ‘disease entrepôt’ (Vaidik, 2010).

tion, and modern infrastructure, led to the management of populations, and drastic changes in land use and environments, such as separation of farm and forest (Li, 2007; Ludden, 1999). In 1856, economist Friedrich List (List, 1856, p. 75, p. 112) prescribed that, owing to the naturally unequal productive potentials of nations, the ‘savage states’ of the torrid zone would be best served by remaining primary producers who exchanged this produce for the manufactured goods of the temperate zone. This centre-periphery model was later identified and critiqued by dependency theorists and may be relevant today to understand the global division of wealth.

Notions of ‘bad’ tropicality live on in science and politics (Driver & Martins, 2005). Though ‘tropical disease’ was eventually admitted as more a label of convenience than scientific fact, one still finds institutes of ‘tropical disease/medicine’ across the world² (Stepan, 2001). Governments in Europe and America routinely mandate vaccinations for citizens travelling to certain tropical areas (Bankoff, 2001b) while an outdated and dangerous attachment of certain diseases (such as AIDS, Ebola, or SARS) to certain regions still persists, revealed most recently in the ongoing COVID-19 pandemic³. It is in conservation, tourism, and advertising that one finds abiding notions of *good* tropicality (Anderson et al., 2016; Cosgrove, 2005). In conservation, images of pristine tropical forests to be protected have unwittingly given fodder to tourism and advertising. ‘Tropicalisation’ - the visual representation of the tropics through ubiquitous images of palm-trees or beaches (Stepan, 2001; K. A. Thompson, 2006) - increases consumption of the tropics through tourism, which brings social, political, and material repercussions. One may view ‘islandisation’ or ‘tropical islandisation’ in similar light - where tropical imagery merges with aerial photography to show beautiful green drops in the ocean fringed with white sands and blue waters. In these ways, the veil of ‘tropical otherness’ persists in the imagination, though it is easily lifted. Lévi Strauss (1955) expected an opposite world, and was disappointed with the shattered image on arrival in the tropics, a sentiment echoed in German anthropologist Philipp Zehmisch’s (2011, p. 4) first encounter of the Andaman Islands in 2001:

“The journey over more than thousand kilometres by sea from the Indian mainland towards Burma and Thailand had nurtured the sincere and somewhat naive desire to transcend the frontier of the ‘civilised’ world towards an unknown destination waiting to be explored by me. I was astonished to find quite a well-maintained and organised townlet spreading over several hills along the rocky coastline of South Andaman.”

²One need look no further than LMU’s own Department for Infectious Diseases and Tropical Medicine.

³Perhaps the former president of the USA, Donald Trump, has been most prolific (and racist) in this regard, dubbing COVID-19 the ‘China Virus’, ‘Wuhan Flu’, and even ‘Kung Flu’.

3.2 Islands and developmentalism

Like tropicality, developmentalism refers to a set of discursive projections and practices which geographically demarcate and socially construct ‘underdeveloped/backward’ regions in contrast to ‘developed/advanced’ ones. Conceived in a linear model of progress and modernisation, developmentalism viewed all societies as progressing through stages of growth; from traditional to modern, authoritarian to democratic, and backward to advanced (Rostow, 1960; M. Watts, 1995). American President Harry Truman put forward a programme for ‘underdeveloped areas’ in his 1949 inaugural ‘Four Point’ speech to the US Congress, reifying a long-standing discourse seeded in the colonial era. In one fell swoop, nearly two billion people, mostly in tropical regions emerging out of the colonial rule, were reduced to a homogenised mass characterised by poverty, illiteracy, and helplessness (Escobar, 1995). A loose ‘tropical’ geography now became a more concrete ‘backward/underdeveloped’ geography, or Third World, with the First World largely comprising Western Europe and North America (Bankoff, 2001b, p. 22). Antecedents of this discourse emerged in colonial struggles to maintain their power over increasingly resistant colonies upon which colonial reliance for primary products had increased significantly. For instance, anticipating the U.S. Civil War (1861-65), Britain turned to other sources of cotton, and increased Indian production of the crop in the 1840s itself (Ludden, 1999). The exploitation that followed resulted in the 1876 Bengal famine, and subaltern revolts across colonies. In a time of resistance, notions of developmentalism emerged, bound in ideas of colonial ‘trusteeship’ or a ‘will to improve’ (Li, 2007).

‘New imperialism’ and decolonisation also incorporated aspects of apology and uplift, laying the foundations for Truman’s economics-based ‘uplifting mission’. With Gross Domestic Product deemed the sole indicator of growth, it was now considered the imperative of Third World governments to strive to provide its citizens the industrialised, urbanised, and educated lifestyle enjoyed by the First World. It was assumed that modernisation and economic progress would lead to social, technological, and political development, and was lauded as the only path to global equity and justice (Sachs, 1993). And so, it transpired that between 1960 and 1980, the First World became 26 times richer than the Third World. By 2000, the top one-fifth of the world’s population owned 86% of the world’s GDP, while the bottom one-fifth owned 1% (Roberts & Parks, 2006). The centre and periphery (alluded to earlier in List’s prescriptions to the ‘torrid zone’) came into sharper focus in the 1960s, with the dependency school of thought identifying the appropriation of the land and surplus of a primary-goods-producing periphery by an industrialised centre (A. G. Frank, 1967). Technical aid, and later financial investment,

would flow to create donor and recipient (read: indebted) nations. The conceptual ascendancy of developmentalism is itself considered a form of neo-colonialism or colonisation (Escobar, 1995, p. 5). Arturo Escobar credits developmentalism as having ‘both created and maintained the Third World, silently, without our noticing it’ (Ibid., p. 213).

It is not surprising that the developmentalism discourse locates islands within a paradigm of structural deficiency (Hau’Ofa, 1993). Their socio-spatial characteristics were leveraged once again to hide their continuing economic relevance for continental powers. Islanders themselves lay ‘outside of modernity’ (Farbotko, 2008), some characterised as ‘obdurate relics who refuse to become developed’ (V. Lal, 2000, p. 231). In the new paradigm, these ‘impossible’ geographies lacked resources and economies of scale, leading to increased reliance on continents or ‘mainlands’ for aid or relief (Connell, 2018; King, 2009). In the era of decolonisation, independence for many islands was longer fought and harder won, while others merely experienced a change of mainland regime with federative solutions (Baldacchino, 2010a). Even for independent islands, economic independence remained illusory, as islands the world over were subject to the imposition of mainland models of development; ‘top-down, interventionist, techno-centric and ethnocentric’ models which perpetuated the imperial framework of increased dependency (Connell, 2018, p. 5). The development of tourism ventures in newly independent islands was one instance where indebtedness followed from Western foreign aid and investment which assumed that the ‘tropical aesthetic’ would sell itself (Kravanja, 2012), with utter disregard for structural or logistical issues (D. Nash, 1977). The rhetoric of developmentalism has varied in time and space, populated by fluctuating ‘villains and heroes’ (Roe, 1991), but the linear growth model has shown remarkable staying power. Its basic assumptions are seldom questioned, and while a move is discernible away from economic indicators to those of happiness or human development, or alternate forms of development which rely on indigenous/traditional knowledge, alternatives *to* development are few and far between (Pieterse, 1998). The discourse of ‘sustainable development’⁴ in the 1980s brought increased attention to islands and islanders. The ‘intrinsic’ characteristics of smallness and a limited resource base now meant that islands faced common challenges in the myriad links between their environments and development practices. ‘Island development’ going forward would need to be carefully planned and sustainable.

⁴‘Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs’ (WCED 1987).

3.3 Islands and vulnerability

The concept of ‘vulnerability’ emerged in the 1970s to highlight the inequality inherent in developmentalism, and as a critique of the technocratic appropriation of hazard and disaster management (Bankoff, 2001b). Mechanisms for Cold War-era nuclear preparedness discourse were now grafted onto natural hazards and disaster response. Disasters caused by hazards⁵ were perceived as abnormal departures from a normalcy to which society would only return via technological solutions (Hewitt, 1983). The incidence of disasters was portrayed as much higher in the ‘global South’ (i.e., tropical, third-world countries), whose citizens were three to four times more likely to die by hazards than those of the ‘global North’ (Oliver-Smith, 1996, p. 8). Technocratic hazards management and disaster aid mechanisms were added to the cocktail of uplifting aid and investment packages from donor to recipient countries. The failure of the latter to invest in technological solutions meant these countries would suffer higher disaster mortality and loss (Bankoff, 2001a; Varley, 1994). Structural weaknesses in ‘regions of misrule’ or ‘failed states’ amplified this danger manifold and made these regions ‘vulnerable’ to disaster (Connell, 2018; Hewitt, 1997, p. 165).

Processes of Global Environmental Change (GEC) contributed to this vulnerability, through deforestation, agricultural intensification, urbanisation, but primarily through rampant energy-use of fossil carbons for economic growth (Drimie et al., 2011; Müller, 2002). This last is a major contributor towards global warming or climate change, characterised by temperature and precipitation variability, rising sea levels, and a higher frequency and intensity of extreme climatic events (Solomon, Manning, Marquis, & Qin, 2007). Climate change has enormous, localised impacts on people’s livelihoods, lifestyles, and quality of life, and most geographies are already experiencing cold and heat waves, acute droughts, and heavy floods (Solomon et al., 2007; UNDP, 2002). Temperatures witnessed today were last seen 100,000 years ago, and the level of CO₂ is the highest in several million years (Carrington, 2020, January 15; NASA/GISS, 2020). The years 2019 and 2020 were the hottest on record, with the last decade being the warmest in 150 years of measurement. Even in the hypothetical scenario of cutting all emissions today, warming by the end of the 21st century will have ‘severe, wide-spread and irreversible impacts globally’ (IPCC, 2014, p. 17). Adapting to this change is a necessary and unavoidable parallel process to cutting emissions and is imperative to reduce societal vulnerability and minimise potential losses associated with climate change impacts (Uitto & Shaw, 2006). ‘Global change’ has now emerged to include both planetary-scale changes in Earth systems and changes driven by humans (Steffen

⁵Here a hazard refers to an extreme geophysical or man-made event, while a disaster is the effect of the hazard on human societies in the form of damage, loss, and death (Wisner, Blaikie, Blaikie, Cannon, & Davis, 1994).

et al., 2006).

Response to these concerns has highlighted political, scientific, and developmental challenges (and failures), and global inequities. Conscientious scholars in the 1970s found no data to support the assumed disaster-prone nature of the global South. Natural hazards are even common facets of life and socio-ecological importance in many regions, as when annual floods fertilise land, or replenish water resources (A. Kelman, 2007; Lewis & Kelman, 2010). Disasters are now commonly viewed as social constructions, ensuing when a natural hazard hits a population *rendered* unable to cope with the impacts due to structural deficiencies and social inequalities arising from historical practices of colonialism and developmentalism (Blaikie, Cannon, Davis, & Wisner, 2014; M. J. Watts, 1993; Wisner et al., 1994). Vulnerability to these changes is evidently disproportional and differs at every scale, between countries and even individuals (Campling & Rosalie, 2006). Yet reports of the Intergovernmental Panel on Climate Change (IPCC), generally considered the highest authority on climate change, tend to focus on climate science, data, and technocratic recommendations. This ‘trademarking’ of climate change and its encapsulation in a ‘preoccupying science-policy bubble’ (Campbell & Barnett, 2010, p.179) makes nature the convenient scapegoat, and climate change an ‘all-embracing garbage can’ for other environmental, political, and social problems, especially of the global South (Connell, 2003; Pelling, 2003, p. 105). This complex catch-all is inherent in terms such as the ‘Anthropocene’, allowing perpetrators of environmental wrong to escape accountability (E. M. DeLoughrey, 2011, p. 26). Blaming nature, or governments for systemic failures or a lack of modernisation obscures the fundamental contribution of a ‘global North’ that has developed at the expense of the ‘global South’⁶ (Bankoff, 2001a; E. DeLoughrey, 2001; Wisner, O’Keefe, & Westgate, 1976). Framing the global South as especially vulnerable to the effects of natural hazards and climate change adds ‘disaster-prone’ to a region historically stigmatised as diseased, poor, and backward (Bankoff, 2001a, 2018; Hewitt, 1995).

Different impacts have ‘superimposed on dissimilar vulnerabilities’ to create a ‘complex geography of climate change’ (O’Brien & Leichenko, 2000, p. 221). ‘Winners and losers’ exist; though the rapidly shifting dynamics of hazardous conditions means these are also changing (IPCC, 2014). The global South is far from homogeneous, and small tropical islands within this region are acknowledged as the biggest ‘losers’; having contributed the least to carbon emissions, they are nevertheless threatened at an existential level. The discourse of ‘island vulnerability’ reveals interactions between global change and island geographies in the region. Small

⁶In 2007, the president of Uganda, Yoweri Museveni, famously referred to climate change as ‘an act of aggression by the rich against the poor’.

tropical islands are considered ‘intrinsically’ or ‘inherently’ vulnerable by virtue of limited land area and higher susceptibility to multiple hazards compared to larger islands and mainlands or those located in the temperate or polar regions (Briguglio, 1995; I. Kelman & West, 2009; Lewis, 2009; Pelling & Uitto, 2001). As sites of unique biodiversity and endemism with intimately linked ecosystems, these islands face constant stress through sustained human intervention and development. A finite resource base limits livelihoods, which are typically dependent on natural resources and climate, such as agriculture, fishing, hunting, gathering, and allied activities. Competition and conflict over the use and management of limited resources, overexploitation, and the use of islands to service mainland needs and economies have both degraded and marginalised islands (Cocklin, 1999).

Pelling and Uitto (2001) first developed an index of vulnerability of small islands, which showed a higher disaster frequency and vulnerability status for small island populations. Their exposure, coupled with their marginal status (geographical periphery, socio-economic and political) reduces their ability to deal with emergencies, which sometimes go wholly unacknowledged (Briguglio, 1995; I. Kelman & West, 2009). Their climate is influenced by large ocean atmosphere interactions such as trade winds, El Niño and the monsoons, and cyclones are common. Island space and islander lives, and livelihoods are increasingly affected by temperature and rainfall variations, more intense and frequent cyclones or hurricanes, and rising sea-levels, and the incidence of floods, droughts, or resource/biodiversity loss is higher and more frequent (Davis, Grell, & Shapiro, 1996; Taplin, 1994). The effects of slow-onset climate change and variability mingle with those of fast-onset hydrometeorological or geological events, rendering vulnerability a chronic condition in small islands, affecting livelihoods, economies, and even demography (Bettencourt et al., 2006; I. Kelman, 2014). The impact of real disasters such as the 2004 tsunami or the 2010 Haiti earthquake have long-term effects which are still being felt (see e.g., Wisner 2012). Non-climatic biophysical, demographic, socioeconomic, political, and technological factors also compound climatic exposure and sensitivity of islander populations, decreasing their capacities to respond. The impacts of historical regimes linger in their socioeconomic milieu, and internal stressors such as structural failures or poverty combine with external ones such as globalisation or unsustainable tourism. (Lewis, 2009; Wisner et al., 2012).

In 1990, recognising common vulnerabilities and challenges facing their sustainable development, independent island states in tropical regions came together under the rubric of the Alliance of Small Island States (AOSIS). Shortly after, the 1992 United Nations Conference on Environment and Development, or Rio ‘Earth Summit’, officially recognised an alliance of 52 (now 58) ‘Small Island Development States’, or SIDS, composed of islands and low-lying coastal

states. In 1994, the 'Mauritius Strategy' was formulated to extend technical aid and investment to SIDS to combat this common vulnerability. The Hyogo Framework for Action formulated for disaster risk reduction between 2005 and 2015 clubbed SIDS with other least developed or 'disaster-prone developing countries', where vulnerability and risk levels 'often greatly exceed their capacity to respond to and recover from disasters' (UNISDR, 2005, p. 5). In 2012 however, the Rio+20 concluded that despite heavy investment, the Mauritius Strategy had failed, in the uneven achievement of the UN's Millennium Development Goals, and in some cases even a regression in poverty and debt statistics.

Labelled the puzzling 'Pacific Paradox' by the likes of the World Bank, the underlying cause is quite plainly discerned: a 'passing parade of paradigms, imported from distant places' have long been imposed on islands without regard for their diverse contexts (Connell, 2018, p. 466-467). Continental powers, even within the global South, have fought against the SIDS; their fight for reduced emissions has faced opposition from India, China, and the 'Organization of the Petroleum Exporting Countries' (OPEC), and competing economies of India and China (Pater-son, 2001). Some argue for the removal of the pejoratives of 'small' and 'developing' (and now the implicit 'vulnerable') in the SIDS label, though SIDS have leveraged these attributes to become the 'moral conscience' of global climate change politics (Baldacchino, 2013b; I. Kelman, Gaillard, & Mercer, 2015; G. Williams, 2004). Nevertheless, literature from and on SIDS has an 'underdeveloped critical voice' (Pelling & Uitto, 2001).

Technocratic development oriented in continental design package solutions in a science-policy bubble that excludes islander participation and produces global change as too large and complex and a problem for islanders to even understand, let alone address. This continental 'eco-colonial gaze' creates a 'moral geography', where islands and their inhabitants are framed in narratives of victimhood and vulnerability (Farbotko, 2010, p. 47). Authors of IPCC reports re-inforce 'vulnerable island' imaginaries, through attention to the 'special characteristics of small islands' (Parry et al., 2007). Threatened by Sea Level Rise,⁷ small islands are 'on the frontlines' or 'canaries in the coal mine' of climate change, and islanders are its first blameless, hapless, and helpless victims (Connell, 2013). The 'first climate refugees' serve as a cautionary tale to impress the urgency of climate change upon the rest of the world and galvanise global responsibility and aid (Barnett, 2006; Farbotko, 2010). Along with being trademarked then, climate change has also been marketed, and tropical small islands and islanders are 'totemic' spaces and species to be saved.

⁷Though SLR on islands receives a lot of attention islands, precipitation and temperature fluctuations are perhaps more concerning (Nunn, 2003a; Nunn, Veitayaki, Ram-Bidesi, & Vunisea, 1999)

3.4 Islands and resilience

The appropriation of facets of the vulnerability debate by the neoliberal agenda has led to the popularity of resilience, and the focus on ‘adaptation’ (Bankoff, 2018). As climate change is a ‘combined/common concern for humanity’ and adaptation programmes are pushed by centralised institutions and development banks, a move away from the ‘negative’ term of vulnerability to the ‘positive’ one of resilience is discernible (Cote & Nightingale, 2012). Applying what originated as an ecological property (Holling, 1973) onto human populations, ‘resilience thinking’ has today shifted focus from the qualitative assessment of why people are at risk towards a consideration of the available response options (L. R. Walker & Bellingham, 2011, p. 153). In international policymaking, management, and planning, and even defence and development, ‘resilience’ has again become a buzzword (Pugh, 2014). The relationship between vulnerability and resilience is much debated; some perceive them as binary opposites, some as ‘same sides of a coin’, others as two ends of a continuum (Cheer et al., 2017; Gallopín, 2006; Madhuri, Tewari, & Bhowmick, 2015). Economic indicators determine vulnerability or resilience through risk indexes or disaster damages, while ‘adaptation programmes’ allow development banks to push technical aid and investment. Funding and mechanisms for adaptation are conditional on deregulation, fiscal discipline, privatisation, a reduced role for the state, tax reform, and trade liberalisation (Veltmeyer, 2005).

This neoliberal model has ‘hollowed out’ states, making them subservient to the economic growth and gains desired by banking and corporate interests (Bankoff, 2018). Concerns of social welfare and public safety are divested to non-state actors, such as civil society organisations and corporate social responsibility wings. Solutions like the valuation of ecosystem services, carbon development mechanisms and offsets, and compensatory afforestation, portray capitalism as both a force akin to nature and as the only way out (MacKinnon & Derickson, 2013, p. 258). Adaptation then is only viable through increasing economic options, and questions of ‘who/what is vulnerable or resilient’ take precedence over ‘why and how are they vulnerable’ (Ribot, 2014). Citing economic solutions as the only effective ways to increase resilience blames the vulnerable for their vulnerability, obscuring social inequalities or injustices (Reid, 2012, p. 72). This is evident in the Indian context today, where processes of ‘development’ are spearheaded by consulting organisations and private players in collusion with the dominant right-wing political narratives. Adaptation thereby seeks to preserve rather than challenge the status quo, and an increasing lack of public trust in state mechanisms, administrators, and experts is palpable (Moran & Rau, 2016; Pelling, O’Brien, & Matyas, 2015).

The resilience of islands first emerged in the ‘sustainable development’ discourse and the politicisation of Small Island Development States. In a bid to overturn narratives of vulnerability and victimhood, islanders were hailed as exemplars with valuable lessons for sustainable development (Kerr, 2005). Living for generations with risk and uncertainty, responding to chronic vulnerabilities, and having survived on limited resources (for millennia in some cases), islander insights could help other vulnerable populations (Grydehøj & Kelman, 2017; Nurse et al., 2014). The Sendai Framework (2015-2030) today provides support to ‘build resilience’ through the SIDS Accelerated Modalities of Action (SAMOA) Pathway⁸. Disillusioned with conventional development, and keen to decrease dependency, some islands have sought different solutions; specialising in niche products, becoming tax havens, investing in renewable energy, selling citizenship, leveraging their cultural or natural capital through tourism, or negotiating military/refugee presence (Connell, 2018; King, 2009; Weston, 2008). This ascendancy is celebrated as other islands follow suit; the ‘Pact of Islands’, with 117 European island signatories, seeks to create integrated ‘Smart Islands’ and surpass EU 2020 climate targets.

Both victim and exemplar narratives, however, perpetuate ‘islandism’, portraying ‘generic island problems’, and erasing their historical trajectories. The notion that islanders are resilient and better at the process of ‘adaptation’ is countered by those who term this process ‘realignment’ or ‘adjustment’ (Macleod, 2013; McMillen et al., 2014). A lack of consensus about the meaning of ‘sustainable development’ persists, and is predicated on biophysical indicators of progress, to the exclusion of social questions and trade-offs⁹. This narrative of striving towards resilience may place the blame for island degradation on islanders, exhorting them to change practices while the massive environmental destruction wrought by corporate and industrial concerns continues unabated in many island regions (Nunn, 2003b). Commercial logging persists in Philippines, Indonesia, Hawaii, and the African islands of São Tomé and Príncipe (Harris, 2016, March 17; Krishnakumar, 2010). Large-scale and badly planned mining operations plague the Papua New Guinea islands of Banaba/Ocean and Nauru, and the Solomon Islands. Seabed or coral mining (for lime) is rampant in Sri Lanka, the Maldives, the Solomon Islands, and Cook Islands. Effluents and chemicals flow into the waters from sawmills in Costa Rica, Madagascar, and Fiji, and from sugar industries and distilleries in the Caribbean. Offshore hazardous waste disposal has been a longstanding issue for Sri Lanka, Guam, and the South Pacific, while global trawler fishing affects most island waters and economies (Connell, 2003).

⁸See UNDRR (2015)

⁹One example is the packaging of the Rapa Nui/Easter Island, as an environmental cautionary tale (Diamond, 2006; Nagarajan, 2006). Here, fragile ecosystems are devastated by the weakening indigenous/traditional knowledge systems, though reasons for their weakened state are little explored (Bebbington, 1999; Hunt & Lipo, 2011)

Sustainable development remains a chimera for most islands even as it is marketed as a pathway to resilience. All development reports contain recommendations for sustainable fishing, ecotourism, agroforestry, and renewable energies. Where island tourism, bound in natural and cultural resources, is hailed as a 'passport to holistic development', the vulnerability-resilience duality or continuum comes into sharper relief (Armstrong & Read, 2006; Ayres & Lombardero, 2000; Scheyvens & Momsen, 2008). Under a resilience outlook, ideas of tourism as 'evil imperialism', and tourists as 'golden hordes' (D. Nash, 1977; Turner & Ash, 1975) have given way to rising benefits for island economies and livelihoods. Tourism is said to contribute significantly to SIDS economies, and Seychelles is often cited as an example, being one of the richest states not only amongst the SIDS, but also in Africa (McElroy, 2006). The perception of tourism as a 'non-extractive' industry reliant on the aesthetic and recreational value of resources makes a case for the conservation of such resources by tourism stakeholders (Ayres & Lombardero, 2000; Fonseca, Seabra, & Silva, 2015). Shifting from 'natural resource-oriented' to 'service-oriented' economies takes pressure off limited resource bases, creating new livelihoods opportunities (Fabinyi, 2010). In an era of ecological grief and 'dying islands', the tropical aesthetics of seemingly untouched island environments are marketed through 'ecotourism', hailed as a win-win solution. Defined as tourism which sustains the well-being of local people while building awareness for both tourists and locals (D. Sharma, Bijoor, & Ramesh, 2019), ecotourism can potentially generate economic growth, reinvestment, alternate livelihoods, and conservation interest or funds (Ayres & Lombardero, 2000; Duffy, 2015; Fabinyi, 2010).

While tourism may contribute to economic resilience, it brings a host of fast and slow changes which exacerbate the stress on islands. Economic prosperity from a heavy reliance on tourism is built on fragile foundations and affected by exogenous factors, as stock market crashes or the current COVID-19 pandemic reveal. Private tourism projects, encouraged by governments, meet little resistance from islanders, even as most tourism revenue finds its way to mainland businesses, a pattern which is also noticeable in this research, identified earlier in the Mediterranean islands, smaller Pacific islands, Seychelles, Mauritius, and the Maldives (Pelling et al., 2015). The ecological impacts of tourism (or 'overtourism') are being felt in the Galapagos islands, Thailand, and the Philippines, forcing governments to close islands for reef restoration and begin clean-up drives (UNWTO, 2018). Ecotourism projects rarely factor other environmental costs, such as travel emissions, or the damage from increasing pressures on ecosystem services, or the need for a support infrastructure (such as increased water reserves, waste management, or food). Ecological impacts aside, emerging spatial and social inequities, increased indebtedness, and resource conflict are also well-researched topics (Stonich, 1998).

Chapter 4

Savage Isles

This chapter explores how notions of ‘tropicality’ were leveraged by the colonial British Empire to colonise the Andaman Islands for their proximity to vital trade routes and other coveted regions. Surveys and reports of the time projected the bountiful islands as ‘bad tropicality’, alluding to their wild nature and hostile seas, and borrowing pre-colonial constructions of their inhabitants as savage cannibals. The absence of agriculture now rendered the land a ‘terra nullius’ perfect for timber extraction, and the islands looked like natural prisons fit for the degenerate convicts of British India. Projects of civilisation and rehabilitation led to the incarceration of their indigenous populations in Andaman Homes and convict populations in the penal settlement, and later Cellular Jail. With the free labour provided by both groups, a commercially minded Forest Department instituted projects of timber extraction and mangrove dredging to tame the land-/sea-scapes. Their penal nature demanded isolation from colonial trade networks, the destruction of indigenous trade routes, and furthered the marginalisation of the Andamans. It also connected its fate inextricably to mainland India. The beginnings of an agrarian landscape notwithstanding, the colony was underdeveloped, poorly defended and a non-productive liability. It was easily captured by Japanese forces in 1942. British ‘liberation’ in 1945 revealed a depleted, tortured, and starved convict population, and islands were reluctantly ceded to India upon Independence in 1947. The projections of tropicality and ‘islandism’ used to appropriate the Andamans were ironically the very ones that sabotaged the colonial endeavour.

4.1 The colonial Andamans

The Andaman Islands were first colonised by the English East Indian Company in the late 18th century, around the time that the uncivilised image of islands merged with the pestilential nature projected on the tropics. The neighbouring Nicobar Islands, located near the Straits of Malacca, were legendary in pre-colonial times as valuable trading posts. Despite the presence of (and high morbidity due to) disease, their locational advantage and amenable populace translated to ‘good tropicality’. Known as islands ‘of gold’ or ‘good fortune’ (Ptolemy; de Conti in Man, Temple, and Ellis 1883), they were highly coveted by multiple colonial powers. A veritable scramble ensued, culminating in victory for the Danish East India Company in 1755 (P. C. Bandopadhyay & Carter, 2017). Pre-colonial discourse was less kind to the Andamans, which were said to be inhabited by bestial cannibals, a ‘brutish and savage race’ resembling ‘big mastiff dogs’ that ate everyone they caught¹ (Marco Polo, 1290, in Dhingra, 2005). In a strategic move, the British set their sights on the Andamans instead. Proximate to regions they planned to appropriate (both Burma and the Nicobars²), the Andamans provided access to entrepôts in the Straits of Malacca and the Eastern Spice Islands during a period of intense colonial trade (Abraham, 2018; Temple, 1930; Vaidik, 2010). On the orders of Lord Cornwallis, then Governor-General of India, Lieutenants Archibald Blair and RH Colebrooke travelled to the islands, raising the Union Jack in ‘Port Cornwallis’ (today Port Blair) in 1789. Accompanied by 550 free settlers, artillery, and sepoy guards, and 270 Bengali life convicts, Blair administered the settlement, and was succeeded by Captain Alexander Kyd in 1792 (P. C. Bandopadhyay & Carter, 2017; Murthy, 2005; Wintle, 2013).

Remarkably free of sickness, the settlement thrived until its relocation three years later to the northeast coast (present-day Diglipur). Less sheltered from the ferocious monsoons, a few ‘sickly seasons’ led to declining settler health, and it was abandoned in 1796, having lasted less than a decade (Dhingra, 2005; S. Sen, 2010). Despite failure, the British refused to give up this strategic frontier outpost. The next few decades saw a ship stationed permanently near the erstwhile settlement and intermittent exploration continued (P. C. Bandopadhyay & Carter, 2017). In the 1820s, with British occupation of Southern India, Singapore, and Burma, traffic in the Bay of Bengal increased significantly, leading to a rise in piracy and shipwrecks. Though health was cited as the only reason for abandonment, the settlement had encountered heavy

¹Cannibalism was not new in the European discovery of islands and was initially considered a product of isolation and scarce resources, or of cultural traditions (V. Lal, 2000).

²The British did eventually become the dominant regional power, and the Danes ceded the Nicobars to them in 1868.

resistance from the native Andamanese population, and reports of shipwrecked sailors now being attacked by these savages enraged many a colonial officer. The commissioners of Arakan, Tenasserim, and Martaban pushed for a solution already milling in the upper echelons of British bureaucracy: the resettlement of these islands as a British penal colony. Lord Macaulay's draft of the 1837 Indian Penal Code had proposed criminals be removed from kin and society to a distant land (S. Sen, 2000), but transporting Indian convicts overseas to the Straits settlement, or to mountainous Arrakan or Tenasserim proved expensive (Weston, 2006, p. 62). The Andamans offered a good compromise in terms of distance, and it was presumed their isolation and geography would prevent escape and allow surveillance. Their wild unbidable nature and barbaric islanders might deserve the Empire's degenerates and criminals, but the strain on British coffers would be dire and a few attacks did little to sway opinion. In the interim, surveys, travelogues, and shipwreck narratives ensured the Andamans were still 'retained within the European imagination' (U. Sen, 2010, p.54).

It was only after the Indian Mutiny /Revolt of 1857 and the transfer of power from the English East India Company to the British Crown that the fate of the Andamans as a penal colony was imminent. A military uprising by Indian soldiers in north India quickly became large-scale civilian unrest³, leading to the destruction of many jails and the liberation of thousands of convicts. Ultimately quashed, the mutineers and convicts were rounded up, but the scarcity of remaining jails brought the Andamans back into consideration. A three-member 'Andaman Committee' (Murthy, 2005) headed by surgeon FJ Mouat travelled to the islands, and chose the original settlement site, christening it 'Port Blair'. In March 1858, 500 convicts arrived under the charge of Superintendent JP Walker (S. Sen, 2000). For the next sixty years, *kalapani*⁴ would host tens of thousands of convicts in their wake. During the Second World War, Japanese forces captured the Andaman and Nicobar Islands from the British in 1942. With a slogan of 'Asia for the Asians', they lauded themselves as comrades of the Indian independence movement and liberators of the people. In 1943, Netaji Subhash Chandra Bose, the leader of the Indian National Army (INA), travelled to the islands and flew the Indian tricolour flag, declaring them the first 'free' Indian territories. Japanese officials are said to have kept him away from the starving and tortured populace (Roychowdhury, 2004). Upon Japanese surrender in 1945, the British forces 'liberated' the ANI, before they became part of the modern Indian nation-state in 1947⁵.

³The catalyst for this event was purportedly the new Enfield rifle cartridge greased with beef tallow and pork lard, which offended the religious sensibilities of both Hindu and Muslim soldiers.

⁴Translated as 'black/dark waters', a dreaded moniker for the colony.

⁵Journalist Sophia Akram (2019, May 1) notes that the ANI won their 'freedom' thrice in a span of four years

4.2 The Andamans as ‘bad tropicality’

Both phases of British settlement were preceded by a host of surveys which first mobilised the notions of tropicality. A fount of strategic navigational and topographical information, maps and surveys were ‘repositories of colonial knowledge’, fluent in the language of ‘othering’ and appropriation (Vaidik, 2010, p. 17). British surveyors, administrators, and geographers combined past and present stereotypes emanating from encounters between the European and non-European worlds. The Andamans’ ‘bad tropicality’ is a function of the period in which they were colonised, their connection to the Indian colonising mission, their habitation by resistant islanders, the wild character of their islandscape, and the presence of malaria. As spatial characteristics took on civilisational meaning, the British contrasted the Andaman islandscape to their own, effectively othering it, but also distancing from it (and other regions) spatially, temporally, and morally. The wild land and sea had to be ‘tamed’ to extract their bounty, and the savage islanders ‘civilised’ to extract their labour. Notions of savagery and primitivism sought not only to frame the colonial endeavour as a civilising, reformatory mission, but to construct the land as empty space which belonged to no one, there for the taking. The islands thus *deteritorialised*, were then *reterritorialised* in service of the mainland colonising mission as strategic frontier, penal colony, and timber depot, all with the cheap labour of convicts and mutineers.

4.2.1 Wild land and hostile sea

From the decks of ships, the littoral beauty of the Andamans was breath-taking; ‘a prospect picturesque and beautiful’ (Blair to Cornwallis 1793 in U. Sen, p. 117), an ‘exceedingly romantic and beautiful spot’ (Grierson, 1825), and a ‘spectacle of the most lovely and attractive description’, revealing a ‘fair and fertile land’ (Mouat, 1863). The ‘beauty and bounty’ narrative reigned supreme in surveys and reports preceding the first settlement, combining ‘aesthetic, military and pastoralagricultural-settler agendas’ (S. Sen, 2000, p. 179). The Andamans fit the notion of the ‘geographical tropics’ better than mainland India, being wholly maritime, closer to the equator, and full of lush vegetation (Cosgrove, 2005). The first three hydrographical surveys were conducted by Captains John Ritchie, Thomas Forrest, and Francis Buchanan between 1771 to 1788. These first explorers rarely went ashore, and the first maps were only outlines of the islands, with names and classifications for inlets, bays, and capes. Yet it was with ease that Ritchie likened the islands to British-owned Barbados, confident that similar development would render it just as bountiful (S. Sen, 2000). Their excellent harbours would provide refuge and refreshment for EEIC ships from a stormy sea full of pirates, and the long, narrow islands

would be easy to defend. Ritchie even prescribed haste, citing the French threat on the Indian mainland and noting 'another Mauritius' in the Bay of Bengal would be a fatal blow for the British (Vaidik, 2010). With the island interiors now rendered blank, beautiful, and inert, all three reports recommended colonisation. This sparked the 'fantasy of appropriation' (S. Sen, 2000), and fuel was added by Lieutenant Archibald Blair, who carried out the first meticulous survey on Andaman soil in 1789. He noted that a few vantage points afforded a view of both the Andaman Sea and the Bay of Bengal which would make for better defence (Dhingra, 2005). The presence of fresh water, availability of timber for ships and coral for lime, and the possibilities of agriculture (in the Malayan style) and even sheep rearing made for 'the most happy tropical situation' (U. Sen, 2011, p. 179). Both Ritchie and Blair even visited the volcanic Barren Island to assess its deposits of sulphur, a key component in gunpowder (P. C. Bandopadhyay & Carter, 2017).

The paradoxical nature of this landscape, a hallmark of the tropicality discourse, was quick to emerge. The second phase of exploration noted this simultaneous paradox, harking back to the disease and death that cut down the first settlement. Danger now lay behind the magnificent veil of the Andaman shoreline (Vaidik, 2010). A 'scenery of the most dismal and desolate character' (Grierson, 1825) was full of the 'seeds of disease...and death' (Mouat, 1863). The mangroves and labyrinthine creeks produced noxious inhalations and miasmatic fevers⁶. Historian Aparna Vaidik (2010) details the British comparison of the Andaman landscape to their own. The rolling hills and fields of Britain were contrasted with impenetrable 'jungles'⁷, land which had not yet been tamed as property. The undergrowth had to be cleared and the swamps dredged, for the health and very survival of the officers and convicts. The 'jungle' would be tamed and razed to reveal the 'gardens' underneath, and eventually the pastoral fields reminiscent of the British landscape. The 'silver sea' that housed and fed the glorious British isles (ibid.) was a far cry from the 'hostile sea', full of malevolent weather and pirates, in which the Andamans lay. The allegorical designation of the Andamans as *kalapani* (black waters) later implicated their seas in a similar manner. 'Beauty and bounty' then also contained pestilence and death, and it followed that wild land and hostile sea would naturally produce barbaric people.

⁶Probably due to the presence of a land-based malarial mosquito, a connection made only in 1897 (Vaidik, 2010).

⁷Topographic surveys here reiterated the spectre of the 'jungle', a 'moral-geographical term reshaped by colonialism to signify an inherently hostile, unhealthy, opaque and savage space' (S. Sen, 2010, p. 65).

4.2.2 Savages and degenerates

The prosaic information in survey reports was intermittently punctuated by wondrous, dramatic, and even humorous accounts of ‘native encounters’ (Tomas, 1991). Ritchie first described the Andaman islanders as *possible* cannibals who ate one another or at least their enemies. Rubbishing the dog-faced rumours, he likened them to Africans, Papuans, and Barbadians, even suggesting they were descendants of shipwrecked African slaves⁸ Blair firmly dispelled the cannibalism myth, though his relationship with the natives remained tenuous. It is claimed that, despite explicit orders to appease the islanders and gain consent for the first settlement, the native Jarawas of Chatham Island were forcefully evacuated, and a road was quickly constructed to mark the boundary between settlement and native territory (U. Sen, 2017; Venkateswar, 2004). This initial hostility was likely the harbinger for a long period of native resistance, countered by a narrative which sought to produce the islanders as ‘savages’ of the worst kind, in dire need of ‘civilising’. That ‘deviance from the norms of civilisation’ led to distinct developments amongst islanders - noble savagery at best and barbaric cannibalism at worst - was an idea nurtured during the colonial endeavour in the Pacific Islands (V. Lal, 2000).

Captain Kyd’s report on the Andamanese, as ‘new acquired subjects of the East India Company’ (Kyd in Portman, 1899, p. 93), was the first to mobilise this paradox in the Andamans. While praising their childlike innocence and ‘Voltairian Republic’, Kyd condemns the Andamanese as a godless, lawless society, devoid of agricultural knowledge or endeavour. They are for him the ‘lowest yet discovered on the scale of civilisation, in a word Man in the rudest state of nature’. The ‘civilising project’ is also metaphorically evoked; akin to ‘wild sheep’, Kyd is certain the Andamanese can be taught to embrace civilisation with the English East India Company as their ‘Sheppard’, guarding them from other imperialist ‘wolves’ (Pandya, 2013, p. 6). In the period between the two settlements, shipwreck narratives and heroic odes to colonialism fuelled this discourse of savagery and civilising mission. In 1863, Mouat called the Andamanese ‘the most savage races on the face of the earth, whom civilisation has yet found it impossible to tame, or even almost to approach’ (Mouat, 1863). Perhaps the most succinct passage is found in Arakan commissioner Henry Hopkinson’s 1848 diatribe (in Portman, 1899) about British inaction in the islands:

“... it does seem astonishing that their condition on the present day should be such

⁸This theory took hold in the colonial episteme and perhaps justified the eventual enslavement of the Great Andamanese. It surfaces even today: ‘In the ancient times two Portuguese ships with African slaves bound to Malacca were lost their passage and tossed against these islands, seems to have occupied these islands’ (D. Biswas, 2014).

as to make us wish that they could be blotted from the face of the ocean or sunk a thousand fathoms deep below its surface... that instead of offering a refuge to the miserable storm-driven vessel, they should be a snare in her path leading to utter destruction, and in place of engaging the enterprise, and furnishing subsistence to thousands of industrious colonists, they should be left in the possession of a handful of degenerate negroes, degraded in habits and intelligence to a level little above the beasts of the forest with which they dwell."

As the penal settlement grew, the savagery discourse became more complicated in what was essentially a 'colony of a colony'. Here 'multiple savageries' (S. Sen, 2010, p. 21) interacted in fluid ways; the islander savagery of the Andamanese, the racial/sexual savagery projected on Indians during the Mutiny, and the different forms of 'blackness and whiteness' of guards or free settlers. This three-way polity contained shifting allegiances and autonomous relationships between the British and their servants, the convicts, and the indigenes (Bullard & Boyer, 2000). Perhaps this complexity is best captured in events which led to the 1859 'Battle of Aberdeen' between the Andamanese and the British. Escaped convict Dudhnath Tiwari encountered the Andamanese in their forest homes, and was accepted by them, living with them for a year and even marrying one of their women. It is here that he was involved in Andamanese plans to ambush the British settlement. On the eve of the ambush, he fled the forest to warn British officers, demanding a return to the mainland in exchange. Losing the element of surprise, many Andamanese perished in the battle, heralding the eventual demise of this tribe. Andamanese trackers were later used to hunt down escaped convicts, while convicts, soldiers, and sailors managed the 'Andamanese Homes', exploiting the tribe, and spreading disease and vice (S. Sen, 2010). The brutality of the Cellular Jail jailers, such as David Barry, and the Japanese reign of terror were further savageries to come. As with the South Seas Project, novels and travelogues sought to capture this savagery for European audiences. The most popular of these works is Arthur Conan Doyle's *The Sign of Four* (1890), where Sherlock Holmes tracks a European convict, a murderer who escapes from the colony⁹ Here the miasmatic land, wretched convicts, and cannibalistic Andamanese all share the spotlight (Mukerjee, 2003; Vaidik, 2010; Wintle, 2013). The discourse and the civilising mission it engendered had devastating consequences for the Andamanese. At the height of the penal settlement, MV Portman noted that the islands, 'thickly peopled before our advent', were now witnessing the 'dying savage'. This was attributed, not to

⁹Captain Kyd had argued against white convicts being sent to tropical penal colonies, and the practice was not prevalent in the Andamans. For the story's sake, however, Holmes could not be trailing an Indian convict, who would not dare escape in the first place.

the British, but to the island character of remoteness and isolation. Portman laments that the heavily 'petted and tended' Andamanese were 'doomed by their very isolation from the initial point of contact' (cited in S. Sen. Historian Satadru Sen 2010) calls this an 'affectation of tropical island colonialism' i.e., the failure to acknowledge that it was the British 'gifts of civilisation' - dispossession, deterritorialisation, violence, deforestation, imprisonment, enslavement, exploitation, and disease - which led to the death of these 'savages'.

4.2.3 Terra nullius and natural prisons

The rage at bounteous wealth left in the hands of savages found recourse in an 'insidious' doctrine of terra nullius (or no man's land) that would shape the Andamans for decades to come (Anderson et al., 2016). With land appropriation and colonial plantations, non-intervention in nature (for which the Pacific Islands were initially romanticised) was replaced by the improvement of land as a divine injunction and source of civilisation, where the improver was rewarded with ownership of land as 'property' (U. Sen, 2017, p. 947). Enlightenment thinkers such as John Locke proclaimed that production from the earth now necessitated labour, industry, and techno-social advancement (Arnold, 2006; Vaidik, 2010). In this paradigm, the empty, unexplored, virgin territory of the Andaman Islands clearly awaited the productive hand of the British and the unwritten doctrine of terra nullius¹⁰ delivered it to them (Clayton & Bowd, 2006; Pandya, 2013). The nomadic Andamanese were now labelled as mere 'proglers' on the land. Living off the 'fruits of nature' with no agricultural endeavour had made them lazy and uncivilised. On the Indian subcontinent, the British negotiated and bargained for land, but the idea of compensation or even askance in the face of such primitivism was preposterous. The discourse of savagery then delivered the Andamans to the British as empty space owned by no one, at least no one that could be negotiated with in a 'civilised' manner. The British further laboured under the belief that the Andamans were a 'natural prison'. Their bounded nature, wild geography, distance from the mainland, inclement climate, and jungles full of savages required minimal British oversight while allowing for easy surveillance (Vaidik, 2010). They suited the isolationary spirit of Macaulay's penal code, and the deterrent effect of religious and caste excommunication for Hindus due to crossing the sea was accorded much value. A steady supply of cheap convict labour would extract resources and develop these islands as a colonial frontier while keeping seditious elements far from the subcontinent. In truth, the unbiddable nature of these islands made penal establishment and management a gargantuan task. A non-

¹⁰This is in contrast to Australia, where the doctrine of terra nullius was inscribed in law.

productive asset, the colony was wholly reliant on the mainland for its food and supplies. Yet the isolation from trade and ship routes necessitated by a penal colony made its administration increasingly difficult. Penal systems and devices (such as quarantine) became harder to enforce, the few existing supply lines were often disrupted by bad weather, and officers felt resentful at being excluded from the mainland colonial machinery. Penal systems and devices, such as convict quarantine, became harder to enforce, leading to frustrations for guards and officers. For Vaidik, the idea of islands as natural prisons is embedded in the 'geographic imagination of imperialism' (Vaidik, 2010, p. 04), and in *Imperial Andamans*, she details how this idea eventually led to the failure of the colonial endeavour in the islands.

4.3 A marginalised islandscape

4.3.1 Taming land and sea

"Much of the timber that built the Indian railway network has come from here - this place, which has never even seen a railway line ..."

- Forest Department Official, Havelock Island

During the first settlement in the 1790s, the clearing of impenetrable 'jungle' was a necessity for both the settlement and settler health, and the failure of the latter led to the fall of the former. The second settlement in the 1860s came with a steady supply of convict labour which facilitated better exploration of the jungles and eventual extraction of their valuable timber. The 'spectre of the Indian jungle' had long been exploited for colonial expansion in the Indian subcontinent but gained traction with the inception of the Indian Forest Department in 1864. Couched in projects of 'modernisation' and 'urbanisation', this institution was supported by a legal regime which justified appropriation of indigenous and community forests. The 1865 Indian Forest Act extended colonial rule and rights over all forests, resulting in exorbitant demand which was met by India's Teak, Sal, and later Himalayan Cedar forests (Gadgil & Guha, 1992; Sekhsaria, 2001). This large-scale commodification of India's forests produced new ships for the British navy, as well as sleepers, fuel, and carriages for Indian and Burmese railway networks. In 1878, the Act designated erstwhile community forests as state-owned reserved forests, a move which led to the dispossession of the tribal 'jungle mahals' of West Bengal¹¹ (Sivara-

¹¹This was conducted via a British-Indian nexus with a three-pronged strategy: demilitarisation, sedentarisation, and designation as reserve forest (Sivaramakrishnan, 1999).

makrishnan, 1999). The Act's 1927 amendment created additional 'protected forests' for scientific management and regeneration of already depleted reserves (Sivaramakrishnan, 1995). Ecological historians Madhav Gadgil and Ramachandran Guha call the institution of the Forest Department a 'triple watershed' event with long-reaching political, social, and ecological repercussions. It increased state territory in an unprecedented fashion, denied local and traditional access to forests, and radically altered forests through commodification and deforestation. The Forest Acts and the bureaucratic control of forests caused much resistance and conflict in the India mainland, with the Forest Department considered 'the most reviled agency, along with the Salt Department' (Gadgil and Guha in Rangarajan, 2016, p. 390).

In the Andamans, however, an informal terra nullius meant Forest Acts were deemed unnecessary, and the Andaman Forest Department was set up only once commercial viability of Andaman timber was established, in 1883. The isolation of the islands required limited timber extraction from the outset, but this was limited to the settlement and its surrounding areas (Krishnakumar, 2010). Local timber was considered useless, and Burmese teak¹² was imported to construct the British headquarters at Ross Island (Vaidik, 2010, p. 219). As exploration increased, native species proved excellent raw material for ship and railway works and construction. Tropical timber suited the humid climate, and soon proved hardier than temperate timber, even in temperate environments. From its inception, the Andaman Forest Department was driven by commercial aims, evident in the swift erection, barely a year later, of the Chatham Sawmill¹³ (R. Whitaker, 1986). Under the aegis of the first Forest Officer, Lieutenant Colonel ML Ferrar, Andaman timber found its way to both domestic and international markets. Of particular interest was an endemic semi-deciduous species, the Andaman Padauk (*Pterocaropus dalbergioides*), which proved useful to construct buildings, railway sleepers and carriages, furniture, and other accessories. Padauk replaced Burmese teak, quickly gaining popularity overseas (P. Lal, 1976; S. Sen, 2000). Revenue from timber export rose almost 250%, in the span of fifteen years, from 15.8 million rupees in 1890 to 58.3 million rupees in 1905 (Tripathi, 2018, p. 42). By 1912, excess profits were being diverted to the mainland (Venkateswar, 2004). Recognising the value and potential of this commodity, visiting foresters repeatedly called for designating reserve forests which would provide for the settlement's needs and, more importantly, allow for scientific regeneration. Virgin Andaman forest provided 15 tons of timber per acre but could possibly yield 50-75 tons after commercial regeneration (Chengappa and Hamilton in Dhingra,

¹²This early period in mainland Indian forestry was marked by a preference for this 'royal' teak, considered 'the first and last timber of the country' (Krishnakumar, 2010, p.82).

¹³In minimal operation today, it remains Asia's oldest and largest sawmill, with an annual processing capacity of 20000 m³ of timber (Tripathi, 2018).

2005, p. 249).

Paucity of labour and transport meant initial felling was limited to three species, using elephants, convicts, and some skilled labour. Between 1869 and 1949, extraction rose exponentially with more commercial species, the addition of tractors, cranes, and tramlines, and the immigration of skilled and unskilled labour. In the first fifty years, 7,65,000 m³ of timber was felled; in the next twenty, 1 million, and in the next ten, 8.8 million (Saldanha, 1989). Plans for regeneration or conservation were continuously shelved in the face of unrelenting and ever-growing timber demand. Copious tracts of Andaman forest were decimated to expand the penal colony and mainland colonial endeavour, for export and domestic markets, during both World Wars and for their reconstruction programmes, through the ensuing private lease of land, and during Japanese occupation¹⁴. After reoccupation, and with Indian independence close at hand, timber-rich tracts were leased to private firms for royalties (Gopalaswami, 1951). The extent of private exploitation is revealed when forester BS Chengappa's prescription of an a 75,000-ton annual combined yield from South and Middle Andamans is contrasted with the expectations of Messrs. PC Ray & Co. of Bengal of a 75,00,000-ton annual yield from North Andaman *alone*. Though attempts at regeneration were made, Chengappa's forest working plan was derailed as post-independence refugee resettlement demanded clear felling once more.

After the First World War, as the penal colony transitioned into a quasi-penal settler system and timber profits were unsteady, the focus shifted to agricultural development to sustain the colony. Rendering land productive, through agriculture, landscaping, architecture, or settlement lay at the heart of the Enlightenment doctrine, and the razed jungle revealed 'fallow land' waiting to be sown (Mazumdar, 2016b). Agriculture as the basis of civilisation notwithstanding, the aim was to make the islands self-supporting to limit the burden on British coffers. Convicts practised intermittent agriculture, but most food had to be imported from India and Burma. In the 1860s and 70s, the Viceroy of India, Lord Mayo, had shown immense interest in establishing the Andamans as a self-supporting colony through agriculture¹⁵. This mantle was taken up, in an almost obsessive manner, by none other than ML Ferrar, now Colonel and Chief Commissioner of the Andamans. His colonial 'will to improve' took a two-pronged approach - radical interventions on land and sea on one prong and the settlement, containment, and management of both labour and indigenous populations on the other. Ferrar pushed the

¹⁴The Japanese allegedly shipped more than 54,000 tonnes of timber to Burma and Penang, while Allied bombing destroyed swathes of forest in South Andaman (Chengappa, 1950).

¹⁵Interestingly, Lord Mayo's assassination in the penal colony, at the hands of Wahabi convict Sher Ali in 1872, was swept under the carpet at the time in fear of retaliation. This incident is credited with the rise of the first British intelligence agency in India (Anderson et al., 2016).

boundaries of the agrarian frontier, and the Andamans proved a fascinating laboratory. His Arcadian vision was laid out in the 1926 'Memorandum on Agriculture', which drew from ideas of Enlightenment, the agricultural revolution, industrialisation, and the Age of Reform as well as the experiences of British officers in other tropical colonies and islands (Ibid.).

Lord Mayo's experiments of tea, coffee, and Hevea rubber were already in place, while the settlement gardens grew a range of tropical fruit and vegetables. The Memo highlighted the lack of labour and prescribed radical interventions on the forested and intertidal regions, such as the felling of trees, clearing of growth, and dredging of malarial swamps. By 1931, from 18,000 hectares of cleared forest, 3625 hectares had been developed for agriculture, and another 4000 for grazing (Island Development Authority, 1987). Swamp dredging was a strategy first suggested by Mouat in the 1860s (Vaidik, 2010). By 1929, Ferrar had supervised the dredging of twenty-five mangrove swamps and their conversion to flat paddy land. Successive administrators improved on this system, building protective sluices and bunds to enable rice and coconut cultivation, clearing hundreds of acres of mangrove swamps, and radically transforming the environs of Port Blair. Only the sea was somewhat safe from these interventions, as fishing in this period was mostly for subsistence. Between 1908 and the 1940s, only one trawler targeted demersal and pelagic fish stocks, and even privatisation in the 1940s (through the Andamaine Development Corporation Ltd. and its four vessels) increased catch minimally (Dorairaj & Soundararajan, 1985). Nevertheless, the legacy of Ferrar's decisions and actions, as both Forest Officer and Chief Commissioner, continued well into postcolonial governance, and are imprinted in the Andaman landscape even today (Mazumdar, 2016b).

4.3.2 Managing populations

Indigenous groups

Throughout the period of colonial rule, the Andaman indigenous groups remained a proverbial thorn in the Empire's side. The British were desperate to neutralise this sizeable population, estimated between 8000 and 15,000 people (Tripathi, 2018). Predominantly fishers and hunter-gatherers, the group was far from homogenous; it consisted of both coast dwellers (*ar-yauto*) and forest dwellers (*eremtaga*) with various forms of collective tenure and social organisation. There were different tribes, groups, and subgroups, each with differences in tongue, customs, and housing. Each subgroup lived within a demarcated area of land, and used spears, bows and arrows, shields, harpoons, canoes, and nets (Radcliffe-Brown, 1922). All were fiercely protective of both territory and privacy, with a strong dislike for strangers (Vaidik, 2010, p. 15). Indigenous

‘counterinsurgency’ seems to have existed from the beginning, with attacks on the first settlers and later shipwrecked sailors (Portman 1899, in (S. Sen, 2010)). Swapping the usual courtesies of gift exchange and contact missions for forceful evacuation and disease, Blair had initially forced a Jarawa sub-group out from Chatham Island with muskets and ship cannons. Sick and displaced, these Jarawas reportedly came into territorial conflict with a larger subgroup of the Great Andamanese tribe, the Aka-Beá-da, depleting their numbers further (Venkateswar, 2004).

When the British returned in 1858, the Aka-Beá-da were the majority, and Port Blair was now Great Andamanese territory. Counterinsurgency ensued through raids and skirmishes, culminating in instances of organised resistance in 1859. The first attack, by 1500 Andamanese, was followed by a second, larger ambush a few months later. News of the ambush reaching Superintendent JP Walker just in time (via Dudhnath Tiwari, an escaped convict who gained the trust of the Great Andamanese). In what is today known as the Battle of Aberdeen (1859), the majority and the strongest of the tribe perished. Defeated and decimated, with their homes being razed, the tribe started emerging out of the forest, lured by British ‘gift dropping’ of coconuts and bananas. A few members of the tribe were captured during a raid, but their kin were encouraged to visit and take food back to the forest. More visits and increasing familiarity culminated in the idea of the ‘Andaman/Andamanese Homes’. Here the ‘friendly’ Andamanese (in contrast to the ‘hostile’ Jarawa and later Onge) would live and be given rations, lodging, and medical assistance.

The first Home was set up in 1863, and by 1890 there were 15 such Homes, located in ‘clearings’ of the forest (S. Sen, 2010). Though the commodification of forests destroyed indigenous habitats and food sources, it was British interest in their utility as labour and as anthropological curiosities that spelled real disaster for these tribes. The Andaman Homes slowly isolated them from their kin without, for fear of ‘cultural recontamination’ (Portman, 1899, p. 376-377). The ‘Andaman Orphanage’ in 1869 separated children from their parents¹⁶. With convicts deemed untrustworthy, the Homes functioned as reliable sources of (slave) labour for British officers. Forced to wear clothes, till land, and learn both English and Hindustani, the Andamanese became the ‘navigators’ to British ‘explorers’, trackers for runaway convicts, and domestic servants for British households. The Homes served paradoxically as sites of acculturation and anthropological study, for the likes of EH Man, RC Temple, and AR Radcliffe-Brown¹⁷. These ‘shifting

¹⁶Here the British took another cue from the Australian colonial endeavour, ‘... to wean the adult savage from his roaming, desultory life is nearly an impossible task; our only chance of being successful is by turning our attention to the children’ (Man’s Annual Report (1867-68) in Portman, 1899).

¹⁷Radcliffe-Brown’s fieldwork-as-investigative-method is said to have developed here, though he is criticised for projecting nostalgic primitivism (Weston, 2006) and conducting ‘survey and salvage’ ethnography (Kuper, 1975).

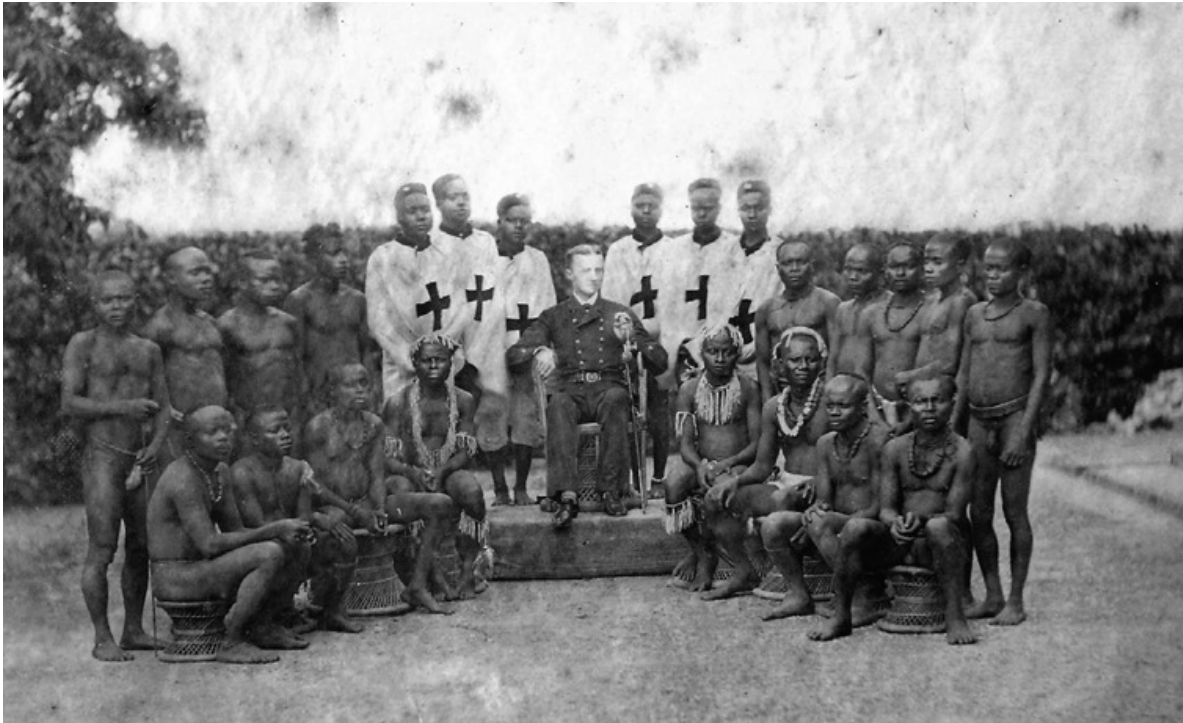


Figure 4.1: MV Portman with the Andamanese (S. Sen, 2010; photo courtesy of the Anthropological Survey of India).

strategies of containment and consumption’ (S. Sen, 2010, p. 9) led to a devastating regime of physical and sexual exploitation of the Andamanese. Convicts and visiting sailors were catalysts for continual epidemic outbreaks of pneumonia (1868), syphilis (1875/76), ophthalmia (1876), measles (1877), mumps (1886), influenza (1891), and gonorrhoea (1892). The death rate in the Homes was far higher than the birth rate, and children born usually died in infancy¹⁸ (Tomas, 1991). The British response was to confine the Andamanese in hospitals, from where they often escaped into the forest, spreading disease amongst the rest of the tribe (Portman, 1899, p. 607). Both EH Man and MV Portman first projected these diseases onto the Andamanese body, blaming their ‘unhealthy’ and ‘unhygienic’ ways. This ran counter to the established trust and praise of the athletic, strong Andamanese, and caused some alarm amongst British households with Andamanese servants (Tripathi, 2018). It was eventually attributed to their ‘promiscuity, helplessness and a childish aversion to doctors’ (S. Sen, 2010, p. 141).

By 1931, the Andamanese were a broken shell. Anthropologist Kath Weston (2008, p. 62) dubs the Andamanese in the Homes a ‘parallel incarcerated population’ to the convicts in the penal colony and Cellular Jail. Diseased or in the throes of addiction, only 24 individuals re-

¹⁸Punam Tripathi (2018) labels the Homes the sites of the first major disaster to befall the Andamans.

mained by the 1960s, when India finally acknowledged them. While the Andamanese were 'petted and tended' to death, the 'hostile' Jarawa and Onge faced the full force of British violence. The 'Jarawa menace', for instance, consumed ML Ferrar in the 1920s, as sustained raids and attacks hampered all his development schemes. He responded with 'unrelenting violence', even pushing for their 'extermination' in mainland bureaucratic circles, a suggestion that was summarily shot down (Mazumdar, 2016b). Extermination was expensive and uncouth, and unnecessary when any form of representative politics in indigenous areas had already been suppressed by 'protectionist' policies. The Scheduled Districts Act of 1874 and the Government of India Act of 1935 would go on to shape similar postcolonial policies in the region, rendering the indigenous subjects rather than citizens of newly independent India, and robbing them of hearth and home (U. Sen, 2018, p. 966).

Convicts and settled groups

In terms of population management, the penal colony was a 'long, interrupted experiment' (S. Sen, 2010, p. 2). Upon landing, convicts were first made to clear Chatham Island, but water shortages forced them to shift to a nearby island, Ross. This 2 km² island had a water source, was easier to clear, and lay just across the harbour, and was deemed the perfect site for the British headquarters. Officers would be close enough to supervise the convicts yet live separately in a mini-European haven which a steady supply of convict labour would soon create. Known for a while as the 'Paris of the East', the island was replete with manicured gardens and orchards, majestic teak buildings, a church, bakery, dance hall, cricket grounds, tennis courts, and swimming bath (Kloss, 1903). Apart from indentured labour, convicts proved suitable subjects for medical experiments on quinine and Gurjan oil, as well as social ones on convict relations or sexual delinquency (Ludwig, 2013; Vaidik, 2010, p. 17). As the islands were considered a 'natural prison', the development of a proper prison was deemed expensive and unnecessary. The colony accommodated not only mutineers or 'political prisoners' but all manner of convicts from broken mainland jails and even free settlers.

The use of convicts as forest and construction labour meant everyone mingled freely in the early years of the settlement, and strict confinement or incarceration was difficult (Vaidik, 2010, p. 189). Despite Superintendent Walker's infamy for excessive violence against both indigene and convict¹⁹, the penal colony often resembled a settler colony. Political consanguinity

¹⁹When 220 convicts tried to escape and 140 perished in the attempt, the rest were caught and hung by the gallows at Viper Island on Walker's command (Murthy, 2005).

between jailers and convicts was unavoidable and no coherent penal system²⁰ was discernible. They gradually gained a reputation for a 'freer' life than in other penal colonies, and the fear once elicited by *kalapani* started to fade, as did the deterrent effect of caste/religious excommunication on crossing the sea. With a resurgence of political dissent across the subcontinent, *kalapani* needed to instil fear once more, not of isolation from kin or crossing oceans, but of brutal labour and solitary confinement. To this end, construction on the Cellular Jail began in 1893. Across the harbour and in their line-of-sight, Ross Island glimmered as convicts built this Panopticon that would eventually house them and those to follow. Completed thirteen years later, in 1906, the three-storied building held 696 individuals in tiny 4x3 metre cells, separated from each other by solid walls and metal doors. With seven wings and three watch towers, it was one of colonial India's strongest constructions, said to be earthquake-resistant (V. Lal, 2000, p. 232). Restricted convict contact and solitary confinement were supplemented by 'spirit-breaking' practices of the guards and jailers. This included forced labour till collapse, flogging, standing handcuffs, and other forms of physical and psychological torture. Rebellion, often through hunger strikes, was suppressed by brutal and sometimes fatal force-feeding. Dysentery, tuberculosis, and malaria killed many, while others went insane or committed suicide. In the aftermath of the First World War, mainland protests against this cruelty (even from British quarters) and rising costs of the colony led the Jails Committee to recommend closure of the Cellular Jail in 1920, citing its failure to be rehabilitative. Excepting a fresh wave of political prisoners in the 1920s and 30s, convict transportation was slowly halted, and a new quasi-penal settler colony emerged.

With little convict labour left, contractual forest labour was now needed from Burma and India. The Burmese, with similar climate and forests, were considered especially suitable (Dass, 1937). Their settlement included 66 families of the Karen ethnic group, the descendants of which live in Middle Andaman today (Maiti, 2004). These were joined by unskilled labour from the Oraon, Munda, and Kharia tribes of the Chotanagpur region in central India (today Jharkhand and Chhattisgarh). Recruited through the Catholic Labour Bureau in Ranchi, the community today is known in the Andamans simply as the 'Ranchis' or the 'Ranchiwallahs' ('people belonging to Ranchi') (Dhingra, 2005). Almost a thousand members of the Moplah and three hundred of the Bhandu 'criminal' groups were also transported to the Andamans in 1922 and

²⁰For instance, the Straits Settlement followed a three-tiered convict system, devised by Stamford Raffles in 1818. Punishment was equivalent to crime, the third tier subject to hard gang labour and night-time confinement, the second to comparatively moderate labour, and the first to quasi-independence through self-supporter/settler work. Convicts could graduate to the first tier by good behaviour, or over the course of their sentence (Dhingra, 2005).

1926 respectively. From Kerala's Malabar region, the Moplahs were rebel Muslim peasants imprisoned in Madras after an uprising in 1921. Visiting the prison, Colonel James Barker noted their suitability to the Andaman climate, citing similarities of weather and malarial presence, and their utility as both fishers and forest labour. The Bhandus, considered a 'criminal tribe' of dacoits, were resettled from Salvation Army-run Criminal Tribes Settlements in central India, where they had been taught agriculture and Christianity. They proved perfect candidates for ML Ferrar's experimental agrarian settlement (aptly named Ferrargunj) and may be regarded as the true agricultural pioneers of the Andamans (Anderson et al., 2016; Mathur, 1985).

The shift to a quasi-penal, settler colony was further hampered by a lack of voluntary colonisers from India. A 'voluntary colonisation' scheme first targeted European or Anglo-Indian communities, soon admitting that tropical climate and hard labour would not suit their members (Vaidik, 2010). A scheme of 'colonisation from within' the colony and the wider penal system was instituted. Most 'self-supporters' were convicts with petty crimes or who had been granted the status of 'tenants at will' for good behaviour. The Andaman and Nicobar Islands Land Tenure Regulation III of 1926 promised tenure security to both small landholders and large plantation lessees, with an average holding of two to five acres of land. This would allow for subsistence and sale, with the government buying almost 100,000 rupees worth of annual agricultural produce (Mazumdar, 2016b). Having wives or families was preferred and family emigration schemes resulted in some population increase. However, the stigma of *kalapani*, the scourge of malaria, and families refusing to cohabit with a convict population meant even this scheme had few takers. In 1922, there were 11,500 convicts in the settlement, of which 1100 were self-supporters. By 1927, only 7700 remained, 2300 of which were in agriculture and allied occupations, and 2100 now government wage-earners, a precursor to a similar postcolonial set-up (Mukhopadhyay, 2002a, p. 27).

The Japanese occupation of the Andaman and Nicobar Islands in 1942 heralded a period of brutality for their settled population. Little is known of the impact on the Andamanese tribes, though the Nicobar's tribes and the settled population are said to have experienced similar horrors (Saini, 2016). The torture and execution of 'spies' was a common occurrence. The British blockaded the islands, cutting off Burmese supplies, and islanders were forced to subsist on roots, leaves, and snails²¹ Malnutrition manifested in beriberi, anaemia, and scabies, and a shortage of food even led to the mass genocide of non-productive sections of the population. Days before Japanese surrender in 1945, more than 700 people, mostly women, children, and

²¹Giant African Snails were introduced by the Japanese as a food source (Roychowdhury, 2004). They have subsequently flourished in the Andamans and are today an invasive species.

the elderly, were made to 'walk the plank' off the coast of Havelock Island. By British reoccupation, almost 4000 people had perished in the ANI, and the penal aspect of the settlement was permanently shut down (Saini, 2018; Tripathi, 2018). Colonial settlement, containment, and management of both indigenous and labour populations had irrevocably influenced the future islandscape.

4.3.3 Marginalised islands

Pre-colonial resource systems in the Indian mainland were dominated by either highly mobile hunter-gatherer/shifting cultivator societies, or larger tribal societies with restricted mobility which evolved cultural traditions to sustain these systems (Gadgil, 2001). The Andamans seem to possess a mixture of both; its tribes had demarcated territories, maintained through collective tenure, cultural traditions, and a 'broad spectrum economy'. All property, whether land or possessions, was communal and a crude barter system rooted in gift reciprocity existed between tribal sects (Man et al., 1883; Temple, 1909). Their livelihoods depended on both land and sea, and revolved around the collection of roots, tubers, or honey, and hunting and fishing. Reliance on one natural resource over another was dictated by relative seasonal abundance and paucity, ensuring a 'broad spectrum' to choose from. Constant mobility allowed time for resources to regenerate, ensuring sustained distribution and density of resources (Krishnakumar, 2009; Kumar, 2002). Anthropologist Vishwajit Pandya credits ritualised mobility with shaping the Andamanese imaginary of space (Pandya, 1990), and in these ways, livelihoods and the islandscape were inexorably linked.

Ritualised nomadic movement created 'smooth space' characterised by disorienting 'lines of flight' (Pandya, 1990), was anathema to the order sought through British measurement, demarcation, mapping, and valuation of Andaman territory. This spatial imaginary was antagonistic to the 'striated space' that British colonial institutions sought to create (Deleuze & Guattari, 1988). Colonial technology and the civilisational project forced 'friendly' tribes to sedentarise through agriculture while curtailing both the mobility and territory of 'hostile' tribes. This necessitated changes in mobility and movement and prohibited access to the erstwhile spectrum of resources. Even movement across the sea and water channels in small fleets of wooden canoes was disrupted by colonial transport of people, timber, and elephants. New jetties, larger ferries, a trawler, and ships travelling to-and-from the mainland severed indigenous trading routes (Dass, 1937). In this way, the British effectively deterritorialised the wider Indian Ocean, rendering the space, like *terra nullius*, a '*mare nullius*' (Mulrennan & Scott, 2000). Flourish-

ing traditional networks of trade, commerce, and cultural exchange were replaced by those of globalised colonial trade (Vaidik, 2010). All this transformed the 'smooth' space of the nomadic hunter-gatherer into the 'striated' space of political European control (Deleuze & Guattari, 1988). It rendered the Andamans absolute space, an empty receptacle to be filled with European ideals of ordered, productive landscapes. The penal settlement was one such landscape, emerging as a counterfoil to the 'jungle'. Most of the population was concentrated around Port Blair, which contained all major offices, government residences, roads, transport lines, communication networks, ports, hotels, and bazaars. Here, the Chatham Sawmill and the Andamanese Homes symbolised colonial power over the indigenous landscape, just as the Cellular Jail, Viper Island gallows, and the opulent Ross Island expressed power over Indian convicts. The settlement expanded through clearings in the jungle, roads, jetties, ferries, and fields to places like Ferrargunj (to the northwest) and beyond.

The capitalistic system of wanton extraction which replaced traditional patterns of natural resource use had dire repercussions for the natural environment of the archipelago. Indigenous peoples are estimated to have settled in the Andamans at least 40,000 years ago, and one cannot be sure of the extent of their impact on island ecologies. To say there was none is to romanticise the indigene or revive the trope of a 'noble savage' living in harmony with nature (Nunn, 2003a). The first human settlers on islands probably did destroy native biotas and perhaps half of the avifauna through direct and indirect predation, but the impact of later migrations is believed to outweigh that of the first settlers, and the European 'discoveries' of islands had unprecedented impacts on island ecologies across the globe (Pimm, 1995). It seems today that the most severe and immediate environmental impacts in the islands have stemmed from deforestation, either for timber, or through clearance for plantations, pasture, and settlements (Nunn, 2003a). Alarm bells were sounded from tropical islands by colonial scientists themselves in the late 1800s, as impacts of colonial plantation agriculture on tropical island ecology were visible. The French Island of Mauritius, which Ritchie had envied in its development, was perhaps the site of the modern world's first environmental debate. Conservation principles were 'embedded in the needs and practices of imperial rule', though mostly on paper (Grove, 1995, p. 484). The land-use bureaucracies and capitalistic endeavour however served government and business unevenly over the later years, contributing to the contemporary loss of primary forest cover and difficulties in conserving ecosystems. For historian MV Krishnakumar, *all* contemporary environmental catastrophes in the wider Andaman and Nicobar Islands (ANI) are directly linked to the massive deforestation of its pristine primary forest tracts, without regard for regeneration or conservation. An industry based around forestry ensured a constant flow of settlers and

migrants in the years to follow with subsequent development of infrastructure, villages, plantations, and farms.

Colonialism rendered many island societies less isolated, integrating them in exchange and communication networks; thus, a geographically isolated island was not necessarily an economically isolated one. Islands such as Melanesia, Polynesia, and Mauritius were included in colonial trade networks. The plantation colonies of Penang, Singapore and Mauritius, and trade entrepôts such as the Nicobars had wide export enclaves and were hubs for international and transoceanic commerce. With no mineral wealth, and a climate and topography unsuited to viable plantations, the Andamans contained little of commercial value. Only timber was valuable, but with domestic demands taking precedence, the initial promise of injecting the Andamans into a flourishing timber trade network quickly faded. Their use as a penal settlement necessitated further isolation from the surrounding littorals and ports in the Indian Ocean (Vaidik, 2010; Weston, 2006). Along with the disruption of traditional trading routes and mobility, the colonial encounter in effect bolstered the geographical isolation of these islands. Isolation was gradually considered advantageous for colonial powers, as it allowed for experimentation and delinquency not possible on the mainland; isolated islands became the 'dross-spaces of colonial-relations' (Connell, 2003, p. 561). Though the islands lay barely 60 km away from the Burmese mainland, isolation was sustained by high shipping costs, no access to nearby markets, the paucity of 'valuable' resources, and limited development of technical or infrastructural capacity (Vaidik, 2010, p. 188). Here the 'island complex/metaphor' of isolation was not a product of geographical location but of 'conscious human agency' applied in the practice of colonialism (Vaidik, 2010). Full of the doomed and dispossessed, the Andamans sat on the fringes of Empire, and the Andamanese on the periphery of civilisation. As late as 1939, William Diller Matthew's circular map projection showed Central Asia as the cradle of humanity from where land vertebrates radiated outwards across the globe. The most primitive races were found in the map's outer edges, which included Australia, Southern India, and the Andaman Islands (Livingstone, 2002, 2012). While projecting a convincing margin and periphery, the map valorised the cool, productive temperate climes over hot, indolent tropical ones.

Despite the reasons cited for their use as a penal settlement - their location away from major trade routes, the 'natural prison' myth, and the civilising/reforming burden - the Andamans were far from an ideal prison. Their nature, location, and geography rendered the task of establishing and administering a penal settlement painfully difficult (Vaidik, 2010). The uneven terrain and numerous waterways made felling and even travel within Great Andaman difficult, and the combination of poor soil and unpredictable climate yielded little produce. To clear jungles

and dredge swamps required increasing amounts of healthy labour. The presence of malaria, coupled with unrelenting heat, humidity and two monsoon seasons meant less productivity, and medical costs often outweighed economic returns. Cheap labour extracted from convicts could not lower the high maintenance costs of an essentially non-productive Cellular Jail. The Chatham Sawmill brought in international revenue for a while but dwindled as the needs of the colony and mainland took precedence over the years. Far from self-sufficient, the Andamans were subsidised by Calcutta or Rangoon, and faced shortages when cut off from the mainland in the monsoons. The refusal of officers to invest in development meant meagre transport or communication infrastructure, with exorbitant costs and delayed movement of people, goods, and information. Famine and malnutrition followed when the mainland supply chain was severed due to Allied blockades during Japanese occupation. The aim of the penal settlement was to be reformatory without being a drain on the exchequer (Dhingra, 2005, p. 37), but both goals were never achieved. The ANI remained an economic albatross around the British empire's neck.

As a 'colony of a colony', the Andaman colonial endeavour was always mediated by, and subservient to, efforts on the Indian mainland. Administrators were divided in their views and inconsistent in demeanour, decisions, and actions. Running the jail and settlement while managing relations with the indigenous and between convicts proved tortuous work even for the hardest (and hardest) of officers. Left out of mainland policy-making and the colonial 'boys club', some were resentful towards these exile or 'punishment' postings, a stigma that exists even today in Indian bureaucracy (Weston, 2008). Even the most prolific of officers felt disheartened by mainland treatment; Ferrar complained in letters to his mother of the purely 'patronising' interest of the Home Department in the Andamans and its refusal to entertain what was akin to a 'final solution' for the 'Jarawa menace' (Mazumdar, 2016b). The colonial episteme encouraged the preservation of social compartments, and even after the penal aspect had been jettisoned, a successful settler colony remained elusive. The colonial endeavour here was ambivalent, disjunctive, and even delinquent (U. Sen, 2011). In these economic and power struggles, the development and defence of the Andamans suffered. All settlement and administration was concentrated around Port Blair, with little development of other regions. Spatially concentrated assets and a lack of fortification meant 'deplorable' defences, allowing for a relatively easy Japanese capture in 1942 (Tripathi, 2018). At the height of international profits from timber export in the early 1900s, an attempt was made to inscribe the once 'remote and uncivilised' archipelago into the colonial language of the 'frontier'; the islands were to be defended and built as offshore platforms for potential expansion (Abraham, 2018). This project was abandoned in the following decades, which saw both World Wars, Japanese occupation,

and the Indian freedom movement. Colonial *projections* thus succeeded in further 'islanding' or isolating the Andamans (in the vein of 'islandism') but its colonial *projects* were circumscribed by this isolation. One may call the Andamans a failed colony, sabotaged by the very ideas of tropicality and islandism that sought to appropriate it (Anderson et al., 2016; Vaidik, 2010).

Chapter 5

Backward Isles

This chapter examines notions of 'developmentalism' used to colonise and develop the Andamans for the needs of the new Indian republic. Rebuilding India as a developing nation-state after a bloody Partition necessitated the same land and resources that had created and enriched the British colonial framework, and considerable ideological departures were offset by postcolonial continuities. Bureaucratic frameworks around the control over forests and the governance of indigeneity persisted. Both Andaman space and timber was critical, to house a refugee population which would grow emergency food-grain for India and cut down more timber to fuel India's industrialisation and its timber, plywood, and match factories. Projected as backward and underdeveloped, the areas were to be centrally administered through mainland models of development. Continuities in the savagery discourse included a de facto 'terra nullius' based on the absence of agriculture, the 'management' of primitives, their legal positioning as subjects rather than citizens, through benevolent paternalism, and their imprisonment and study in demarcated 'tribal reserves'. Ecological destruction through deforestation and development climbed to unprecedented heights, made possible this time around by settled subaltern groups from the mainland. Poor refugees' groups from East Bengal, indebted to their new state, were hailed as agricultural pioneers, and positioned as a buffer between the state and the indigenous and British-settled 'pre-1942' groups. The resource conflict and societal divisions this engendered persist today, as do the adverse effects of continental visions of development imposed on island geographies without contextual consideration. More settlement from the 'mainland' ensued to spatially 'Indianise' the islands, opening wider opportunities in the geopolitical sphere, while curtailing indigenous territory and mobility further.

5.1 The postcolonial Andamans

In the days leading up to independence, India managed to inherit the Andaman and Nicobar Islands by the skin of its teeth. British bureaucracy was adamant they remain a British colony even as Muhammad Ali Jinnah pushed for their inclusion into East Pakistan. The first Prime Minister of independent India, Jawaharlal Nehru, leveraged both the symbolic value of the islands to the Indian freedom struggle and his relationship with Lord Mountbatten, the last Viceroy of India, to claim the ANI for India (Vaidik, 2010). These underpopulated and under-utilised islands were a socioeconomic liability, albeit important ones, and this scramble had shown that India urgently needed to stake its claim and ensure their security. But there were other pressing concerns for the newly-independent country; its partition into India, West Pakistan (today Pakistan), and East Pakistan (today Bangladesh) claimed almost 200,000 lives and displaced more than 15 million Sikhs and Hindus from the regions of West Punjab and East Bengal (Talbot & Singh, 2009). While the movement of eleven million into the northern state of Punjab was somewhat reciprocal in terms of people and land, the one-way tide of four million into overcrowded refugee camps in the eastern state of Bengal required urgent dispersal. Uninhabited, remote estates, often with an indigenous presence, were found for this population. Almost 88,000 families were sent to the north-eastern state of Tripura, 25,000 to the Dandakaranya region (today Bastar district in Chhattisgarh state), 4000 to present-day Uttarakhand, and 3695 to the Andaman Islands (Kudiasya, 1996). Driven by the West Bengal government (S. R. Biswas, Mallik, Choudhury, & Nishat, 2009), the ‘Resettlement and colonisation’¹ phase of settlement in the Andamans lasted from 1949 till 1964. The phase began with the publication of the Shivasani Report (1949) which stressed the unexploited, empty land and the relative ease of acquiring it for India’s purposes. It was marked by two schemes, the ‘Resettlement of East Bengal Partition refugees from West Bengal’ till 1952, and its replacement, the ‘Colonisation and Development scheme’. Mid-phase, the States Reorganisation Act of 1956 designated the wider ANI a Union Territory, to be administered by the Central government, and almost 3000 families were dispersed across the ANI.

The second phase of settlement, or the ‘Rehabilitation and Development’ phase, ran from 1965 to 1980 under the aegis of a freshly constituted Ministry of Relief and Rehabilitation. Based in New Delhi, the Ministry was responsible for developing ‘special areas’ occasionally identified by the Prime Minister. According to the Ministry of Rehabilitation, these were sparsely populated areas rich in natural resources, where socioeconomic development had been ‘retarded’ by

¹Though speaking to a colonial hangover, the word colonisation in this context refers to state-led expansion of agriculture through villages (Sekhsaria, 2001; U. Sen, 2017).

climate, geography, or other factors. This phase included the resettlement of Sri Lankan Tamils, and of ex-servicemen from the Indian Army. The British recruited large amounts of labour from the state of Tamil Nadu to work on the rubber, tea, coffee, and coconut plantations in erstwhile Ceylon (today Sri Lanka). After Ceylon's independence in 1948, Tamils were declared stateless by the 'Ceylon Citizenship Act', leading to years of dispute between India and Ceylon. In 1964, more than 500,000 Tamil workers were repatriated under the Indo-Ceylon Agreement (Kanapathipillai, 1995). About 72 Tamil families were 'resettled' to work on rubber plantations in the Nicobar island of Katchal. Retired servicemen from the Indian Army and their families were later settled in Great Nicobar between 1970 and 1980, adding another 330 families to the tally.

In all, 4574 families were officially settled in different parts of the ANI between 1949 and 1980, making it the longest-running state-sponsored settlement drive in independent India. More than 80% of settlers were East Bengal refugee farmers, followed by Ranchi forest labour (Sircar, 2004). ANI's total population increased in this period by almost 23,000 people, as a similar number of families migrated 'unofficially' in search of government and labouring jobs, and settlement extended to defence personnel and fishermen (Dhingra, 2005). Roads, wharfs, jetties, schools, and hospitals sprang up to cater to this population as the number of villages more than doubled, (201 in 1951 to 491 in 1981). (S. R. Biswas et al., 2009). The 'special/scheduled/backward tribal area' tags were precursors to the designation of the ANI as a Union Territory, to be administered by the federal government's Ministry of Home Affairs, under the charge of a President-appointed Chief Commissioner (Murthy, 2005, p. 14). On 1 November 1957, they officially became the Andaman-Nicobar Islands, and in 1974, the Nicobars a separate district, and their name was changed to the Andaman and Nicobar Islands (Kapur, 2019). One appointed member represented their interests in the Indian Parliament (Lok Sabha) till 1967, after which the post was elected. In 1979, the Chief Commissioner was replaced by a (still President-appointed) Lieutenant Governor, to be advised by an appointed 'Pradesh Council' of about 30 people² from the islands. The Council was dissolved in 1994, as devolution of powers accrued through the *Panchayati Raj* system (Murthy, 2005). The Ministry of Home Affairs still retains bureaucratic control over the ANI, executed through the appointments of Lieutenant Governor and Chief Secretary, while the realities and interests of the people of the Andaman and Nicobar Islands (whether tribal, settler, or refugee) are still represented by a sole Member of Parliament.

²This included 24 elected members from local governance as well as the administrator, Member of Parliament, Chairman of the Municipal Board, one Scheduled Tribe member, and one woman (if there were no women in the other categories).

5.2 The Andamans as ‘backward’

5.2.1 Primitive and underdeveloped

These hard-won islands were in shambles. Though ML Ferrar’s vision had laid the foundations of agrarianism and changed the islands considerably, colonial development policies had largely ignored this penal colony. This reflected in their regionally imbalanced development and lack of military defence. Japanese occupation had destroyed the little development that had been achieved, along with a significant part of the settled population (Tripathi, 2018). The moral quality of ‘backwardness’ was projected onto both the land and its people; the islands were underdeveloped because of the colonial project, and the persistence of colonial ideas of primitivism (Vaidik, 2010, p. 191). Thus, the ANI were designated India’s first constitutional ‘special area’, later renamed ‘scheduled area’. Like the surveys preceding British colonisation, both phases of settlement and development were preceded by a slew of reports which emphasised this backwardness. Perhaps two are most critical and criticised; the Shivdasani Report, and the Green Book. Commonly referred to as the ‘Shivdasani Report’ (after the committee’s chairman, H. Shivdasani), the ‘Possibilities of Colonisation and Development of the Andaman and the Nicobar Islands’ (Shivdasani, 1949) preceded the first ‘Resettlement and Colonisation’ phase. This report recommended the resettlement of 4000 refugee families over a five-year period on 20,000 acres of cleared land. It stressed the unexploited, empty land and the relative ease of acquiring it for India’s purposes. Effectively constituting the first Five-Year Plan (1952-56) for the region, the report gave way to the Second Five-Year Plan (1956-61), which proposed the additional clearance of 12,000 acres for 3000 more families (Census of India, 1961). The second report ratified the second ‘Rehabilitation and Development’ phase and was titled ‘Plan for the Accelerated Development of the Islands’ or the ‘Green Book’ (Ministry of Rehabilitation, 1966). This report pushed for rapid demographic growth which required even more land, prescribing the doubling of the population in the next five years, and outlining a goal to increase the population from 65,000 to 250,000 by 1979. All subsequent development would focus on providing employment and infrastructure for this population.

The need to outdo both the erstwhile colonial power and even the Indian mainland states was also evident, and ‘bigger, better, faster’ perhaps captures the zeitgeist. Post-independence, the agrarian vision changed, as Mahatma Gandhi’s vision of ‘self-rule’ and the developmental zeal of Jawaharlal Nehru’s Five-Year Plans pushed agriculture as a means of self-sufficiency as well as the source of massive industrialisation and economic growth (Dhingra, 2005). Indeed, the demarcation of Indian states, based on language and ethnicity, was predicated on Gandhi’s

vision. Given their geostrategic location and the superlative symbolism of these islands for the freedom struggle, the Andaman Islands especially had to be developed in an idealised image of newly independent India. The settlement drive would 'Indianise' this erstwhile 'colony of a colony' and secure the Indian frontier (Sekhsaria, 2001).

5.2.2 The indigenous and the pioneers

Deforestation transformed former indigenous and colonial space into Indian nationalised space. A significant conundrum in the settlement endeavour was that of the ANI's indigenous populations and the land they inhabited. The governance of indigeneity in the modern Indian nation-state is characterised by a continuance of colonial objectives and ideals in postcolonial policies, and mainland India itself may be viewed as a settler society, built on past and present violence against, and marginalisation of, its varied autochthons (Abraham, 2018; Venkateswar, 2004). Ruled for centuries by a colonial power that claimed techno-social superiority, it is but natural that the colonised 'othered' similarly. The British had deepened the multiple fault-lines dividing Indian society, of skin colour/race, religion, caste, ethnicity, and gender, and in this differentiated pool, tribal and aboriginal identity was one to which most considered themselves superior. While Andamanese resistance to British rule appealed ideologically to the new Indian state, their 'primitivism' was far removed from the 'modern' development that India hoped to achieve. These populations were a liability, but with Portman's assessment of them as 'dying savages' (1899), hopefully a small one. The 'othering' projections harped once more on primitivism, and the condescending distinctions between 'friendly', 'hostile', and now 'dying' savages was taken up by the 1949 Shivdasani Report, blaming the 'island effect' once more. A *de facto terra nullius* was convenient in the continuing rhetoric of agriculture-as-development, and the indigenous, who practised no farming, were perceived as naturally disconnected to their land.

As refugee settlement numbers started to rise, the International Labour Organisation raised questions about the government's consideration of aboriginal forest dwellers. This prompted an evasive response, reiterating colonial projections of the Jarawa as hostile and the Great Andamanese as greatly vulnerable (Pandya, 2013). International pressure led to the promulgation of a constitutional clause titled the Andaman and Nicobar Islands Protection of Aboriginal Tribes Regulations (ANPATR) in 1956, which instructed Chief Commissioner to declare 'aboriginal areas' for the use of these populations alone, as well as governmental non-interference and prevention of non-tribal incursion into notified tribal land. Accordingly, tracts of land were denoted 'tribal reserves', repackaging the tropical discourses of savagery and emptiness into a

protectionist framework. The ANPATR is often hailed as a positive step, guaranteeing the benevolent protectionism of the Indian State to these ‘primitive and dying’ peoples. The 1965 Green Book projected this image onto almost all tribes, predicting the imminent extinction of not only the vulnerable and ‘friendly’ Andamanese, but even the ‘isolated’ Onge and the ‘hostile’ (but strong) Jarawa. Of the Onge tribe, the Green Book stated, ‘it was difficult to conceive of a more primitive way of life’, citing their nakedness, indolence, and hunter-gatherer ways. The Onge and Jarawa lands were clearly desirable for settlement, and it went on to recommend that parts of these reserves be de-notified. The Sentinelese, with an isolated island, and the Nicobarese, with high numbers, were free from this discourse for the moment. In 1975, the *National Geographic*, known for celebrating exoticism (Connell, 2003), published an exposé featuring photographs of the ‘stone age’ and ‘hostile’ Sentinelese³ (Pandya, 2009, p. 174). Primitivism was institutionalised in the Scheduled Castes and Scheduled Tribes Orders (Amendment) Act, 1976, which listed 705 Scheduled Tribes (STs) in India, and a subcategory of 75 ‘Primitive Tribal Groups (PTGs)’ for those which exhibited pre-agricultural technology, had stagnant or decreasing populations growth, and lower literacy rates (Chaudhuri & Chaudhuri, 2005). Except for the Nicobarese tribe, the others were now officially ‘Primitive Tribal Groups’, joining 70 other tribes across India⁴ The Andaman Adim Janjati Vikas Samiti (AAJVS) was instituted in the same year to provide welfare and developmental assistance to all Scheduled Tribes.

Agriculture was hailed as the only way to self-sufficiency, rehabilitation and reform, and farmers were portrayed as the pioneering settlers of the ANI, the harbingers and beneficiaries of a new paradigm of development, and the embodiment of the nationalist ideals of a Hindu-majority state. The unique settler colony that ensued revealed the settler colony as an organising principle, based on the idea of India’s ‘unchanging villages’. These villages would emerge from the labour of unwanted and emplaced populations once again, but this time refugees and not convicts. These settlers would supplement the depleted population, ensure the ANI’s continuance as both timber depot and granary, and secure their place (and defence) as an adjunct of India. Amidst the developmental scourge of overpopulation plaguing India, the islands would also absorb burgeoning refugee populations, and others over the years (U. Sen, 2017). Portrayed as ‘willing’ settlers, much of the dispersal of East Bengal’s refugees to geographies of exile was marked by coercion and violence... with the possible exception of the Andamans.

³The director of the documentary ‘Man in Search of Man’, Prem Vaidya, was shot in the thigh by a Sentinelese arrow, prompting photographer Raghurir Singh to dub the Sentinelese ‘people for whom arrows speak louder than words’ (R. Singh, 1975, p. 66-91).

⁴The complete list can be found at <https://tribal.nic.in/ST/StatewisePvTGsList.pdf>. [accessed online on 22 April 2020 from the Government of India’s webpage for the Ministry of Tribal Affairs n.d.].

Propaganda to attract especially agriculturists was inherent in films shown in refugee camps highlighting the tropical beauty and fecundity of the Andamans.

5.2.3 An ideal Indian territory

The tropically fertile land of the Andamans would now serve India's quest for agricultural and industrial self-sufficiency. Continued deforestation was now necessary to supply India's industries and food stocks. As rich timber depots, they had served imperial industry, but never attained agricultural self-sufficiency; devastating famine and malnutrition followed the severance of mainland rice and supply lines during Japanese rule. After the Second World War An empire-wide campaign to 'Grow More Food' began which prescribed cultivating more land, even if it was arable or fallow, switching out cash crops for food crops, and increasing productivity through supplements and inputs (U. Sen, 2017). 'Grow More Food' measures persisted in independent India, and emergency food-grain for India was planted on 3000 acres of paddy fields abandoned by convicts leaving the Andamans (Krishnakumar, 2009; U. Sen, 2017).

Settlement required clearance of forest, and their rich, sturdy timber, on which Indian states had come to rely, would drive India's industrialisation efforts considering the degradation of mainland forests. The Nehruvian dream of mass industrialisation, reeling from the scarcity of wood plaguing the mainland, required Andaman wood for domestic industries, especially plywood and matches, which would generate income through export (Chengappa, 1950). The Andamans formed the 'redemptive space' of India's nationalistic freedom struggle, despite the scant number of mutineers (approximately 3800) and political prisoners (approximately 500) amidst more than 83,000 convicts over the years (Anderson, 2011; Vaidik, 2010). The brutal Japanese rule was now an ambiguous subject; it had, after all, allowed Subhash Chandra Bose to fly the first Indian tricolour flag on island soil, even as the plight of its population was deliberately kept from him. This nationalism served to reterritorialise the Andamans, and 'reappropriate' their historical, social, and political identity. A renewed 'will to improve' and development zeal meant India would surpass Britain in settling 'better colonists' who embodied the nationalist ideals of the Hindu-majority state and settle them better too (Mazumdar, 2016b). To this end, all refugees were given special amenities and concessions; free passage, land, livestock, cash loans, and rations (Ibid.).

The Andamans also held a promise of becoming a societal 'Mini-India'. They offered hope, of a new home and life for a violence-inflicted group, and a multiculturalism which made up the idealised Indian nation living in amity, bridging caste, religion, or ethnic divides. This was

the epitome of the Nehruvian ‘idea of India’⁵ The pre-42 settlers, particularly the descendants of convicts, were already a ‘creolised’ society (K. S. Singh, 1994), which broke with Indian society in religion, language, caste hierarchy, marriage, food, and even nationality. The new ‘settler colony’ offered unique circumstances where societal hierarchies and divisions might be shed. All recommendations for development projects came from mainland planners and committees, for whom these ‘empty’ islands represented an exciting plethora of possibilities. Comprehensive planning for this federally administered Union Territory meant they received ‘the full force of the developmental state’ (U. Sen, 2017, p. 950). The islands were thus pressed into the service of the Indian nation-state in multiple ways; apart from using their resources, they would constitute ideal models for both Indian society and the new developmental paradigm.

5.3 An Indianised islandscape

5.3.1 Utilising land and sea

“You find Andaman timber in the strangest places - from the Padauk in Buckingham Palace to the plywood in Tamil Nadu’s forest guesthouses!”

- Rauf Ali (personal comm., 2011)

The colonial-era ‘exploitation’ of ANI’s natural resources now gave way to India’s ‘utilisation’ of them (Department of Environment and Forests, 2021). A new Forest Policy instituted in 1952 placed mainland needs at the helm. While plans emphasised balanced land use, afforestation for environmental protection, and meeting local and national needs over revenue maximisation, these were mere prescriptions, cast aside in favour of pressing present needs. (Dhingra, 2005; Krishnakumar, 2010; Sahu, 1986). Between 1951 and 1980, more than 26,200 km² of India’s forests were converted to agricultural land (Kothari, 1993). Post-partition refugees first arrived in islands still covered in dense jungle, but settlement required clearance, and the use of timber and Non-Timber Forest Produce (NTFP). Perhaps fortunately at the time, the development ambitions and zeal laid out in the first reports and Five-Year Plans were dampened by the failure of mainland planners failed to understand the island context. Clearance had been

⁵In his famous ‘tryst with destiny’ speech at the eve of independence, Jawaharlal Nehru proclaimed: ‘We are citizens of a great country, on the verge of bold advance, and we have to live up to that high standard . . . All of us, to whatever religion we may belong, are equally the children of India with equal rights, privileges and obligations. We cannot encourage communalism or narrow-mindedness, for no nation can be great whose people are narrow in thought or in action.’ (“On the Granting of Indian Independence, 14 August 1947”, Internet History Sourcebook Project. Speech by: J. Nehru, 1947, Fordham University, retrieved on 4 February 2020.).

planned for, but not the levelling the uneven, undulating land. The 1956 deadline proposed by the Shivdasani Report's clear 20,000 hectares for 4000 families was clearly impossible, as the scarcity of skilled labour and a long rainy season constantly stalled work. By the end of 1956, only 8100 acres had been cleared and 1006 families settled. The second Five Year Plan was similarly ambitious, proposing clearance of an additional 11,900 acres and settlement of 2994 more families. By the end of both plans in 1961, only 10,000 hectares (100 km²) had been cleared, and a mere 2882 families settled. The unanticipated task of levelling diverted much manpower and infrastructure till 1962. Forest working plans soon took a backseat to clear felling Sircar (2004), as the majority labour were refugee rice farmers, and not adept at land clearance.

The Green Book pushed for more land and employment for a larger population. The new office of the Chief Development-cum-Rehabilitation Commissioner was responsible for clearing jungle for settlement, finding new land, promoting settler agriculture, and researching new possibilities for rubber plantations. This last task culminated in the establishment of a 'Rubber Board' and settlement of 1196 families on experimental rubber plantations across the islands. The 1960s and 70s were the era of the 'Green Revolution', a popular name for the technical and managerial package developed in the First World and exported to the Third World to increase production and 'end hunger'. High Yielding Varieties (HYV) combined with mechanised harvesting techniques produced staple crops of pest-resistant wheat, rice, and maize which responded well to fertilisers and irrigation (McNeill in Rangarajan, 2016). Appealing to India's desire for self-sufficiency and industrialisation, these were widely promoted and applied in its northern regions. In the Andamans, the presumed bounty which paddy fields and plantations would provide was predicated on the assumption of tropical fecundity, and Andaman settlers did not benefit from most of these technologies due to their dependence on rain-fed agriculture and difficulty to mechanise⁶. The luxuriant vegetation of tropical forests, however, arises from a nutrient cycle that exists between the canopy and the soil. Falling leaves get trapped in the roots of trees and undergrowth, and the soil absorbs the nutrients of rotting leaves (McVean, 1976). The clearance of forests disrupts this cycle, and the now-loose topsoil is leached of its remaining nutrients by heavy rainfall. Declining soil fertility due to deforestation, rain, erosion, and paddy monoculture meant crop loss, and fertilisers now had to be applied in increasing quantities (Krishnakumar, 2009). Underestimating and misunderstanding the topography and environment of the islands led to destructive development, and much less development than had been initially envisaged.

This changed in 1974, following the 1971 Indo-Pakistani War and the eventual indepen-

⁶The one exception, as time went on, was the use of fertiliser, and later pesticides.

dence of Bangladesh. Pakistan's regime of 'genocidal rape' forced almost nine million Bengali Hindus into India (Sharlach, 2000, p. 92-93) and the Fifth Five Year Plan had to address the land and resource needs for this displaced population. It was also during this war that comprehension of ANI's strategic military value for India purportedly emerged (Pattanaik, 2018). An outlay for the clearance of almost 35,000 acres of virgin forest was sanctioned for the settlement of refugees, migrants, repatriates, and other landless communities, and for the expansion of plantations and agriculture (R. Whitaker, 1986). The Andaman and Nicobar Islands Forest Plantation and Development Corporation was established in 1977 to manage rubber and red oil palm plantations and recommended 69,000 hectares be cleared for this and other developmental purposes (Krishnakumar, 2009). ANIFPDC worked on the principle of sustained yield through the Andaman Canopy Lifting Shelterwood System. Developed in 1931 by forester BS Chengappa, this system prescribed thinning the canopy by selective felling of over-mature timber, and 'lifting' the canopy, based on the amount of light and space required for optimum growth of Padauk and other seedlings. Hailed as a marvel at the time, the system is believed to have detrimentally changed the composition and ecology of the Andaman forests in the long run. Other major developmental projects of the time, such as the building of the Andaman Trunk Road, bridges, jetties, and airstrips, were similarly devoid of long-term environmental impact assessments or respect for tribal reserve boundaries or environmental impact assessments.

Till the 1980s, the Andaman forests also fuelled India's industrialisation, both literally and figuratively. Post-independence scarcity of wood, especially softwood, for the burgeoning plywood, match, and packing case industries, was met by increased cultivation of commercial species. Plywood industries narrowed in on the Andamans' Gurjan trees (*Dipterocarpus turbinatus*). In 1976, four private industries were allotted ten-year coupes by the Indian government, and by 1980, 60% of the 1,50,000-cu. m. limit had been extracted by these four organisations - Andaman Timber Industries, WIMCO Ltd., Asian Woods and Polymers Ltd., and Jayshree Timber Products - while the rest was used by government sawmills and the Directorate General of Supplies and Disposals (Rathakrishnan, 1991). Buoyed by subsidies in transport, power, and price, (and a new player, Kitply Plywood Ltd.), almost 98% of Andaman plywood was exported to India by 1991 (Sekhsaria, 2001). Attention also turned to the ANI's marine potential. Subsistence fishers from the mainland states of Kerala and Andhra Pradesh had been settled mostly on the eastern coast of the Andamans in 1955 through a 'Fishermen Settlement Scheme' conducted by the Department of Fisheries (Whittingham, Campbell, & Townsley, 2003). Steadily increasing annual migration increased fisher populations, and artisanal and commercial fish-

ing emerged with the introduction of motorised and mechanised craft (Mustafa, 1983). By the early 1970s, almost 25 fishing centres existed around Port Blair and the east coast and by 1987, the fishing fleet consisted of a thousand vessels (Advani, Sridhar, Namboothri, Chandi, & Oommen, 2013; Marichamy, 1974).

5.3.2 Social separation and hierarchies

This continuous unabated settlement marked irrevocable socio-political and ecological turning points for the Andamans (Pandya, 2009; Weston, 2008). Refugees served as counterpoints for both the indigenous and 'pre-42' populations, and settlement was characterised by resentment and even violence. The newly independent (and civilised) Indian state could not, in all good conscience, be openly hostile to the indigenous populations that threatened to reclaim their land, so refugees served as effective buffers and even 'henchmen' for the state (U. Sen, 2017). Independence marked the 'repatriation' of both convicts and settlers, further thinning out an already depleted population after Japanese occupation and leaving little labour for forestry or agriculture. Refugees were portrayed as 'pioneers' and agents of development for which a broken 'pre-42' population⁷ was considered unfit. Divisive lines thus existed from the moment of encounter, and the refugee settlers were inscribed into an uneasy position between two hostile (albeit in different ways) populations (Mazumdar, 2016b).

Indigenous groups

While physical violence against the tribes, embodied in Ferrar's reaction to the 'Jarawa menace', was halted, other forms of violence were now couched in a protectionist framework. The 'lawfare' of a de facto terra nullius and benevolent protectionism was inherent in the 1956 ANPATR (U. Sen, 2017, p. 964). No request had been made for this protection, and no askance was deemed necessary. Prior habitation did not translate into land rights and the terra nullius argument (no cultivation equals no ownership of land) was convenient. This was enhanced by the 'dying savage' discourse, which claimed that since extinction was imminent, eliciting indigenous participation in property ownership debates was futile (U. Sen, 2017, p. 953). In hindsight, and contrast to the pan-Indian tribal experience, the ANPATR effectively rendered ANI's indigenes *subjects* of the Indian State, rather than its rights-bearing *citizens* (Pandya, 2009). The reserves served once more as anthropological laboratories for scientific study, and colonial-

⁷The 'pre-42s' refer to groups settled in the colonial period: Karen, Ranchiwallahs, Moplahs, Bhandus, and the Local Born. This official designation differentiates them from indigenous inhabitants and all later settlers.

era anthropometric mapping met more contemporary migration and DNA analysis under the aegis of the Anthropological Survey of India (Pandya, 2009). The confinement and effective sedentarisation of the mobile hunter-gatherer tribes in ‘reserves’ may be likened to the incarceration of the colonial Andaman Homes. The Andaman Adim Janjati Vikas Sangh⁸ (AAJVS) set up for the welfare of the tribes, and the ‘Primitive Tribal Groups’, altered earlier Gandhian ideals of serving and protecting the tribes to rather develop and mainstream them. The primitive tag took what was essentially a cultural difference to be a temporal one during the colonial era, and became a descriptive, objectifying category in postcolonial India (Pandya, 2009). The macrocosmic ‘othering’ of advanced versus backward, projected onto civilised agriculturist versus primitive hunter-gatherer, was now enshrined in law and the production of the indigene as administrative and legal liability was complete.

The impact of development projects and infrastructure at the time had maximum effects on the Onge and Jarawa tribes. The Onge of Little Andaman Island encountered the British in the 1920s, and by the 1960s their numbers had dwindled from 500 to 112, even though the British seem to have taken little interest in their island as it contained no Padauk trees. The Green Book noted the suitability of the island for refugee settlers, especially its relatively large size and flat land, perennial streams, and thick forests. In blatant defiance of the 1956 ANPATR’s designation of the *entire* island as a tribal reserve, it recommended half the island’s forests be cleared for the settlement of 12,000 families and for coconut, areca nut, and red oil palm plantations (Ministry of Rehabilitation, 1966). In 1970, the boundaries of the reserve were adjusted, and by the end of the year, 2677 acres of land had been cleared, 386 families settled (most with five acres of land each), the first sawmill established, and land cleared for a red oil palm plantation (Sekhsaria, 2001). Though 70% of the island remains a tribal reserve, illegal encroachment has persisted⁹. Forced deeper into the forest, with their food sources poached, the ‘friendlier’ Onge faced a cultural onslaught¹⁰.

The ‘hostile’ Jarawa fared similarly. In their area of South and Middle Andamans, the inscription of an agrarian landscape converted forest to field and villages, creating clear-cut boundaries enforced by electric fences and a ‘Bush Police’. The discourse of primitivism naturally found resonance amongst refugee-settlers, especially those whose villages or bodies were attacked in these ‘Jarawa-frequented/infested’ areas. Following the Green Book’s recommen-

⁸Literally translated, ‘Andaman Primitive Tribal Development Association’.

⁹Even the Andaman and Nicobar Forest and Plantation and Development Corporation (ANFPDC), set up to conduct plantation and timber felling operations, was accused of violating reserve boundaries (Sekhsaria, 2001).

¹⁰For more on the impact of settlement, development, and encroachment on the Onge, see (Awaradi, 1990; Z. Cooper, 1993; Pandya, 1993; Paul, 1992; Swaminathan, Siddiq, & Sharma, 1971; R. Whitaker, 1986).

dations, parts of the Jarawa reserve were de-notified by the Forest Department in 1959, 1972, 1973, and 1979 (U. Sen, 2017, p. 965). This last de-notification was of the largest tract of land, to facilitate the completion of the Andaman Trunk Road (ATR). A key symbol of 'modernisation', the ATR ran 250 kilometres along the length of Great Andaman, from Port Blair in the south to Mayabundar in the north, with approximately 35 kilometres of it lying in the reserve. Today it extends northwards to Diglipur, covering 333 kilometres. In sum, the words 'ethnocide' (Venkateswar, 2004) and 'genocide' (U. Sen, 2017, p. 243) have both been used to describe the effects of development on the indigenous tribes, while pre-42s, refugee-settlers, and later migrants have repeatedly been positioned as its agents and beneficiaries.

Settled groups

For the pre-42 populations, the administrative discourse tainted some of its groups with criminality and did little to change the subaltern status of others. Many members of the Bhantu tribe, who may be regarded as the true agricultural pioneers of Ferrargunj and the Andamans (Mathur, 1985, p. 144-148), chose repatriation after independence but soon petitioned to return (Mazumdar, 2016b). They were received back with little enthusiasm, both by the remaining pre-42 groups who resented their 'abandonment', and by the Indian government who wanted to make the Andamans 'a colony of middle-class and other people having no taint of crime' (Mazumdar, 2016b, p. 60). They returned to find they had been pushed out to the edges of Ferrargunj or resettled elsewhere (Ibid.). The stigma of being descendants of convicts hung over the Local Born community and was kindled by the Andaman administration. In 1967, the mainland-based Ex-Andaman Political Prisoners Fraternity Circle petitioned for a pension scheme and recognition as 'freedom fighters'. Apart from one migrant who settled in the 1980s, not a single person from the Andamans was included in this scheme (Zehmisch, 2016, p. 132). The creolised quality of the group, merging different linguistic, territorial, national, and ethnic groups, was hailed in administrative parlance, but served as an anomaly for both mainland administrators and refugee-settlers¹¹. The landless Ranchis, referred to as the 'invisible architects of the Andamans' (Zehmisch, 2016, p. 132), were assigned to clear forests for the refugee-settlers and 'settle them in'. Conflicts of language and culture ensued, and little has been done for their welfare since¹². The celebration of refugee-settlers as agrarian pioneers to whom special ameni-

¹¹The stigma and the creolisation led to a petition to be officially designated 'Andaman Indians' in the 1950s, but the term did not stick. Today, the term 'Local Born' has found political voice through the Local Born Association (Murthy, 2005).

¹²Their plight has been documented by (S. Z. Ahmed, Srivastava, & Balakrishnan, 2010; Raju, 2010; Zehmisch, 2016).

ties, even land, accrued, were further bones of contention, and multiple protests were held at the docks where ships carrying refugees arrived from Calcutta (Mukhopadhyay & Singh, 2007; U. Sen, 2018).

The refugee-settlers are generally perceived in the Andamans as major 'winners' because of the concessions and amenities they were provided 'free of cost'. If the area/island was large enough, families on average were allotted ten acres of land, plough and milch livestock, and agricultural inputs such as seeds, implements and manure. In addition, they were given free passage to the islands, cash allotments and loans, rations of timber and Non-Timber Forest Produce (such as firewood, bamboo, cane) for construction, and food and other supplies (Saldanha, 1989). Compared to families settled in other remote regions of India, such as the inhospitable Dandakaranya region, Andaman experiences of resettlement seem overall less violent and indicate a higher degree of choice. Stories of bargaining with camp officers to include kinfolk in the selection or make-shift marriages to avail of the family-only settlement schemes are common (U. Sen, 2018). Yet, the violence of rehabilitation and development did not escape them, a narrative arc that begins much before they arrived in the Andamans. Fleeing homes they were likely never to see again in the throes of communal riots, they arrived in overcrowded camps to find disease, vice, and other forms of exploitation. Family-only camps meant single people, and even the widowed or those who had lost entire families, were turned away. Malnutrition, water scarcity, and Tuberculosis forced regular camp reshuffles (U. Sen, 2018). The state of West Bengal was naturally desperate to disperse this population.

The figure of the refugee itself was split along ethnic lines into the self-sufficient, industrious Punjabi refugee, and the rebellious, dependent Bengali refugee¹³. Settlement in the Andamans was purportedly also sought from the Northern states of Punjab and Haryana, but northern settlers might have been put off by the alien soil and climate, and its inability to yield their diet staple of wheat (NM, 07.10.2015). Bengalis were not welcome in Assam due to extreme ethno-nationalism, but as Hindu farmers, they made ideal settlers for the Andamans. Their positioning as agents of nation-building was complicated, leading to a divisive, contextual, and utilitarian discourse of 'rehabilitation'. Class, caste, and ethnic issues quickly emerged and were perpetuated by the state. The 1949 resettlement scheme was targeted towards the middle class, considered the 'right' kinds of families with which to build an ideal Indian Andaman society. Despite generous packages, the islands were still perceived as the dreaded *textitkalapani* and the scheme had few takers; of the 200 families eventually found, more than twenty rescinded

¹³This erased the histories and vulnerabilities of poorer Punjabi refugees who received little compensation and struggled to survive in the aftermath, or homogenised better-off Bengalis (U. Sen, 2018).

or returned. The West Bengal government responded to media claims that the scheme was a failure with the view that 'middle-classness' translated to lazy and ungrateful.

A careful selection process was instituted to 'weed out' these undesirables, and the 'right' kinds of families were now headed by a male Hindu, Bengali, Dalit (or low caste), illiterate, paddy farmer. It is claimed that suitability to hard manual labour was assessed by administration officials such as Sadhan Raha (affectionately called *Raha-babu*) by an examination of the roughness of hands, which served as proxy for caste, occupation, and illiteracy. The first cohort of 179 families had been of mixed caste, but the same middle class, and were referred to as the *Bhadralok*. The second cohort of 52 families were all from one low caste, the *Namasudra*. Much of this caste belonged to the plebeian Matua sect, which rejected Brahminical orthodoxy and worked for social reform within Hinduism (Lorea, 2020). Mono-caste settlement came with its own issues, and refugee-settlers later petitioned the government to include at least one family from the priestly and barber castes, to which the administration acquiesced (RS, 29.09.2015). Stereotypes of colonial anthropology coupled with the hardship and pioneership of the 'frontier' to pit the hypermasculine but illiterate *Namasudra* against a more effeminate but educated *Bhadralok* (U. Sen, 2018). Also pitted against the 'ideal type' of refugee were single and older men and women, widows, the traumatised or disabled, and the elderly. The author's interlocutors recall the common incidence of make-shift marriages to avail of family schemes and of 'wife desertion' amongst newly arrived refugee-settlers. Deserted wives were eschewed by the community, and marriages had to be arranged outside the community, often with Ranchi men (RS, 29.09.2015). Men in contrast found it easy to remarry, preferring women from later batches or other settled areas. The emergence of a 'new and independent Bengali woman' in the aftermath of Partition (Chakravartty, 2005) is challenged by several authors (such as Udit Sen) who caution against equating the compulsion to work with freedom or empowerment. Being part of the labour force did not exclude women from their gendered roles and duties. One male anthropologist, based on the number of infants he noticed during his research, even praised the remarkable 'fertility performance' of the women of Neil Island (Kundu, 1996).

Pioneering was hard and lonely work. Arriving in the Andamans, ships carrying refugee-settlers met with protest from the pre-42 population. Shuffled to different areas, some were separated from their kin. The dense jungle and unknown sea were intimidating, clearing and levelling land was difficult, and fears of rampaging elephants or deer decimating their crops were well-founded. Those on the Great Andaman landmass were embroiled in conflict with the Jarawa tribe, with inclement weather and a lack of roads isolating them from other villages. Those on islands were more isolated from the outside world, reliant on a monthly boat which

would bring rations, or a new ‘batch’¹⁴ of settlers which was received with mixed feelings. Families within a batch received the same amenities, with a standard allowance creating some equality, but subsequent batches typically received less. Even within batches, land allotments and locations were often disputed¹⁵. Non-agricultural families received less than an acre of land and barely three months of financial assistance, while non-refugee settlers, such as fishermen, were given only enough for a homestead, though they were provided boats, fishing nets, and more loans (Chandi et al., 2012).

Apart from Middle, North, and South Andamans, families were settled in the islands of Havelock, Neil Little Andaman, Great Nicobar, and Katchal. Despite an official decision to discontinue Bengali refugee colonisation in 1965, the ANI continued to accommodate them through special requests or one-off resettlement schemes. Finding settlers other than refugees proved challenging, and between 1949 and 1971, Bengalis accounted for 90% of settled families. The fear of Bengali domination grew, and other Indian states pushed for more representation and the relocation of their landless populations, signalling a wider change in the rehabilitation discourse (Dhingra, 2005). Still, this phase of rehabilitation and development also found few willing settlers, even amongst the landless (U. Sen, 2018, p. 158). Of the 4531 families settled by 1981, 80 – 85% were still Bengali refugee-settlers, followed by the Ranchis (Dhingra, 2005, p. 167). The rest were landless communities from Kerala, Mahe, and Pondicherry, fishermen from Andhra Pradesh and Tamil Nadu, Sri Lankan and Burmese repatriates, and Moplahs from Malabar (S. K. Biswas, 2009; Sircar, 2004).

To avoid a feudal landlord situation, but still give the cultivator a sense of security, the Shivdasani Report termed land-holding refugee-settlers *malik kashtkars*. Translating roughly to ‘owner tenant’, the report stressed that this land was given to them in perpetuity on certain conditions, but that the ‘ultimate proprietary right was vested in the state’. This was a formality, as land was still inheritable and transferable, and the group has gained considerable socio-political mobility over the years and forms a considerable ethnic vote bank. Conversely, there are claims that the reliance on subsidies for transport, goods and inputs rendered them economically dependent on the state. Most remained farmers stuck in a timeless Arcadia, increasingly marginalised from opportunities grabbed by savvy ‘mainlanders’, and unable to compete economically with opportunists who flocked to the Andamans in the 1980s and 90s for jobs in government, transportation, business and trade. In settler parlance, this group is referred

¹⁴A ‘batch’ here usually refers to all refugees who began their journey together on the same ship from Calcutta and landed in the Andamans (U. Sen, 2018, p. 116).

¹⁵For paddy farmers at the time, allotments of unproductive coastal or beach land were devastating, though the fortunes of some who held onto this land have changed considerably with tourism today.

to as 'without' (implying either that it migrated 'without government assistance' or remains 'without' settler society) or simply as 'migrants'. Some landless 'without' were wage labourers for settlers before the two groups started competing for land and resources (Mukhopadhyay, 2002b). This vast category includes businessmen and traders; government, defence, and administrative personnel; and seasonal or contractual labour for construction, forestry, and agricultural work. The refugee-settlers provided cheap labour for forestry and construction, contributed to agricultural self-sufficiency, staked India's claim against the indigenous and pre-42 populations and its external enemies, all while remained indebted to, and dependent on, an Indian state that effectively marginalised them from economic development. (Murthy, 2005).

ANI's settler population, 20,000 in 1951, grew to 1,66,411 in the thirty-year colonisation drive. What the British could not achieve in ninety years of settlement took a mere three decades after independence. Comparatively, the indigenous population (except for the Nicobarese) plummeted; the Andamanese population declined from 273 to 126 individuals (and is less than 500 today). The violence of developmentalism has fallen on indigenous, pre-42 settler, refugee-settler, and migrant bodies and communities, albeit in different ways and to different degrees. The indigenous were once again landless and incarcerated, the pre-42s stigmatised as criminals and deserters, and the refugee-settlers valorised but exploited. Like the establishment of the Forest Department (Gadgil & Guha, 1992), refugee rehabilitation and settlement was a triple watershed event - a catalyst of socio-economic, political, and ecological change in the ANI.

5.3.3 Indianised islands

The discourse of developmentalism as it played out in the Andamans displayed both continuities and departures from colonial aims and practices, and the notions of tropicality. The settler-colonial framework influenced post-Independence policy-making on various levels, principally adhering to the imperial ideology of rendering the environment productive through subjugation and exploitation. These islands were subject to unplanned natural resource exploitation by mainland planners, with a disregard of their geography, or basic ecological principles. Mainland models of development are still evident in the preference for road transport over sea transport. Roads are difficult to construct, and bridges, of which there are plenty, require constant maintenance. The growth of the economy and the trajectory of its livelihoods also served the mainland (Venkateswar, 2004), evident in the persistence of the agrarian vision and the peasantisation of the Andaman social fabric (Mazumdar, 2016b). The Indian 'unchanging village' however was a chimera here, as many villages were abandoned over the decades due to wa-

ter shortages, declining soil fertility, encroachment, conflict, and better settlement prospects.

Aboriginality and indigeneity were counterproductive to the success India hoped to achieve in a new era of developmentalism. Given the erasure of its own rich identity by the British, the newly independent nation state strove to project strength and modernity. This was hard enough with a bloody Partition, refugee populations and hungry masses. Indigeneity under a new socialist welfare state was 'a form of exclusion, the articulation of the contingencies of inclusion, and in some situations, a platform for negotiation' (S. Sen, 2010, p. 14). The 'Indian' or 'post-colonial' settler colony here was based not on a 'logic of elimination' but on a 'broadly implied notion of improvement' (Mazumdar, 2016b). Settler colonialism masqueraded as development; lands appropriated through colonial Forest Acts and the practice of a de facto terra nullius were retained, and administrative structures persisted with cosmetic changes. Taking from colonial notions of tropicality, the discourse of savagery was repackaged as primitivism that required legal management. Tribal reserves further restricted the mobility of indigenous populations, and took away their land arbitrarily, without their consent or participation, and few platforms for negotiation exist even today. Unlike its colonial predecessors, the Indian state made no attempt to introduce agriculture to the indigenous peoples - this would defeat the ideological claim behind terra nullius and their labour was unnecessary in the wake of refugee settlement. The idea of agriculture as reform or rehabilitation still existed but was projected onto refugee and later landless populations.

Bringing this erstwhile colonial space into the ambit of a new Indian nation-state meant the valorisation of the nationalist significance of the Andamans. Its reconfiguration as a sacred site of nationalist pilgrimage is embedded in Andaman historiography (Aggarwal, 2006; Mathur, 1985). From *kalapani*, these islands became *muktitirth*, a place of pilgrimage for Indians to reflect on the sacrifices of their ancestral countrymen to gain independence. Memorialised on one-rupee coins, the view from the Jail was later inscribed on 20-rupee notes. It has since been referred to as an 'Indian Bastille' (Zehmis, 2014), the 'university' of the freedom movement (Roychowdhury, 2004, p. 118) and compared to the likes of Abu Ghraib (Aggarwal, 2006) and Guantanamo Bay¹⁶. Andaman Day, on March 10, commemorates the landing of the rebel martyrs with J.P. Walker (Vaidik, 2010). This overhyped nationalist projection hides the fact that in its 70 years of operation as a penal colony, it housed less than 3000 'mutineers or political prisoners' amongst more than 80,000 convicts (Anderson, 2007). The Local Born community submitted petitions to be recognised as 'freedom fighters' in 1969 but the Indian government refused, choosing to retain the 'political prisoner' category instituted by the British

¹⁶This comparison was made by Nawaz Sharif, the former prime minister of Pakistan, in 2019.

and deepening the community's stigma of criminality.

Yet it is the Local Born that first symbolised the narrativization of the Andamans as a 'Mini-India'. Borne of the need to 'Indianise' the Andamans, stake India's claim on these faraway islands, and socially extricate them from their southeast Asian littorals, 'Mini-India' implies they are a 'limb' or extension of mainland territory, or microcosms of its society. Utopian ideals, often projected on islands, are also present; the Andamans replicate an idealised Indian society living in harmony without the ills of caste or religious communalism. Embodying Nehru's ideal of 'unity in diversity', the cultural 'creolisation' (Ghosal, 2001, p. 205) and 'melting pot' of Andaman society is celebrated as an ideal of the secular, multicultural, caste-free Indian nation (Dirks, 2011). In 1968, the Chief Commissioner of the ANI stated that the administration was opposed to declaring Scheduled Castes (for reservation and quotas) in the UT, and that 'untouchability or other forms of social disparity are unknown to these islands'. Devoid of the rigid observation of rules of pollution and purity, or connubiality and commensality which still plagued the mainland, the Andamans represented a 'utopian future, when caste hierarchies and their corresponding exclusions would no longer shape and define Indian society' (Abraham, 2018, p. 4). 'Andaman Hindi' is an acceptable, even celebrated, form of the mainland version¹⁷. This statist celebration of multiculturalism obscures a racial settlement and division of labour perpetuated by the Indian state itself, based on caste (Namasudras), religion (Hindu), and ethnic community (Bengali).

The creolised quality is nevertheless evident in ANI's placenames, which are probably the most diverse in India. Placenames reveal the myriad connections and 'lines of flight' within the ANI with both Indian mainland and surrounding littorals, and signify the myriad legacies, connections and diversity these islands have witnessed (Kapur, 2019). Places with indigenous or other tribal names exist alongside those named after mythological, colonial, and postcolonial personages, or after places in the Indian mainland or in even other countries. The British use of Aka Bea Da trackers meant some places have retained Andamanese names; names ending in '-tan' or '-tang' (Maglutan, Baratang, or Jirkatang) often indicate locations of Great Andamanese camp sites (Chandi, 2003, p. 32). Kyd Island, Port Blair, Ross Island, all the islands of Ritchie's Archipelago, and Port Mouat are named after named after colonial surveyors, generals, or administrators. Some placenames suffix the names of colonial personages the Hindi terms for 'village' or 'hamlet' such as Ferrar-gunj, Collin-pur, or Herberta-bad. Postcolonial personages find reflection in Indira Point, Guptapara, and Harmander Bay. Examples of placenames taken

¹⁷The Indian Constitution replaced Urdu, which was one of Pakistan's official languages, with Hindi as India's national language in 1950. The other official language for both countries is English.

from the Indian mainland or other countries include Mathura, Calicut, Madhuban, Alipur, or Manjeri, the Moplah villages of Tirur or Wandoor, and the Burmese hamlets of Webi or Templemyo. Other places are named after villages and regions in Bengal and Tamil Nadu, and to a lesser extent Jharkhand, Kerala, and Andhra Pradesh. Some places have even been named after their historical uses; Premnagar, meaning 'love-village', was where male and female convicts would intermingle in the hope of then marrying and settling down in the nearby Shadipur, or 'marriage-village' (Zehmisch, 2014). Numbers denoted forest camps and settlement patterns on islands such as Havelock, where they are still used, despite newer names. Biogeographical links to the landscape are also evident, in *Dhani Khari* ('creek with *Nypa* palms'), *Balu Dera* ('sand camp'), or Kalapathar ('black rock') (Anujan, 2020, June 26).

What overshadows these symbolic connections across space and time is connections of power and control: between the ANI and India's administrative centres. All of India's eight Union Territories are administered under the President by the Central Government and five (including the ANI) possess no elected legislature. Judicially, the ANI are under the jurisdiction of Kolkata's High Court and send a sole Member of Parliament as representative to the Lok Sabha (Murthy, 2005). All administration and defence for the Union Territory emanates from the centre, and bureaucrats and defence chiefs are sent from the mainland for a tenure of a few years. In 2017, all of ANI's political parties jointly petitioned for reinstating the Pradesh Council to include islanders in policymaking, but this move seems unlikely (Roy, 2017, December 14). Despite sporadic calls, the Government of India gives no indication that statehood will ever incur to this territory, citing most recently the preservation of 'its existential setting against the pulls of exploitative enticements' (2016, p. 1). Power and authority over the Islands and decisions for their future lie firmly and possibly irrevocably in the Indian mainland.

Chapter 6

Endangered Isles

This chapter locates the Andamans within wider debates of ‘vulnerability’ to hazards and processes of global change i.e., climate/ecological change due to human activity for economic ends. Conservation and anthropological concerns of the impacts of overdevelopment, ecological degradation, disaster, and climate change merge with those of geopolitical security to produce complex vulnerability. Disaster management, conservation, geopolitical, and scientific climate change discourses highlight the high exposure of their tropical location to cyclones, tectonic activity, and military invasion; the heightened sensitivity due to their ‘island nature’, historical despoliation, and Neo-Malthusian demographic pressure; and the low adaptive capacities of their ‘particularly vulnerable’ indigenous groups and ‘Other Backward Class’ status of settled populations. Both are dependent on the state for dole, subsidies, livelihoods, and survival. The long-standing effects of the 2004 earthquake and tsunami disasters have added weight to these projections, portraying islanders as hapless victims. The project of conservation spatialises the ANI anew as Protected Areas or Marine Protected Areas. The indigene-settler divide is maintained, with further divisions and hierarchies. Settler/migrant society is blamed for the plight of the indigenous and the islands’ ecosystems; their indiscriminate, ignorant behaviour necessitates stricter protection of both, giving the state more power. Society and livelihoods are engineered, dependent on administrative sinecures and subsidised inputs which deepen in-fighting and divisions; legal frameworks are imposed with no islander participation; traditional mobility and livelihoods are curtailed by Protected Areas or military regulation. As ‘Sub-National Island Jurisdictions’, they maintain a performative relationship with the Indian state, and the exaltation of mainland military and historical legacies.

6.1 The secure Andamans

The 1970s heralded a period of change for the Andaman and Nicobar Islands, as concerns of overdevelopment, ecological degradation, climate change, and disaster risks merged with those of geopolitical security. The 1962 Sino-Indian War, egged on by boundary disputes, India's role in the Tibetan uprising, and Cold War politics, cemented their rivalry for regional dominance (Garver, 2011). The sailing of the USS *Enterprise* from this the Islands during the Indo-Pakistani War of 1971 led in large part to the liberation of Bangladesh, and their strategic importance for Indian geopolitics became clearer (Pattanaik, 2016). The proximity of the Nicobar Islands to the Straits of Malacca meant economic benefits for India from one of the world's busiest shipping lanes¹. Much further away from the Indian mainland than other southeast Asian countries and considering the easy Japanese capture during the Second World War, it was clear the ANI needed constant protection and military presence, especially as China remained an imminent threat. The settlement of mainland communities intensified as the need to have a sizeable Indian population to stake claim and secure the Islands became clear. In parallel, the Indian Navy steadily built the 'Andaman and Nicobar Command' to protect the Islands and the Indian eastern seaboard from military invasion, culminating in India's first and only military Tri Command in 2001, comprising the Navy, Army, and Air Force².

This militarisation was also accompanied by a period of increased conservation and protection³. As the accelerated development of these islands came under international scrutiny, then Prime Minister Indira Gandhi ordered a complete halt on deforestation in 1975 to investigate. Amidst a complicated political career across two terms in office which ended in her assassination, Gandhi's tenure was nevertheless characterised by increased environmental protection through legal frameworks and strict implementation (Dutta, 2020). The report of a multidisciplinary team sent to the ANI recommended a halt on clearing in areas inhabited by the aboriginals (Report of the Multidisciplinary Team, McVean, 1976). At Gandhi's behest, the International Union of Conservation for Nature also sent expert Donald N. McVean, who attributed significant ecological degradation and even climatic change to unfettered settlement and development policies. Dispelling the myth of tropical fecundity, he warned that deforestation and development had impacted all plant and animal life, led to changes in soil composition and

¹Over 65,000 vessels pass through the Straits annually, carrying almost one-third of the world's traded goods, including oil (Nazery & Ibrahim, 2007).

²The post of the Commander-in-Chief of Andaman and Nicobar (or CinCAN) is a rotational position though given the maritime nature of the islands, it is usually held by a naval officer.

³While at first glance these seem at odds with each other, protected islands appease the global conservation agenda while ensuring total governmental control of land and resources for military use or experimentation.

fertility, depleted rainfall absorption, and even caused fluctuations in wind and air patterns, humidity levels, rainfall, and temperature.

The Wildlife (Protection) Act of 1972 was the first critical piece of legislation, designating more than 1500 km² of ANI's land as Protected Area in some form, and regulating the hunting and trade of animals, even marine and coral species. Extending the 1927 Indian Forest Act, the Forest (Conservation) Act of 1980 consolidated law regarding reserved, protected, village, and private forests, and necessitated prior federal government approval for diverting forest land for non-forest purposes. This Act proved crucial for ANI's mangrove forests, and their commercial extraction was eventually banned in 1989 (Andrews, 2000). Official settlement halted in 1980, and deforestation abated somewhat, though in-migration continued for lucrative government jobs and other employment in the matchwood and plywood industries. Conservation NGOs such as the Society for Andaman and Nicobar Ecology (SANE) highlighted coral reef destruction as early as the 1980s and filed multiple public interest litigations (PILs) against the timber lobby (Pande & Singh, 1991). Conservationist Romulus Whitaker detailed the effects of increased felling and agriculture on the ANI's indigenous populations and lamented the 'plunder of the forests' (1985).

With high endemism and a distinctive mix of flora and fauna from the Indian subcontinent and South-East Asia, the ANI gained international recognition with their inclusion in the globe's 34 original 'biodiversity hotspots' Myers (1988). In 1989, on behalf of the Indian government, Cecil J. Saldanha conducted an environmental impact assessment in India's two island geographies, the ANI, and the Lakshadweep Islands. Saldanha stressed strong ecosystem interlinkages and argued for a holistic approach over a sectoral one. In 1990, the Andaman and Nicobar Islands Environmental Team (ANET) was constituted for furthering conservation research and education. Today, almost 19% of the ANI's total area is protected through nine National Parks, two Marine National Parks, 96 Wildlife Sanctuaries, and one Biosphere Reserve. The entire Nicobar group is a designated Tribal Reserve, as are parts of Great and Little Andaman. This means 70% of ANI's area is protected in some form.

In May 2002, a report by the Shekhar Singh Commission led to a landmark Supreme Court order, effectively banning the logging and export of timber from the ANI (Sekhsaria, 2007, p. 41). This made a large population redundant overnight, forcing the government, as the primary economic actor and employer in the UT, to explore new options. With the public sector nearly saturated, the Island Development Authority identified three sectors for further development: Fisheries, Agriculture, and Tourism, colloquially known as the 'FAT' model. Initial progress was thwarted by the Indian Ocean earthquake and tsunami which struck on 26 December 2004 and

devastated the Islands, bringing loss of life and assets. The earthquake lifted and subsided parts of islands, even breaking some in half and changing their topography. Entire coral beds lay exposed, becoming thick with flies as they lay dying. Months of aftershocks bred despair and fear as survivors searched desperately for missing kin or tried to gain compensation, having lost identity cards and papers. The long-term effects of the disaster on forests, mangroves, coral reefs, and agricultural land are still being unearthed, though research on human dimensions of the relief and rehabilitation process have exposed years of neglect, mismanagement, and marginalisation by the Indian government. Nevertheless, military presence during the time had been crucial especially for swift rescue and relief operations, and government aid and recovery packages were vital. Following the disaster, the fragility and vulnerability of the ANI took on new meaning. Increased militarisation and governmental control was now a much-needed safety net for future disasters, and a crucial pathway to increased resilience for these islands.

6.2 The Andamans as ‘vulnerable’

“As a small, isolated archipelagic ecosystem, the A&N Islands are fragile and highly susceptible to degradation from human impacts.”

- UNDP-GEF (2003, p. 3)

The discursive vulnerability of the Andamans and its people is projected and reproduced in multiple discourses, of conservation, anthropology, development and tourism, geopolitics, disaster management, and climate change. The 2004 tsunami and its aftermath has brought this vulnerability into further relief. Their location is said to expose these islands to multiple hazard risks, their ‘small island nature’ to heightened sensitivity and the ‘limited capacity of both human and natural systems’ restrict their adaptive mechanisms (UNDP, 2013, p. 30). In IPCC parlance, their vulnerability is therefore attributed to the high *exposure* of their geographical location to disasters, climate change impacts, and military/terrorist threats, the heightened *sensitivity* of their historically degraded ‘island nature’ and uneven socioeconomic development, and the low *adaptive capacities* of their indigenous and settler populations.

6.2.1 Highly exposed

Their tropical location in a zone of high seismicity, volcanic and cyclonic activity means the ANI and their residents sit within a ‘thick disaster probability envelope’ (Ibid., p. 4). The

Indian and Burmese continental plates meet in the Andaman-Java trench, which runs parallel to their west coast (M. V. Reddy, 2008). Labelled the 'Andaman-Sumatra Subduction Zone', this area is also home to two volcanic islands: the active Barren Island and the dormant Narcondam Island (Malik, Murty, & Rai, 2006). Lying at the edge of the Pacific 'Ring of Fire', this is considered one of the world's most dangerous active fault lines, combining the possibility of multiple hazards - earthquakes, tsunamis, and volcanic eruptions. India's seismic map places the ANI in a level 5 seismic zone, one of 'very high damage risk' (Government of India, 2004). In addition to a year of aftershocks, the 2004 earthquake, at Mw 9.3, was followed by a low-level eruption of Barren Island mere months later. Excepting this earthquake, however, most seismic activity has been on the low to medium scale (between Mw 2-5), while all recorded eruptions lie on the low end of the Volcanic Explosivity Index⁴ (Tripathi, 2018). Before 2004, low-intensity earthquakes were considered a normal part of life in the islands of this region (A. Kelman, 2007; Lewis & Kelman, 2010).

Cyclonic activity is high in both the Bay of Bengal and the Andaman Sea. Data on cyclones and their impacts on the ANI is confusing; some travel too quickly to have a big impact, others increase in intensity after passing over the islands, while still others affect only uninhabited islands. The general idea is that these are 'breeding grounds' for cyclones which dissipate their force elsewhere, as the islands are considered too small for cyclones to dissipate (D. S. Lal, 1989). This idea is challenged by the unpredictable paths of past cyclones. The most disastrous recorded cyclones occurred in 1792 and 1891, 1988, and most recently in 2013 (Tripathi, 2018). This last one, Cyclone Lehar, resulted in flooding, storm surges, and landslides, uprooted trees, and damaged buildings. More than 1500 people sheltered in Havelock's community hall amidst a constant wailing wind that lasted for two days. A quarter of the annual rainfall received by the Nicobar Islands fell in a single day (240 mm), and wind speeds of over 110 km/hour meant village evacuations and missing fishermen (N. . Sanjib, 2013). Based on the Indian Meteorological Department's system of classification, in the last twenty years, the ANI have (with varied impacts) experienced six Very Severe Cyclonic Storms (BOB 01, Mala, Lehar, Vardah, Gaja, Bulbul), four Extremely Severe Cyclonic Storms (Nargis, Phailin, Hudhud, and Fani), and even a Super Cyclonic Storm (Amphan). Islands are more sensitive to hydrometeorological hazards as recovery is slow and multiple events can occur in a short period. On my way to a conference in December 2016, our flight was forced to turn back to Chennai due to Vardah, a Very Severe Cyclonic Storm which stranded more than 2000 tourists on Havelock and Neil for three days. Two years later, the Severe Cyclonic Storm Phethai stranded almost 400 tourists. Cyclone Pabuk

⁴The 2017 Barren eruption recorded a 2 on this scale from 1 to 8.

followed barely a month later, putting a major dampener on the Andamans' 2018-19 tourist season (Z. Ahmed, 2019, January 9). During Amphan, in May 2020, the ANI luckily escaped with only internet connectivity disruptions (Anon., 2020, May 22).

Cyclone occurrence and severity data

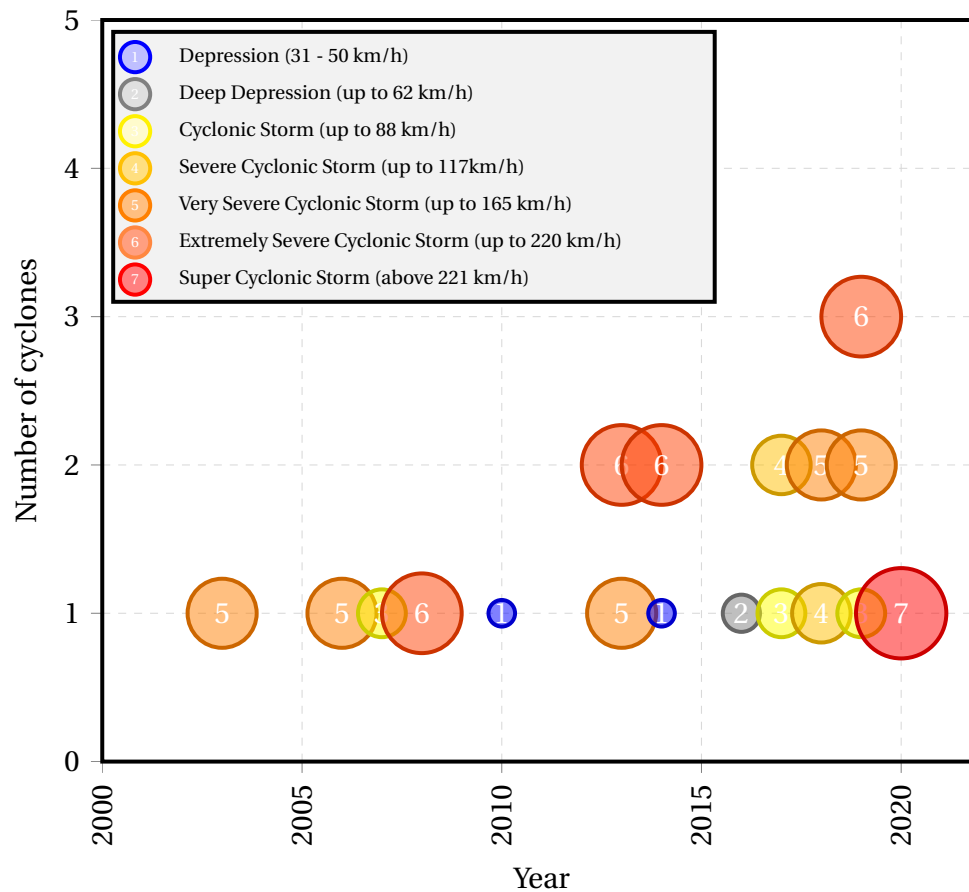


Figure 6.1: Depiction of cyclone occurrence (number of circles) and intensity (size and number within circles) in the Bay of Bengal between the years 2000 and 2020. Source: Indian Meteorological Department, 2020.

Climate change seems to be increasing the thickness of this 'disaster probability' envelope. A temperature increase of 0.53 degrees has been recorded between 1951 and 2014, and above-normal Sea Surface Temperatures (SSTs) have led to mass coral bleaching events in 1998, 2010, and 2016 (Bhat, Balaji, Sanjay, & Dar, 2015, p. 112-114). Rising temperatures and warming seas will likely increase the incidence and severity of cyclones, and evidence supporting this trend can be found in the author's analysis of the intensity and frequency of cyclones in the Bay of Bengal over the past two decades (Figure 6.1). Sea Level Rise (SLR) is the newest con-

cern, especially for the flatter and smaller Nicobar Islands⁵. At over 1.3 mm/year, the Bay of Bengal is said to be rising more rapidly than other Indian seas (A. Rao et al., 2013; Unnikrishnan, Nidheesh, & Lengaigne, 2015). Commenting on the IPCC's 2015 'Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC)', its lead author Anjal Prakash, warned that '..islands like Andaman and Nicobar, Maldives etc will have to be vacated. People will have to be migrated from there as due to rising sea levels, these places will become uninhabitable' (PTI, 2015). While a substantial concern, a disproportionate focus on SLR may overshadow more pressing climatic changes for islanders, such as erratic precipitation (Nunn, 2003a). An analysis of annual rainfall in the Andamans, regardless of season, reveals a decreasing trend of -5.2mm/year between 1951 and 2014 (Bhat et al., 2015).

More than a thousand kilometres away from their Indian 'mainland', and separated themselves by 150 km, the two island groups are also exposed in a geopolitical sense. The proximity of this 'strategic frontier region' to Southeast Asia and to one of the world's busiest shipping lanes brings other man-made threats: military invasion, international terrorism, and criminal activity. The fact that Myanmar, Indonesia, Thailand, and Malaysia are all closer than India is worrying to Indian military brass, political scientists, and geopolitical commentators, especially in a climate of escalating regional tension with China. Increased activity in the Indo-Pacific maritime zone and the South China Sea is often cited as the biggest current military threat facing India (Basu, Bose, & Chaudhury, 2019; Das, 2011; Pattanaik, 2018). Suspicions about China's development of ports and economic facilities in the Indian Ocean littorals are aggravated by reports of ostensible Chinese spying on the Indian Navy through trawlers or intelligence-gathering stations in Myanmar's Great Coco Island⁶. Southeast Asian nations also pose other 'unconventional' threats, such as drug trafficking, arms smuggling, poaching, and terrorism (Das, 2011, p. 465). The Andaman Sea is considered a conduit for a nexus of drug and arms smuggling⁷. Myanmar, Bangladeshi, Thai, and Malay nationals caught in ANI waters are imprisoned or detained as poachers, illegal fishermen/squatters/migrants, drug smugglers, gun runners, or terrorists.

⁵The 2004 tsunami devastated the flat islands of Chowra, Teressa, Katchal, and Nancowry, with waves literally washing over some islands.

⁶A claim that illegal immigration (reportedly instigated by the Chinese) is being used to create a potential Kargil-type foreign invasion has also surfaced (Kaul, 2015).

⁷Pushpita Das (2011) claims that drugs produced in the 'Golden Triangle' are routed through the sea to European markets and drug money is used to buy guns in Cambodia and Thailand, which are then smuggled to insurgent groups in India and Myanmar.

6.2.2 Increasingly sensitive

The heightened sensitivity of the ANI to multiple hazards is attributed to their 'island nature', socioeconomic issues, and historical degradation. In comparison to the Great Andaman landmass, the Nicobar Islands are 'more like islands', being contained, smaller, flatter, and more dispersed. A long coastline relative to their land area and exposed interiors makes them sensitive to sea level rise, and most development - be it fishing villages, transport infrastructure, or tourist resorts - tend to be concentrated on the shore. The new tropical epistemology engendered by the discourse of 'island ecology' stresses the fragility of tropical environments in the face of unsustainable development, unchecked population growth, and climatic change (Mazumdar, 2016a). Conservationists constantly highlight the 'fragility' and 'precarious balance' of ANI's ecosystems, a result of centuries of timber extraction and 'development' projects, and their once pristine virgin forests, intact coral reefs, and thick mangroves have crumbled under the brunt of disaster, climate change, population pressure, and anthropogenic activity. Sustained human intervention, through colonisation, capitalist extraction, agriculture, and development projects have disturbed this balance, contributing to sustained ecological destruction on the islands. Commercial forestry, and its cumulative impacts, have exponentially increased the sensitivity of these once 'autochthonous primitive isolates', evident in the attendant problems of soil erosion, loss of water catchments, loss of endemic biodiversity and the proliferation of invasive species, and run-off damage to littoral and marine ecosystems (Guha & Gadgil, 1989, p. 148-150). Agricultural monocropping and the increasing use of chemicals to fight declining fertility has left land barren and fallow (Krishnakumar, 2009; McVean, 1976; M. V. Reddy, 2008; Saldanha, 1989; R. Whitaker, 1986). Bad fishing practices, overfishing of target species, and destruction of coral reefs have led to declines in fish size and catch. The pressures of development projects, and burgeoning population growth have exacerbated this stress.

Since Independence, each decade has seen phenomenal population growth, the result of settlement policies and largely unchecked in-migration. A population of 30,971 after Independence was 380,581 during the 2011 Census. The 4th most populated Union Territory in India, current 2021 projections place the population between 40000 and 434000, almost seven times its 1961 population (ANET, 2003; Zehmisch, 2014). Even the relatively low 6.8% decadal growth between 2001-11, owing to the 2004 tsunami and its aftermath, was higher than the Indian state of Kerala experienced in the same period. This even rivalled the growth of other urban agglomerates, such as Chandigarh (Dhingra, 2005). Debates about the Islands' carrying capacity first emerged in the 1980s, though assessments were varied and lacked consensus. Some used indices of the population's protein-calorie demands, while others assessed the sea's potential to

meet food requirements, including the area of the Exclusive Economic Zone (0.6 million km²) in their calculations (Ibid.). It is generally agreed that the agricultural carrying capacity has been long surpassed (Andrews & Sankaran, 2002). Population density, at 8 people per km² in 1961, has increased to 46 in 2011, a growth of almost 37%. This low density in comparison to the mainland is often used in arguments to maintain in-migration to the Islands. Yet, we must remember that only 38 islands are inhabited, and more than 80% of land is protected forest. Even if we exclude Port Blair, its sole urban area, the density is closer to 180+ people per km² (Dhingra, 2005, p. 22-23). An influx of migrants chasing better opportunities and the expanding tourist economy creates resource conflict, water shortages, and waste management issues. Even geopolitical scholars note the 'pervasive underdevelopment' of these islands (Basu et al., 2019; Das, 2011; Kaul, 2015). A stagnant primary sector and negligible industrial activity has led to decline of per capita income and labour productivity, increasing unemployment (Das, 2011). The ANI's location and marginalisation have made transport, communication, and public infrastructure a chronic problem, fuelled by what one defence analyst calls India's 'policy of masterly inactivity and benign neglect' (Kaul, 2015, p. 3).

6.2.3 Low adaptive capacities

These multiple stressors create high exposure and sensitivity to risks and decrease the adaptive capacities of all islanders. In administrative parlance, however, the indigenous groups are portrayed as especially vulnerable and helpless, with the state as their sole protector and only hope of survival. The state claims that the historic violence inflicted by the British and now the actions of reckless settlers and migrants have accelerated the decline of these unfortunate populations. The 'dying savage' discourse is now extended to the Sentinelese of North Sentinel Islands, projected to die out due to the 'island effect' or contraction of disease (Harrer, 1977). One of the world's approximately 100 'uncontacted peoples', the Sentinelese live in self-defended isolation. After a few attempted contact missions, the government adopted an 'eyes-on, hands-off' policy, except in the case of natural calamities. Population estimates are thus vague and range from 15 to 150 people. One island rumour⁸ claims that Nigerian smugglers or Ethiopian pirates have already wiped out the tribe and are masquerading as the Sentinelese to use the island as a depot for running drugs or arms. . This rumour conflates security fears, with the dying savage (and racist) discourse, and encapsulates islander views on state incompetence.

⁸Rumours and stories abound on the islands, many bordering on conspiracy theories. Some claims need to be taken with a spoonful of salt, though truth is stranger than fiction for others.

In keeping with the times, the 'Primitive' tag was officially replaced in 2006, and all five erstwhile PTGs are now 'Particularly Vulnerable Tribal Groups' (PVTGs), to whom 'dole' and medical assistance still accrues. Vijoy Sahay, the editor of *The Oriental Anthropologist* reveals both statist discourse and anthropological voyeurism in his statement about the Onge tribe - 'They are so dependent on the government doles that they have become indolent. It is just a matter to watch how long do they survive!' (2019, p. 3). Advocates for 'preservationary isolation' cite the 1920s extinction of the Jangil, the precipitous decline of the Great Andamanese and the Onge, and the desire of both Sentinelese and Jarawa to be left alone, noting the devastating impacts even limited contact has brought. A focus on maintaining the sanctity of demarcated reserves or fighting against settler encroachments may detract, however, from advocacy to return rights to their own land or a political platform for these tribes. Advocates for 'transformative assimilation' or bringing the 'benefits of civilisation' to the tribes use the integration of the Nicobarese into the 'mainstream' and their prosperity to make their point. The Shompen, they note, might need assimilation for their very survival, owing to a skewed male-female ratio, and a shortage of women of marriageable age (ANET, 2003). Originally numbering in thousands on the coasts of Great Nicobar, this tribe dwindled drastically due to influenza in 1918 and poliomyelitis in 1947 (Chengappa, 1950). Pushed into the island's interior regions, less than 400 individuals remain today. The need for assimilation to survive or prosper is explicitly stated, but what is implicit in the argument is the large tracts of land that would be available on de-notification of the tribal reserves (and only homes) of the Jarawa, Onge, and Shompen (ANET, 2003).

The vulnerable status of different settled groups is also officially recognised by the state. In 2005, the Other Backward Classes (OBC) Commission granted OBC status to five settler communities, wherein higher education reservations and government job quotas would accrue to these 'educationally and historically backward' groups. Four 'pre-42' groups (the Local Born, Bhantus, Karens and Moplahs), and the East Bengal refugee-settlers, are now OBCs. The Ranchis, Moplahs, and Bhantus have varied recognition as Scheduled Castes/Scheduled Tribes. But like the indigenous before them, settled groups are also projected as administrative liabilities; it is claimed that subsidised lives and livelihoods have made these groups lazy, and the high level of unemployment is used to support this argument. In the effective breakdown of the forestry sector, alternatives were slow to emerge, and the emerging 'FAT' (Fishing-Agriculture-Tourism) model required more subsidies on inputs and infrastructure for each sector, along with subsidies on food-grains, transport, storage, and communication. Land fragmentation and decreasing fertility has resulted in fallow or denuded land. Rising in-migration increased competition for jobs in the public and tourism sectors (S. K. Biswas, 2009, p. 133).

Between 20,000 and 40,000 unemployed youths, comprising five to ten percent of total island population, are said to add pressure on ANI's natural resources. Increasing public discontent with the state is therefore met with vilification of both settlers and migrants, their indolence or opportunistic search for an easy, subsidised life and livelihoods, and their ignorance or disregard for island ecology. The blame for both the indigenous and ecological plight is placed on settled populations, even in conservationist discourse which is usually more critical of the state. In 1985, Romulus Whitaker claimed that settlers who once lived in fear of the indigenous were 'grabbing whatever land they can', and warned of a possible extinction of the tribes due to mounting human pressure on resources⁹ (R. Whitaker, 1985, p. 52-54). In the desire to see a preserved landscape and indigene, the (mostly mainlander) conservational discourse which criticised both state and settler was perhaps warranted the time. The endurance of this discourse, however, has meant a failure to involve ANI's settler or migrant populations (who may hold similar 'subaltern' status, albeit in different ways), and portray them as indiscriminate and ignorant users instead. Historian Madhumita Mazumdar (2016a) makes a compelling argument for how the conservation discourse produced the Andamans as a 'visual terra nullius' (p. 291), with pristine landscapes devoid of humans (especially the 'wrong kind' of humans), and how these images were later appropriated by the tourist industry to sell a paradisiacal image that was far from reality. After the 2004 tsunami, humanitarian and conservation concerns intensified, but so did pressure to expand tourism, and the disaster, coming on the heels of an economic depression, put the Islands into the national consciousness and back on the map. *Ecotourism* now had the potential to integrate conservation and tourism interests and cater to tourist desires to 'consume' these unspoiled islands before they disappeared.

6.3 A protected islandscape

6.3.1 Conserving land and sea

Around the turn of the millennium, conflicts over resource management, prevalent across India since the inception of the Forest Department, led to pressure on policymakers to increase indigenous and environmental protection. This created a 'paradigm shift' - in the words of one official - in the Andaman Forest Department, from resource exploitation to conservation of the bio-diverse ecosystems. In the 1970s and 80s, deforestation had already started to abate with a

⁹In the 1990s, the amount of conservation areas spiked dramatically across the world, especially in the global South, and 'saving' high-value ecological areas from *all* humankind even led to the displacement of indigenous groups in the name of preservation (Adams, 2015)

decision by the Island Development Authority (IDA) to phase out forest working. The 1990s saw a ban on sawmill grants and export of round logs, and extraction in coastal zones was prohibited by the 1991 Coastal Regulation Zone notification. With a few anomaly years where plywood mills and wood industries profited, extraction levels were lowered from >120,000 m³ in 1988 to 40,000 m³ in 2000 (Dhingra, 2005). Timber shortages were now supplemented by the import of Malaysian timber under the government's Open General Licence scheme, part of its 'Look East' policy, which essentially displaced deforestation to another country (Sekhsaria, 2001).

In 2002, the apex Supreme Court of India ordered a ban on all logging for commercial or export purposes in the ANI, and further reduced extraction limits to 30,000 m³, strictly for local use (Sekhsaria, 2007, p. 41). Following a seven-week long survey on the island's ecology and indigenous populations, a commission headed by former bureaucrat Shekhar Singh submitted a report which recommended: 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 removal of post-1978 encroachments; the reduction of immigration from mainland India; closure of the Andaman Trunk Road (ATR); and prohibition of sand mining from beaches (*ibid.*). This order had long-standing positive consequences for ecology and environment, but also negative ones for the island economy which was thrown into turmoil overnight. Government-regulated logging and forestry, considered the 'backbone' of ANI's economy, was an important livelihood, a major avenue of employment, and brought significant revenue to the islands (Sekhsaria, 2001). The absence of a sizeable local market for manufactured goods and the need to procure most raw materials from the mainland meant large and medium scale industrial activity was impossible here, and only the forests provided any scope for industry. The subsequent closure of timber mills, plywood and matchstick factories made a large working population redundant. While the SC order was clearly needed (and has helped forests visibly regenerate in the past two decades), it caused mass unemployment, redefined the Forest Department, increased local political tensions, and imposed harsh measures on people who, previously living and working for decades 'with impunity' were now deemed 'encroachers' to be evicted. In short, it imposed a mainland conservation model without considering all the consequences in the island context.

Along with the legal designation of Protected Areas and the rise of conservation came concomitant regulations on development. The 1991 Coastal Regulation Zone Notification was issued in the spirit of the Environment (Protection) Act of 1986, which sought to prevent environmental pollution through industrial and construction discharge. Regulating onshore development according to four coastal categories, these rules have been amended over the years.

The 1972 Wildlife (Protection) Act designated four legal categories of Protected Areas: National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves. Though the Andamans contained all manners of Protected Areas, the concept of Marine Protected Areas (MPAs), not defined in this Act, is somewhat newer. A 1980s assessment of India's Protected Areas included special mention of its island territories, but confined analysis to terrestrial areas, comparing the densely populated Lakshadweep Islands with the densely forested ANI (Rodgers & Panwar, 1988). MPAs in India differ in definition¹⁰, but the ANI's nine National Parks and 96 Wildlife Sanctuaries are all considered MPAs today. Of these, two are designated Marine National Parks, and cover significant coral reef areas. The Mahatma Gandhi Marine National Park (MGMNP) off the southwest coast of Great Andamans was the first to be demarcated in 1983, followed by the Rani Jhansi Marine National Park (RJMNP), in Ritchie's Archipelago, in 1996.

After the ban on logging, ecotourism was touted as the biggest opportunity. Tourism was declared an official industry in 1987, and Saldanha's report noted it might possibly redeem this 'island group in crisis' (1989, p. 25). The Shekhar Singh Commission also stressed a move towards ecotourism. In the 1990s, The Island Development Authority and a private consortium (Andaman Nicobar Tourist Guild) drew up guidelines for ecotourism (Mazumdar, 2016a). This extended to ecotourism in protected areas, and the MGMNP management plan was, updated between 1997-2002 to include ecotourism development within the park. This divided the park into land use zones, demarcating buffer zones for tourist development. The management plan for the RJMNP is yet to be ratified but ecotourism is a defining feature given the touristic nature of Havelock and Neil. The plan is contested by fisher communities who have historically used areas in the park, as it restricts access to traditional fishing grounds. It seems that demarcating boundaries on water from the mainland with no islander participation can become complicated and contentious (Bijoor et al., 2018). Even on land, these can be misleading: the happy myth that a significant amount of ANI's land and sea under protection is broken when one looks at the protected area map and realises the highly fragmented nature of this protection, which extends mostly to uninhabited islands, islets, and rocky outcrops with only a few contiguous forest areas on the main islands. This plays havoc on Great Andaman for instance, where the long and narrow topography severely restricts the range of species. Additionally, tribal reserves are not specifically managed for biodiversity conservation, and are subject to more hunting,

¹⁰The 2012 Convention on Biological Diversity includes all National Parks, Sanctuaries or Reserves which fall entirely or in part under the 500 metre High Tide Line and defines 18 MPAs in the mainland and 100 MPAs in the ANI. ENVIS, on the other hand, defines MPAs as a protected ocean space for marine resources where human activity is regulated by the state, and identifies 25 MPAs in the mainland, and 105 in the Andamans (Bijoor, Sharma, & Ramesh, 2018).

poaching, encroachment, and clearing(UNDP-GEF, 2003).

6.3.2 Social divides and dependencies

The indigene-settler divide (here ‘settler’ includes all non-indigenous communities including migrants) is predominant on the Islands. We may visualise island society as a continuum according to the *time of settlement*: ‘indigenous – Pre-42 – refugee-settler – migrant-settler (‘with-outs’) – temporary migrant’¹¹. Far from a harmonious ‘Mini-India’, these categories contain various politicised identities (some cross-cutting) and are far from homogeneous. This work recognises that the most vulnerable group remain the indigenous populations, who have been robbed of their land, resources, numbers, and culture at every turn. Yet the state’s interpretation of their vulnerability includes a ‘standard narrative’, which involves ‘an origin myth and a legal challenge’ (Abraham, 2018, p. 12). The origin myth sees tribes that were once wild and hostile as increasingly endangered and fragile, while the legal challenge is to keep them separate from settler society to protect them from imminent extinction. This vulnerable status, officialised in the label of PVTG, is used to maintain a *strict policy of separation* between the indigene and settler, with the state as sole gatekeeper and arbiter (Abraham, 2018; Venkateswar, 2004). Physical separation is not always unwarranted, as is the case with the current COVID-19 pandemic which could very well spell extinction for these groups. However, the legal separation and oppositional positioning of indigene and settler/migrant casts much of the blame for the ‘plight of the indigenous’ on the actions of settlers and migrants, deflecting neatly away from the actions of the state. It also obscures the fact that both groups are vulnerable to the impacts of disaster or climate change, though their capacities to respond will be different. These differential capacities are hard to quantify or anticipate without consideration of context and connections. A tsunami or even rapid Sea Level Rise has the potential to wipe out entire islands, regardless of capacities, identity, or status. In the event of a disaster, indigenous groups might be completely decimated or conversely respond better than settlers due to social cohesion and a collective memory of disaster response. Poverty-stricken migrants with no amenities might be more vulnerable than settlers but may still have mainland homes and connections to return to as compared to islanders with no mainland connection. Migrants may have been forced to leave their own mainland homes due to disaster or climate change impacts. Within all these households, women, children, and the elderly would generally suffer the most. It is futile then to keep these

¹¹This is reflected in the islander list where Category A refers to ‘Tribals’, Category B to ‘Old Inhabitants/Pre-1942 Settlers’, Category C to ‘Settlers’ and Category D to ‘Permanent Inhabitants’. Islander Identity Cards are issued to all islanders, with the exception of the PVTGs, to avail of subsidies.

groups on two ends of a spectrum of vulnerability. The following paragraphs discuss similarities in the vulnerability and marginalisation of these groups, how both are marginalised, and how both are ultimately made dependent on the state for their livelihoods and survival.

Indigenous groups

In the last 70 years, the Particularly Vulnerable Tribal Groups have declined steadily, from an estimated 7000-10000 people during the time of colonisation to about 750 in recent years. Together, the indigenous population forms only 7.3% of ANI's total population, and the PVTGS are only 0.2% of this number (Government of India, 2011). Even within the total indigenous population, PVTGs are only 2.7%, with the Nicobarese making up 97.3%. Excluded from mainstream development, PVTGs are instead provided extensive welfare services (colloquially labelled 'dole'), and medical assistance through the Andaman Adim Jaati Vikas Sangh. An uneasy prevarication between isolation and assimilation plagues the organisation to this day, and little more has been done for the PVTGs (Pandya, 2013). Rendered subjects on welfare, these groups do not participate in islander society or polity, and their views on development, climate, or their own lives and livelihoods are absent. 'Settler humanitarianism' results in journalists and NGOs publicising issues or filing Public Interest Litigation on behalf of the tribes or . Most of this action is predicated on maintaining undisturbed tribal reserves, which might perpetuate settler-colonial forms of domination (U. Sen & Maxwell, 2018). Crucially, in 2006, the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act came into effect to make historical reparations and give back ownership of forest land to forest-dwelling tribes. This potential step in the right direction was vehemently opposed by multiple parties: by conservationists argued it would 'legalise encroachments', by officials who feared losing exclusive control over forests, and by corporations for whom future land acquisition via eviction would become problematic. It was deemed inapplicable for the ANI anyway, as the (now 65-year-old) ANPATR had already demarcated (dwindling) tribal reserves. The BJP government seems to have buried the Act altogether (R. Rao, 2017, January 19).

Legal separation, settler vilification and settler humanitarianism all speak to a romanticised desire for a healthy tribal which exists in a primitive, culturally preserved bubble. For some this desire is perhaps a form of 'anthropological grief' (cf. 'ecological grief') and the need to preserve these dying populations. Only the Nicobarese tribe has relatively prospered, increasing from 6000 people in 1901 to about 28,000 in 2011. It is the only tribe with the numbers, mainstream integration, and economic prosperity to have a political voice. The Nicobar Islands, as ANPATR-designated tribal reserves, require permits for settlement and even for vis-

itation; even Indian citizens are not allowed to visit, and no tourism exists. In 1997, the tribe issued a memorandum to the administration calling out increasing influx and encroachment, demanding their fair treatment as Indian citizens (Abraham, 2018). The 2004 tsunami is generally regarded as a turning point for this tribe, with loss of life and homes in the disaster, but also of tribal culture and cohesion through the rehabilitation which followed (see e.g., (Saini, 2016; P. Singh & Bedi, 2006; Tripathi, 2018)). The Jarawa spoke to journalists in 2014 about sexual exploitation of the tribe, after which stricter separation measures were instituted, but they have not been heard from since (Giles, 2014, February 1). All these tribes are excluded in the rhetoric of 'Mini-India', the heterogeneous, cosmopolitan, and secular society of settlers that the Andamans are portrayed as today.

Settled groups

While it is true that settler society has relatively prospered in comparison to indigenous populations, and that the two groups compete for resources, a narrative of blame seeks to exonerate the state's prominent role in this reality. It also ignores the vulnerability of settler populations, which stems from similar reasons as for the indigenous; a high dependence on natural resources, a crippling reliance on the Indian state to maintain lives and livelihoods, and varying degrees of recognition and marginalisation Oommen and Ramesh (2019). Migrants and settlers are positioned as the main perpetrators of violence on the indigenous, through indiscriminate poaching of honey and wild pig, and encroachment or illegal felling in tribal reserves. There are claims that increasing disturbance by fishermen and crab/lobster poachers around North Sentinel prevents the Sentinelese from foraging in intertidal areas or sea-fishing in their dugout canoes (ANET, 2003). Local villagers are accused of calling the tribals *jungles* ('of the jungle', signifying wild and uncivilised) and of exploiting them for various purposes (M. V. Reddy, 2008). Incidents of 'Jarawa tourism' and 'human safaris', detailed in the next chapter, are blamed on locals, obscuring the participation of corrupt officials, mainland tourism operators, and tourists themselves. Ecological degradation is also attributed to settlers and migrants by (often mainland) conservationists, academics, and state authorities, who portray them as greedy, lazy, ignorant, and implicit in their own destruction. Common laments include their indiscriminate use of livelihoods inputs (such as agrochemicals), illiteracy of land management or ecosystem services, over-exploitation of resources (overfishing of select marine species, or over-harvesting of timber and NTFP).

Legal separation between indigene and settler is echoed in degrees of official recognition within settled groups, keeping Andaman society divided along multiple ethnic and social fault

lines, and far from its projected image of an idealised, cohesive 'Mini-India' (Abraham, 2018). The time of settlement or migration is a divider, to which the colloquial category of 'withouts' is testament. The politicisation of ethnicity is strong; Bengali-speaking settlers are a considerable vote bank, and the two members to hold the post of the Member of Parliament the longest (Manoranjan Bhakta for eight terms and Bishnu Pada Ray for three) were both from the Bengali community. The inclusion of the refugee-settlers in the list of Other Backward Classes has angered factions of the pre-42 community, but there is much difference within this category as well. Similar mobility has not accrued to the tribal 'Ranchis', who despite their common tag are composed of different tribal groups from what are today two separate mainland states, Jharkhand, and Chhattisgarh. Many of these groups, but not all, are designated Scheduled Tribes within their own states. Their British-era contractual status as forest labour and tribal status has meant the postcolonial government's refusal to grant them land over other (predominantly Hindu) settled populations (Zehmisch, 2014). The existence of the OBC list saddens some islanders who claim it is a gateway to casteism and division, destroys the secular society they worked hard to achieve, and signals the use of mainland divisions by some for their own purposes (Ibid.). Despite claims of a 'casteless' society, caste is far from a moot point in Andaman society, and even played a critical role in refugee settlement (see Chapter 5). While it may have lost significance in inter-community interaction, caste-based values and hierarchies persist within communities (Chakraborty, 2019, December 11; Zehmisch, 2014).

Settler livelihoods are themselves a product of the state's historical settlement and development drives. A process of 'social engineering' was based on 'livelihoods engineering', creating an economy determined by mainland prerogatives. Livelihoods communities were deliberately chosen; Ranchi labour was employed for forest work and timber felling, East Bengal refugee-settlers as paddy farmers to supply India with grain, Andhra and Kerala fishermen to diversify food sources, Tamil repatriates to work on plantations, and ex-servicemen or defence personnel for security. The practice of livelihoods was tweaked through the presence of subsidies and 'administrative sinecures' in transportation, fuel, food, livelihoods inputs and utilities. Subsidies were highest for the transport of freight and passengers between the mainland and the ANI, and between islands. The biggest imports were wheat, sugar, and rice, followed by kerosene, pulses, food oils and other consumer goods. The export of finished goods, such as timber, plywood, agricultural produce, and cash crops, saw subsidised freight rates to the tune of 50-90%. Subsidies are inherent in other necessities, such as fuel costs, food supplies, agricultural inputs, public distribution, and rural development schemes (D. Mohanty, 2011).

Fishing and farming livelihoods today rely solely on subsidised inputs distributed by gov-

ernment departments, increasing the dependence of these communities. Subsidised seeds, fertilisers, pesticides, and implements encouraged the spread of agriculture even on marginal, hilly land despite marginal returns, furthering encroachment, and land clearance. Rice farming has been shown to be wholly unsuited to the ecology, soil, and climate of the Andamans, evident in declining yields and soil fertility (ANET, 2003). Monocrop plantations of coconut, areca nut, rubber, and oil palm flourished for a while before exhibiting similar challenges. The availability of cheap agrochemicals encourages overuse, leading to contamination of water, soil, and all forms of life. Many farmers and fishers during this research argued that subsidised good and inputs were low-quality and inferior but made 'too much' cheaper than alternatives. Subsidies also decrease innovation, entrepreneurship, and the development of cost-efficient, environment-friendly alternatives (D. Mohanty, 2011). The abrupt closure of the forestry sector in 2002 without warning or prior development of new opportunities meant forestry livelihoods crumbled. The fanfare around the FAT model and its focus on sustainability notwithstanding, the primary need was job creation to replace lost forestry jobs. Employment and income-generation programmes revolved around conventional agriculture, construction, and more government jobs. Even with the saturation of the public sector, efforts to privatise met with resistance from the administration.

As a move towards the tertiary sector made some headway, the 2004 tsunami struck. Reeling from the 2002 logging ban and job saturation of the public sector, the tsunami dealt another massive blow to livelihoods assets. Over 2000 hectares of paddy and agricultural land were destroyed through flooding and salinisation, while loss of fishing infrastructure and assets was to the tune of INR 34,000,000 (Government of India, 2008). The year after the tsunami saw a steep drop in tourism, the selling of land and migration to the mainland, and fishers scared to venture out to sea. Rehabilitation packages, pushed a mainland development agenda once more, discouraging work and further increasing dependency (M. V. Reddy, 2008). In the Nicobars, the government decided to provide free food rations till affected people could be shifted to permanent settlers, a process that took five years.

The high unemployment rates amongst islanders are cited as reasons why subsidies cannot be removed, and why more daily wage jobs have been instituted. Both these factors have ironically contributed to an influx of unskilled (and cheaper) labour from the mainland. Subsidies and daily wage jobs in forestry already brought over many migrants, especially from the states with direct sea (and later air) routes, such as West Bengal, Tamil Nadu, and Andhra Pradesh ANET (2003). Most settlers, argues anthropologist Philipp Zehmisch, had a subaltern status at the time of arrival in the ANI, which changed over time as social and economic mo-

bility accrued on the backs of later arrivals, especially a ‘permanent flow of subaltern labour’ (Zehmisch, 2014, p. 30). This is certainly true of both Havelock and Neil, where migrants work in sharecropping systems, or in tourism construction. Mobility has also accrued for migrant groups, for instance in Neil, where migrant squatters benefited from the regularisation of encroachments in 1978. Occupying mostly coastal land deemed useless for agriculture, migrant groups today own some of the most prized real estates for tourism. This has increased resentment between Neil’s settlers and migrants.

All islanders rely on reef resources in direct and indirect ways (Looper et al. in Chandi et al., 2012), but subsistence and artisanal fishermen communities are particularly dependent on marine resources. In livelihoods research, it is often assumed that small-scale fishers are poor due to the depletion of these resources. Focus on these generalisations belie the institutional dynamics which have created a multidimensional poverty, as well as socioeconomic exclusion, class exploitation, marginalisation, and disempowerment (Béné et al., 2016). In India, fishermen castes are typically amongst the lowest in the caste hierarchy which translates to lower education levels, larger families, and political weakness (Heel, 1986). Fishers are exploited by fish traders and intermediaries (a non-caste occupation), who negotiate the provision of infrastructure, capital, and even lend money on interest in return for exclusive sale rights. Some even earn the moniker ‘*seths*’, a term commonly used for influential landowners and moneylenders (Whittingham et al., 2003). The state’s ambition for sustainable fishing in the islands has affected its fisher communities. The common refrain is the underutilised potential of a 0.6 million km² Exclusive Economic Zone (EEZ) which extends 200 km beyond what constitutes a quarter of India’s coastline. In 2019, the calculated availability of this EEZ was 1,480,000 tonnes of demersal, pelagic, and oceanic resources, of which a mere 13% had been utilised¹² (Government of India, 2019). Tuna alone forms almost 75% of this potential, while other targeted species include groupers, lobsters, prawn, shrimp, and crab. mainland corporations operate prawn trawlers, which affect seabeds and the juvenile and bait fish which artisanal fishers rely on (Chandi et al., 2012). Deep-sea tuna fisheries are hailed for their potential to decrease ecological impacts around the Islands, but the ‘Tuna Mission’ has yielded little income generation for islanders and is criticised for a lack of coordination between agencies (Z. Ahmed, 2013, August 26).

The relationship between the state and ANI’s fisher communities is confusing and turbulent. Fishers are routinely hailed as necessary ‘eyes and ears’ for intelligence-gathering and the security of the ANI, and just as routinely accused of illegal activities, such as collaborating with

¹²A Working Group on Revaluation of Potential Marine Fisheries Resources has revised this estimate to 2,435,000 tonnes (Government of India, 2019).

poachers or smugglers, especially in Marine Protected Areas. The defence and security narrative warns against 'illegal' migrants and 'terrorists' from Bangladesh, Myanmar and Thailand engaged in poaching or drugs/arms smuggling (Abraham). Sea cucumbers¹³ and pearl oysters attract foreign poachers, especially from Myanmar (locally known as Burmese poachers). If caught, their fishing vessels are impounded by the Coast Guard, and the fishers detained in jails or camps till deportation. All islanders, but especially fishers, are regularly warned to be on the lookout for these 'illegals', with the argument that they are robbing them of their livelihoods. This claim partially categorises them as poachers themselves and forgets that both sea cucumber and oysters are not valuable for ANI fishers or even domestic poachers, who target crab or (mostly terrestrial) high value animal and botanical products, such as venison, wild boar meat, resin, and honey (Abraham, 2018, p. 13). Nevertheless, this narrative has compounded fears of in-migration and even led to borderline human rights violations. When 400 Rohingya Muslim refugees, fleeing from Burmese Junta persecution, were set adrift in the Bay of Bengal in 2012, the Indian Coast Guard picked them up in ANI waters. They were detained in a Port Blair camp for three years amidst a geopolitical dispute over their national status¹⁴ (Z. Ahmed, 2012, February 17). Marine National Parks represent spaces of conflict between conservationists, forest officials, and the local populace which feels excluded in their management, and alienated by disregard of traditional use (Bijoor et al., 2018; Chandi et al., 2012).

Tension and erosion of trust characterises many other spheres of interaction, livelihoods-based or not, between the state and the islanders. In stakeholder meetings for drafting a management plan for the Rani Jhansi MNP in November 2012, the Forest Department's condescending attitude towards these 'ignorant communities' was discernible. Fishers stood accused of overfishing, undervaluing reefs, and illegally landing, felling, or fishing in prohibited areas. Fishers in turn accused the Department of failing to include islanders in demarcating boundaries or formulating the management plan, ignoring the encroachment of non-local fishermen and trawlers, restricting mobility and access to traditional fishing grounds, arbitrarily changing rules on a weekly basis, and inordinate suspicion and harassment (Chandi et al., 2012). This Farmers are blamed similarly, especially for mismanaging land or not availing of credit schemes or agrarian extension services (D. Mohanty, 2011). In post-tsunami rehabilitation programmes, settler requests for cash instalments to rebuild houses were refused on the grounds that the cash would surely be misused, and this would lead to illegal tree-felling (M. V. Reddy, 2008).

¹³Popular in the East Asian market, sea cucumbers are listed as an endangered species under Schedule I of the 1972 Wildlife Protection Act.

¹⁴A similar situation surfaced in March 2021, where a critical phone call to ANI journalist Denis Giles helped save a distressed boat of Rohingya refugees, whose future remains uncertain (R. Jain, 2021, March 3).

Some steps have been taken to involve islanders, such as promoting school-level education and awareness of island ecology, but it does not feature islander voices or perceptions of change. It is no surprise then, that ecological conservation or indigenous rights have made little headway in the ANI, considering the exclusion, condescension, and lack of respect displayed by the state and 'civil society' towards islander groups, keeping them divided and dependent.

6.3.3 Sub-National Island Jurisdictions

With growing dissent, the control of the state is being consolidated across India, but the state has always been all-powerful in the Islands. Relations of power between states and their island territories are captured in Godfrey Baldacchino's (2010b) reference to the ANI and others as 'Sub-National Island Jurisdictions' (SNIJs). Unlike independent island states, SNIJs are governed by a larger continental 'mainland' (or even more powerful islands in the case of British territories) where most of the power resides. Island-metropole relations, though heavily imbalanced, are mutual and hold distinct advantages for each geography. Islands provide 'strategic services', as military or economic strongholds, in exchange for aid flows and assistance (Connell, 1994; Poirine, 1999). The ANI, as strategic military bases, trading and shipping assets, prospective fisheries hubs, and burgeoning tourist destinations are clearly vital for India. In return, they receive economic subsidies and incentives on transport, communications, livelihoods, health and education, defence and security, and aid and relief. Unlike some SIDS, which rely on a MIRAB (MIgration, Remittances, Aid, and Bureaucracy) model, here the mainland provides an external labour market (Baldacchino, 2005). This relationship is especially crucial for SNIJs in times of economic or environmental crisis, helping to avoid the chronic vulnerabilities plaguing independent small states and islands. A case in point is the rescue and relief operation in the ANI after the 2004 tsunami. The established presence of the Indian military led to well-coordinated and life-saving response despite immense geographical challenges and the loss of lives and infrastructure. Financial and material aid, and NGO volunteer help, was swift owing to direct control by the Centre. The long rehabilitation process, though problematic in many ways, did help islanders rebuild their lives and livelihoods.



Figure 6.2: Pride of place at the Port Blair Marina given to a memorial outlining recipients of the 'Paramveer Chakra Medal', India's highest award for military bravery. The list features no islanders. Image by author, 2017.

Political power and governance on islands usually reside elsewhere (Meeker, 2011), as the imposition of mainland models of development and bilateral aid programmes have shown. The collectivisation of Small Island Developing States may serve a similar purpose of maintaining buffers and relationships in times of crisis or for economic growth. In the long run, subnational dependencies may also enjoy higher economic security (Armstrong & Read, 2003; Baldacchino, 2004), and better standards of living than independent states and even parts of the mainland. Amongst India's 28 states and 8 union territories, the ANI rank 9th in per capita income and 6th on the Human Development Index (Statistics & Implementation, 2020). One interlocutor, echoing the 2004 election slogan of the BJP-led National Democratic Alliance government, told the author: "Thank god the islands are not part of Burma or Thailand. India shining!" (SD, 25.12.2016). Giving up a certain amount of political autonomy then may signify a worthwhile trade-off, even if islanders are regularly excluded from decision-making, and subject to overt performances of state power.

As Union Territories, the ANI administration is an extension of the federal Ministry of Home Affairs in New Delhi, which appoints their (typically mainlander) administrators. This administration has economic and political monopoly, as the largest employer and landholder,

the main economic driver, and the core development and welfare agency. The protectionist regime in the 1970s brought all societal, political, and economic parameters of governance under its control, and a reluctance to decentralise or delegate power is apparent. Regulatory control over natural resources and the power to impose limitations on non-governmental development schemes has resulted in a culture of 'restrictive management' over the decades (Basu et al., 2019). Decisions are taken without the consent or participation of those they affect, cannot be appealed in the absence of clear accountability, are often reactionary, and may apply differently to sections of the population. In combination with a 'transferable administration', which refers both to short-term tenures of mainlander bureaucrats and passing the buck between different departments, policymaking is often reactionary, 'ad hoc', and 'unilateral' (Giles, 2018, October 3).

A logistical preference for self-administration still exists due to the continuing isolation and marginalisation of islands (Peckham, 2016, p. 503). The introduction of the Panchayati Raj system in 1994 delegated some power to local village councils, but cost the Islands their Pradesh Council, an islander-populated body which advised the Lieutenant Governor. *Panchayats* have little influence on the absolute powers of the Lieutenant Governor or other top bureaucrats, and the politicisation of ethnic communities as vote-banks has kept them from effecting real change. The ANI have no legislative assembly, the presence of which signifies partial statehood, and even though the two island groups are recognised as separate districts, they have a sole Member of Parliament with no indigenous representation. Demands for statehood or the restoration of the Pradesh Council have gained little cognisance from the ANI administration, which has responded with an increasingly autocratic governance style and further consolidation of power, especially amidst the 'China threat' (Roy, 2017, December 14). In a 2009 seminar on 'Security and Development of the ANI', President Abdul Kalam envisioned nuclear power stations and submarines, aircraft carriers, fibre-optic connectivity, and tsunami forecasting systems. In 2012, the first 'navy air station' was commissioned in Great Nicobar. Journalist Pankaj Sekhsaria (2017) argues that the tsunami has led to opportunities for increased defence and experimentation in the 'washed-out' Nicobar islands. For instance, the islands of Trak, Passage, and Treis have been used for target practice of BrahMos surface-to-surface missiles¹⁵. In 2009, Meroe Island became a battleground between the Navy and activists fighting to protect indigenous rights and endangered flora and fauna. Barely a month later, conflict ensued between the Navy and the Nicobarese over 128 hectares of land on Camorta Island, with each accusing the other of encroachment (Ibid.). In 2011, a sustained conservation campaign saved the Tillang-

¹⁵Even as recently as 2019, for which video footage exists on YouTube (ANI News, 2019).

chong Island wildlife sanctuary from becoming a target practice site.



Figure 6.3: The abstract 'tsunami memorial', located in an obscure corner off the Port Blair Marina. Image by author, 2017.

Apart from military presence, the Indian nationalism and patriotism is also inscribed in the symbolic and material landscape. The Port Blair airport for example was renamed Veer Savarkar airport in 2002, after the most famous occupant of the Cellular Jail. Vinayak Damodar Savarkar was a convict (he was not granted political prisoner status) at the Jail between 1911 to 1920 and filed multiple mercy petitions for his release. During this time, he founded the ideas behind the radical 'Hindutva' movement and was later accused, but acquitted, as co-conspirator in Mahatma Gandhi's assassination. The Port Blair Marina and promenade may be described as a pantheonic display of India's military might. Predominant place goes to big Indian flags and maps, camouflaged tanks, memorials to fallen and decorated (non-islander) soldiers in Indo-Pak conflict, and statues of prominent statesmen (Figure 6.2). In contrast, the 1859 Battle of Aberdeen, between the Andamanese and the British, is commemorated in an abstract monument in an obscure corner, as is the memorial to islanders who perished in the tsunami (Figure 6.3).

Chapter 7

Emerald Isles

This chapter brings us to the present-day shift away from the negative properties of vulnerability to positive ones of 'resilience' and the rhetoric of 'sustainable development' which portrays islanders as exemplars exhorted to change their practices while exploitation by industry continues unabated. The projection of the Andamans as tropical idyll involve ideas of 'good tropicity' or their marketing as tropical paradise, of a cosmopolitan 'Mini-India' society living in harmony, and ideal laboratories for a clean, green, smart, and sustainable interventions. Projects of consumption are visible in the commodification of land and sea, and its translation in economic terms and numerical measurements. Ecotourism is now the panacean answer to conserving island ecosystems and livelihoods. Increased in-migration for tourist development has contributed to tensions between islanders and non-islanders, and between islander and state. The military is strengthening its role as economic and development actor to counter the growing threat posed by China, and the parallel development of both military and the privatised tourism industries, or 'militourism', is discernible. All this development needs more space, and the reversal or de-notification of protected areas and tribal reserves is also in motion. The Andamans now serve as tourist destinations, and the wider ANI as military strongholds, both of which further 'nationalise' them as homogeneous extensions or limbs of the Indian mainland.

7.1 The FAT 'New Andamans'

In 1986, Prime Minister Rajiv Gandhi visited the Islands and established the Island Development Authority (IDA), which contained a working group on the prospects of ecotourism in the area. Tourism was declared an official industry in 1987, along with grand plans to de-

velop free ports and shipping/berthing services in the Nicobars. To decrease dependence on forest resources and expand other economic sectors, fisheries and tourism were identified as thrust areas. In its ascendance as an economic and military power, India first embraced the neoliberal growth model through economic liberalisation in the 1990s. The following decades witnessed an economic policy fuelled by idealism, realism, geopolitics, and a rising Hindu nationalism (Wagner, 2012). During the Cold War, Indian relations with Southeast Asian states were sporadic, but liberalisation led to foreign investment, privatisation of the banking system, and the international stock market. Southeast Asia was now a golden goose. The 'Look East' policy emerged in 1992 to forge economic and diplomatic ties between India and ASEAN countries, ostensibly to capitalise on the past cultural and ideological links of the two regions, but essentially to counter the threat of China's emerging power. The ANI were a key asset here; their southeast location and maritime aspect was ideal for building a 'close-knit network of economic and security connectivity' amongst the Bay of Bengal littorals (Pattanaik, 2018, p. 89).

After the 2004 tsunami, the need of the hour was rapidly rebuilding an economy already recessed by the 2002 logging ban. Prime Minister Dr. Manmohan Singh visited in the aftermath, signalling an opportunity for building a 'New Andamans', where sustainable agriculture and fishery enterprises could exist in harmony with the natural environment¹. The MS Swaminathan Research Foundation submitted a report praising the relatively untouched nature of the islands and recommended a new model of 'holistic development' which revolved around sustainable fishing, high-value agriculture, and ecotourism (known colloquially as the 'FAT' model). Both Saldhana's report (1989) and the Shekhar Singh Commission (S. Singh, 2002) had strongly recommended ecotourism for the islands; and from 9500 visitors in 1980, the year before the tsunami had seen almost 100,000 tourists. With a massive dip the following year to 32,000, it was clear tourism required a concerted boost. The Central Government expanded its Leave Travel Concession (LTC) scheme in 2005 to cover air travel and expanded it to more sections of its employees (Bijoor et al., 2018). Government guesthouses located on prime property offered scenic views, and cheap food and accommodation. As private airlines opened more flights to the region, domestic tourism started to rise (Chaudhry, 2008). The government initially shortlisted 23 sites for the promotion of tourism, including the islands of Havelock, Neil, and Smith and Ross (EQUATIONS, 2008). A 'bounce back better' rhetoric led to the revival of

¹India refused international aid for relief operations, offering aid to Sri Lanka and Maldives, but accepted long-term foreign assistance for a rehabilitation programme. Based on the testimonies of affected souls, the National People's Tribunal on Post-tsunami Rehabilitation in 2008 declared that the Indian government had failed in its 'legal and moral responsibility of upholding the human rights and ensuring the welfare of all those affected by the tsunami' (Habitat International Coalition, 2008).

tourism barely a year later.

Today, the Directorate of Tourism, under its newest brand slogan, 'Emerald. Blue. And You', formulates ecotourism guidelines, regulates water sports and tourism trade, certifies guides and travel agents, and subsidises local 'bed and breakfast/homestays'. As of 2020, registered parties include 112 tour and travels providers, 56 SCUBA dive and water sports operators, 261 private hotels and restaurants (ranked by grade and compliance), 78 homestays, and 24 government guest houses (Directorate of Tourism, 2020). Similar efforts are being made towards fishing and agriculture. Sustainable fishing, the mandate of the Fisheries Department, is now being developed through increasing fish production, updating infrastructure such as cold storage and ice plants, fish landing centres and markets, the provision of technical knowledge, and the enforcement of regulations. Schemes such as the 'Tuna Mission' and the 'Blue Revolution' are targeted towards ANI's 22,000 fishermen and a fleet of over 3000 boats. This last scheme includes subsidies and incentives for the motorisation of craft, mariculture through seaweed cultivation and pearl culture, deep sea fishing, aquaculture, renovation and construction of ponds, and group accident insurance (Directorate of Fisheries, 2020). For the 20,000 farmers of the region, the Department of Agriculture and the newly formed High Value Agriculture Development Agency have initiated 'Mission Organic' and the 'Mission for Integrated Development of Horticulture'. These offer subsidies and technical aid through rural knowledge centres for crop husbandry, organic horticulture, medicinal plant cultivation, coconut cultivation, minor irrigation, soil testing and conservation, and beekeeping (Department of Agriculture, 2019).

The public sector remains the dominant economic and development actor, but the economy has shifted from a primary sector orientation in the 1980s to one based on the tertiary sector (the share of the secondary sector was always minor and decreased further after the logging ban). Tourism is now presented as *the* key economic driver and catalyst for further development (Das, 2011; NITI Aayog, 2018), and the administration has developed it accordingly. With significant financial outlays from the 1990s, plans for sustainable tourism development have been put forward by the Ministry of Tourism, the United Nations World Tourism Organisation (UNWTO), the United Nations Development Programme (UNDP), and even the military. This last might be the result of geopolitical analysts, who cite urgent security needs, note India's horrible neglect of these islands, and lament the paucity of non-protected land available for future development because the administration kowtowed to conservationists in the past (Basu et al., 2019; Das, 2011; Kaul, 2015). The underutilised tourism potential in the ANI and its unsatisfactory contribution to the ANI's Gross Domestic Product has oft been cited, in some cases

through comparison with mainland states and even some Small Island Developing States². Reviews of these plans and of tourism development in the region have followed, characterising the industry as boon or bane, or somewhere in the middle (Bijoor et al., 2018; Rajavel, 1998; S. Reddy, 2018). On the one hand, tourism has created livelihoods opportunities, increased mobility, facilitated better education and technology, increased standards of living, and even led to some conservation (D. Sharma et al., 2019). On the other, it has increased pressure on limited resources, risen costs, polluted water and air, and created tonnes of waste (and generally annoyed many islanders). In 2015, the ANI administration put forward ecotourism 'guidelines' encouraging high value-low volume tourism and incorporated these into planning documents for ANI's two Marine National Parks (Bijoor et al., 2018).

The rise of political tension in the Indo-Pacific maritime zone and the threat of invasion, especially from China, has now led to a more aggressive 'Act East' economic policy, initiated in 2014 by Prime Minister Narendra Modi. Increasing militarisation of the ANI (Pattanaik, 2018) is evident in rising defence personnel, technocratic and military alliances with other countries ('friendships across seas'), and the emergence of the military as both landowner and development agent. Efforts to attract foreign investment and international trade with neighbouring Southeast Asian countries include waiving of customs duties on materials such as timber, cement, steel and sand, and food items of fruits, vegetable, and frozen meat (Giles, 2018, December 7). Some characterise this as a 'return of the geopolitical gaze' (Abraham, 2018), but the ANI has long been a significant geopolitical asset for India. Even the aggressive post-Independence settlement of mainland citizens may be viewed as intensifying India's claims on the Islands (U. Sen, 2010; Zehmisch, 2014). In 2013, the Nicobar Islands were declared a biosphere reserve and learning area for sustainable development under the 'Man and the Biosphere Programme' (UNESCO, n.d.), with the government following with the view that holistic development in the region must 'rationalise economic progress and ecological-environmental protection', both of which cannot be pursued in exclusivity (Directorate of Disaster Management, 2016, p. 3).

²As seen in a presentation slide at the 2016 Andaman Science Association conference on climate change and the ANI.

7.2 The Andamans as 'idyll'

"Lapped by incessant white foam crested waves, the Andaman and Nicobar Islands lies in the centre of the Bay of Bengal. These idyllic islands in the sun are fringed with dazzling white beaches of white sand with richly clad forests forming a backdrop, while colourful beds of coral reefs shimmer through the clear blue turquoise sea water."

- Ashok Dilwali and Ranjana Kaul

Andaman and Nicobar Islands: Islands in the Sun (1989)

7.2.1 Tropical paradise

Heavy investment in portraying the Andamans as a year-round tropical paradise started in the 1980s and doubled down in the aftermath of the tsunami. The ANI administration sponsored a range of glossy coffee-table books with quotes such as the one above. In the foreword of *Islands in the Sun*, then Lieutenant Governor of the ANI, TS Oberoi, praised the book as an 'an enchanted voyage through the kaleidoscopic reality of the Islands, among its primeval tribes, and its composite society, its pristine forests and marigold beaches, its emeralds set in the deep blue'. Similar books after the tsunami acknowledged the destruction but stressed its relatively unspoilt nature, claiming that 'a single disaster was not enough to rob the Islands of their tropical riches'³. The 'tropicalisation' of the Andamans also looked to replace remnants of the colonial tropicality discourse; in his foreword, Kaul pushed for the replacement of *kalapani* (dark waters) with *neelapani* (blue waters). This signalled a shift in focus, from the historical metanarratives of the Revolt and Jail, and the Andamans as site of pilgrimage (or *muktitirth*), to a celebration of its tropical aesthetics and its potential for rest, relaxation, and recreation.

These books re-imagined the 'endangered isles' as 'dream destination', drawing upon tropical aesthetics reproduced by the conservationist agenda to effectively neutralise ecological concerns and explain away the cruelty of a human disaster as a work of nature (Anderson et al., 2016; Shanmugaratnam, 2005, p. 261). The 'generic tropical island' today encapsulates islands as vastly different as the Maldives and Tahiti, homogenising them into 'icons of paradise' (Kra- vanja, 2012). This narrative wipes out colonial and postcolonial histories of marginalisation, and the culture, daily lives, and struggles of islanders. Even global change can be advantageous

³A similar process played out in Sri Lanka, where the tourism board claimed that a world class destination would emerge out of this disaster (Anderson et al., 2016; Shanmugaratnam, 2005).

to tourism marketing: the ‘dying island’ discourse plays on desires to visit these last untouched places before they too disappear.

This ‘tropicalisation’ has proved highly successful. In November 2004, a month before the tsunami struck, Time magazine included two Andaman beaches in its ‘Best of Asia’ edition. None of these beaches were significantly affected and this award helped tourism come back stronger. Both are in Havelock Island and are today certified Blue Flag beaches. Images for savvy tourism campaigns over the years have been ‘produced back’ through tourists’ holiday images, GoPro videos, and Twitter hashtags (Urry, 2002). YouTube videos feature aerial shots from helicopters, seaplanes, or drones⁴ and encapsulate both the tropical and *island* aesthetic. Except for the year after the tsunami, the numbers of domestic and foreign tourists visiting the Andamans has increased each year. In 2019, over 500,000 people visited the islands, which is more than the estimated population of Indian Union Territory today.

7.2.2 Cosmopolitan society

The National Geographic, in its 2015 Traveller edition on the Andamans, featured a kayaker and mangroves on its cover, a far cry from the magazine’s photo coverage of the ‘stone-age’ Sentinelese tribe in 1978⁵. Still, the obsession with primitivism is far from dead, and now finds expression in terms of admiration, romanticism, and mystery. Media reports, euphoric write-ups, coffee-table books (2006), tourist souvenirs, and even children’s books (e.g., Deepak Dalal’s *Andaman adventures* (2014) and Zai Whitaker’s *Andamans boy* (1998)) portray the islands as an alluring ‘tribal haven’. In the tsunami’s aftermath, media reports praised the survival of the indigenous tribes, ascribing it to their ‘proximity to nature’, or the ability to read animal warning behaviour⁶.

In contrast to this fascination with the primitive, Andaman settled society is lauded for its futuristic, cosmopolitan nature. Compared to a mainland plagued by caste and religious divides, the ANI are a ‘picture perfect mini-India albeit without associated disharmony’ (U. Sen, 2017, p. 53; Sing, 2017). They represent a hopeful future, a melting pot where people from all over South Asia seemingly live together in peaceful coexistence, even intermarrying (Anderson et al., 2016). The low crime rate is often cited as evidence of this fact, and the ANI are amongst the top five safest places in India (National Crime Records Bureau, 2019).

⁴For security concerns, the use of drones in the ANI was prohibited till 2020.

⁵National Geographic, 1975

⁶The possibility that inherited oral traditions or a collective disaster memory has conversely received little attention (Venkateswar, 2004).



Figure 7.1: A souvenir stand on a beach in Neil island, selling replicas of Native American Indian carvings. On the far left, are statues depicting the Jarawa tribe. Image by author, 2017.

7.2.3 Clean, green, sustainable

This hopeful future is echoed in the rhetoric of conservation, sustainability, ecotourism, and eco-friendly development. Both ANI and Lakshadweep have been christened 'hope spots' by the International Union for Conservation of Nature (IUCN) (Shrivastava, 2013, October 28). Port Blair, already a 'green city', is on the fast track to become a 'smart city' (Chakraborty, 2019, December 11). The UT capital is also a poster child for the government's Clean India Mission (*Swachh Bharat Abhiyan*). Declared an 'Open Defecation Free' zone after the construction of multiple community and household toilets, it also boasts of waste segregation and a ban on single-use plastics. Renewable energy development and organic farming are on the rise, and a new bilateral cooperation between India and Japan is projected to develop the ANI as 'smart islands' (Baruah, 2017, October 18).

Tourists demand islands in a pristine, pre-colonial state with purity and traditionalism in both nature and culture (Keegan & Diamond, 1987). While conservation reports and books juxtapose images of pristine environments with those of environmental destruction, state and corporate tourism interests push a one-sided image, eliding despoliation. The ecotourism paradigm

gives further validation to these images of an untouched natural and social paradise, which are so pervasive that even academics and development organisations cannot escape them. Academics and activists seek to preserve both paradise and indigene (Connell, 2003), by either describing islands or ecosystems in paradisiacal ways (Dhingra, 2005) or in their desire to see a healthy indigene living in a bubble, untouched by modern ways (noted by Sen, 2010). The M.S. Swaminathan Research Foundation's 2005 Action Plan for a 'New Andamans Movement', declared that the Islands were 'still free from severe anthropogenic pressures, and over exploitation of the forest and marine resources' (2005, p. 9-10). The last of its five recommendations noted that successful sustainable development should align with the 'traditional wisdom and conservation ethos' of the ANI's indigenous peoples. A laudable aspiration, but the idea of an unspoilt paradise or an empowered indigene borders on historically tone-deaf optimism and reveals either ignorance or statist affiliations.

7.3 A consumed landscape

7.3.1 Commodifying land and sea

The extravagant celebration of the Andamans' paradisiacal image hides the ecological damage it has endured over the last few centuries. Population pressure, natural resource-dependent livelihoods, development, and globalisation have had cumulative effects across time and space. Despite a protectionist regime, the increasing commodification of nature is evident in the translation of biodiversity and ecosystems in economic terms. Any plans for further development are accompanied by estimates of potential yield, catch, growth, extraction, aesthetic and recreational value, and carrying capacities. This compartmentalises ecosystems and obscures their close inter-linkages whereby the 'resource productivity' or 'environmental services' of one ecosystem affects others. On islands, a high endemism and limited species ranges have contributed to more visible impacts and quicker 'feedback loops' than on continents, and stressors on one ecosystem resonate in others (Grove, 1995). The prior focus on forestry and agriculture has visibly impacted terrestrial ecosystems, but the newer development of fisheries and tourism has turned attention to littoral and marine systems, where the downstream effects of terrestrial activity are obvious. The agency and power of nature must be kept in mind while identifying multiple stressors which have cumulative effects on island ecosystems. Rainfall is a powerful agent here, connecting island ecosystems that humans strive to separate, while other agents include topography, soil structure, and island geology. Heavy rain carries construction detri-

tus and topsoil (and fertilisers or pesticides) to the sea, choking mangrove roots and burying reefs. The rain fills vital underground aquifers and stops the sea from intruding and salinising land. The sea's wave and tidal actions erode and flood land, forming the much-beloved beautiful white-sand beaches through deposition of dead reef fragments. A sense of mutuality exists, overturning the idea that islands are simply an 'ecological theatre' for human activity where nature remains passive (Nunn, 2003b).

The ANI have witnessed more than a century of large-scale deforestation for the needs of profit, settlement, agriculture, and development. Deforestation is widely regarded as the catalyst for all ecological change in the islands (Krishnakumar, 2010). With protectionism and the logging ban, ANI resource areas appear to remain roughly unchanged since the 2000s. Sifting carefully through scientific and government reports, however, reveals a decisive downward trend in the area covered by forest, mangroves, and corals in the past few decades. This downward trend in natural resource cover is far from public knowledge. Official reports are conflicting and confusing, with careless language, zigzagging between units of measurement, and vague definitions of technical terms or differences between reported and satellite data. A case in point is the Indian Forest Survey Report of 2019, which includes forest cover in km² and mangrove cover in hectares. A UNDP report notes that forests are 'down to 83% of what they used to be and probably another 10-20% has been degraded by human activity' but does not give figures on what they used to be (ANET, 2003). Findings are often filtered through media outlets which may under-report or toe the state line, as when news articles in 2019 hailed the increase of 5188 km² of 'total forest and tree cover' across India as compared to the 2017 assessment. They failed to mention that this is different from 'total forest cover', and the addition of tree cover includes plantation and horticultural trees, as well as those in urban areas. The image it seeks to portray, of India's regenerating wild forests, is categorically false under a regime which has caused much environmental damage (see Introduction).

The amount of forest cover left in the ANI is perhaps the biggest bone of contention. Surveys from the 1850s estimated that 92% of the ANI's total area was forested (Department of Environment and Forests, 2021), though the period between 1869 and 1984 saw almost 232,000 hectares cleared to meet local, national, and even international needs (Krishnakumar, 2010). In 2001, the Forest Survey of India estimated that 92% of the islands was still under forest cover, of which 86% was notified forest area. Its calculation methods were heavily criticised, for little ground verification, employing too large a scale of imagery which obscured creeks or sandy stretches, reporting mono-culture plantations as natural forests, and excluding encroachments (ANET, 2003). In 2003, it revised notified forest area to 84.4%. After the tsunami, which de-

stroyed almost 178 km² of forest, the M.S. Swaminathan Research Foundation still reported 85% under forest cover (Krishnakumar, 2010). Scholars and activists at the time estimated a figure closer to 70% (Krishnakumar, 2010; Venkateswar, 2004). Population pressures are now fragmenting agricultural holdings, their productivity depleted through the cultivation of unsuitable crops, and the intensive use of chemicals or fertilisers (ANET, 2003). Finding new land for agriculture increases illegal encroachment on forested land, which is cleared for this cycle to start again. In 1987, pressure from mainland states on behalf of their communities settled in the islands led to the one-time regularisation of all pre-1978 encroachments, where families were given a bit more than a hectare of land. Political parties have been pushing the agenda since, and the Supreme Court's 2002 directive to remove all post-1978 encroachment has been sporadically implemented. In 2003, an estimated 7000 acres were under illegal encroachment, and much of this populace remains uncounted in census surveys as well ((UNDP-GEF, 2003). Long-term encroachers await another round of regularisation, while the administration has offered resettlement schemes for encroachers in the past, leading to further encroachment.

Area estimates for mangrove forests are similarly problematic, though there is general agreement that India's mangrove cover has declined by more than 50% since the 1950s (Jagtap & Nagle, 2007). In the ANI, 1957 estimates of 1200 km² were followed by a survey using LANSAT imagery in 1986/7, which reported a decline to 777 km². A 1998 study reported a resurgence to 1012 km², a 2007 study again 770 km² (Balakrishnan, 1989; Jagtap & Nagle, 2007). In 2018, a study in Great Nicobar revised estimates of tsunami damage, citing 97% of its mangroves as affected, against the previously estimated 70%⁷ (P. Nehru & Balasubramanian, 2018). The latest ISFR report indicates 619 km² (Forest Survey of India, 2019). Interestingly, the ANI Forest Department's website puts mangrove cover at 96,600 hectares (or 966 km²), using figures from the 2003 ISFR document, and notes that this is one of the largest surviving mangrove covers in the world (Department of Environment and Forests, 2021). Coral cover has never been measured in the entire region and so few studies portray a clear or overall picture. In 1987, the Society for Andaman and Nicobar Ecology (SANE) reported the destruction of thousands of cubic metres of coral due to development programmes (Pande & Singh, 1991). The tsunami and Mass Coral Bleaching events have caused further losses. . It is claimed the tsunami has also denuded more than 1600 hectares of seagrasses, putting to the total closer to 3000 hectares (or 300 km²), at last count (Paulose, 2013).

With a loss of habitat, biodiversity changes have followed. The composition of Andaman

⁷This study also found eight new mangrove species, which may be the result of prior misidentification, or species migration due to the tsunami or cyclonic activity (P. Nehru & Balasubramanian, 2018).

forests has changed from primary to secondary growth, and from evergreen to semievergreen and deciduous, the results of deforestation, invasive species, and the use of the Andaman Canopy Lifting Shelterwood System for timber regeneration. Very little lowland forest, and freshwater riverine wetland remain, as most swampy areas have been dredged and converted to agriculture (Andrews & Sankaran, 2002). The loss of habitats bears greater consequences in the Andamans, as the long and narrow topography of the islands means most areas have a ridge to reef distance of barely 40 km, resulting in highly restricted species ranges (UNDP-GEF, 2003). Settlement across the years has also contributed to the proliferation of invasive species, which have crowded out endemic species through predatory instinct or increased competition for resources. Introduced herbivores, predators, and weeds have restricted natural regeneration and affected endemic strains and species, such as the Andaman wild pig. Over 600 species have been introduced to these islands during the British, Japanese, and now Indian regimes. Floral species include the globally dreaded water hyacinth, the *Lantana Camara* weed, and the bitter vine plant. This last was considered the most damaging, smothering saplings, and hampering regeneration of commercial timber trees (Dhingra, 2005). Devoid of large ungulates or carnivores, the Asiatic Elephant was introduced for forest work, deer (Spotted and Barking) for hunting, and livestock for meat, along with peafowl, dogs, cats, and even birds such sparrows and mynahs, all of which have flourished. Giant African Snails introduced as alternate protein source during the Japanese occupation are today agricultural pests (Ali, 2004). Perhaps the most intriguing is the latest Indian Bullfrog, an aggressive animal that can grow to almost 6 inches in length. It is conjectured that its tadpoles travelled with fish stocks imported by the Fisheries Department from Kolkata, in a mainland-hatched plan to promote integrated fish farming under the tsunami recovery package and FAT model (N. Mohanty & Measey, 2019). Even its tadpoles feed on other tadpoles, and an adult frog can kill poultry chicks and even young snakes⁸. The introduction of new invasive species remains a danger with an absence of airport or port checks and regulations for tourists, ship crews, and import shipments from Southeast Asia (Ali, 2004).

Cyclone damage, Sea Level Rise, and warming seas are also predicted to decrease the species diversity of both coral and mangrove trees (Bahuguna, Nayak, & Dam Roy, 2008). Marine biodiversity is threatened as fish are deprived of the protective nurseries that are reefs and mangroves, sea turtles of nesting beaches, and dugongs of seagrass beds (Advani et al., 2013). ANI fish stocks have perceptibly declined in number and size, and fewer mass-nesting events are being reported for the Olive Ridley, Green, and Leatherback sea turtles. Even the numbers of the

⁸The author has personally witnessed a bullfrog kill a juvenile Andaman Bronzeback snake in Neil island.

dugong, ANI's official 'state animal', have decreased by 60% in the past two decades⁹. In 2003, a 5% loss of species was estimated across the board (ANET, 2003). Mangrove ecosystems are resistant to pests and insects, and even coral reefs are considered resilient if allowed to recover after bleaching events or storms. This resilience is threatened in the face of constant human activity and climate change impacts. The stressors of logging, agricultural practices, increased shipping, sand-mining, and coastal development mix with those of ocean acidification, rising sea levels and temperatures, and frequent, more intense storms. Sediment, oil, metals, sewage, and chemicals deposit and mingle, sometimes changing water biochemistry and causing algal blooms, other times simply suffocating mangrove roots or coral. Earthquakes and tsunamis drown mangrove forests through subsidence, and damage corals through uplift, breakage, and siltation. Mass Coral Bleaching (MCB) events due to rising Sea Surface Temperatures, especially in El Niño years, have stressed corals further. The Andamans have experienced at least five MCB events in the last twenty years (1998, 2002, 2005, 2010, and 2016). Of these, the 1998 and 2010 ones were the most extreme, bleaching and killing almost 80% of ANI's corals (Arora, Chaudhury, Gujrati, & Patel, 2019). Ocean acidification, invasive colonisation, overfishing, and tourist damage has further affected coral reefs in the region (UNDP, 2002). The impacts of all these stressors are discernible in two major ways; decreasing cover and vanishing or changing biodiversity. Marine ecosystems are then at the bottom of the pyramid, and indiscriminate livelihoods practices exacerbate these effects; farmers may be engaged in clear felling or the overuse of agricultural chemicals, fishers in trawling or overfishing of sharks (the latest species of concern for marine trophic cascades), and tourism operators implicit in overcrowding dive sites, anchor damage, or illegal resort development.

Livelihoods communities which rely on natural resources and weather, or climate patterns fall at the bottom of another pyramid: that of blame. Declining yield or catch is often squarely blamed on their practices, and an ambivalent state embroiled in mega tourism projects exhorts them to change. Most communities are now turning to ecotourism, portrayed as a non-extractive industry which requires little investment. Reliant on the tropical resource of 'sun-sea-sand' which is assumed to be renewable and abundant, proponents hail the job creation, revenue generation, and the chance to conserve resources or halt ecological degradation tied into the ecotourism paradigm (Milne, 1990). Many argue that it is a form of 'consumption' with its own pitfalls, and tourism in the region comes with warnings of dire ecological im-

⁹In a glimmer of hope, scientists in 2013 claimed that seagrass cover in Ritchie's Archipelago, the main feeding grounds of the dugong, seemed to be on the increase (D'Souza, Patankar, Arthur, Alcoverro, & Kelkar, 2013; Paulose, 2013), though a study off Havelock's east coast in 2019 found further denudation through the mooring of dive boats and anchor damage (Mishra, Sumantha, & Deepak, 2019).

pact (Rajavel, 1998; S. Reddy, 2018). Regardless, little systematic research exists on the impact of tourism or tourism policy in the ANI. The post-tsunami recovery package contained ambitious plans for tourism revival, all of which ignored environmental impact assessments or capacity-building for islanders (EQUATIONS, 2008). Studies using a ‘tourism carrying capacity’ assessment noted that tourist spots in the ANI could accommodate a much larger volume of tourists than at present, leading to an uptick in package tourism. Mainland travel companies, such as ‘MakeMyTrip’, today offer economy and experience through integrated tickets, cheap accommodation and food, and packed itineraries. This has increased domestic tourism exponentially within a short timeframe, leading to a construction boom for resorts and guest-houses. The development of tourist infrastructure brings in migrants looking for daily wages, and often impacts areas beyond its spatial ambit, such as off-site beaches which are mined for sand (Fonseca et al., 2015). Package tourism puts further pressure on a weak infrastructure and dwindling resources while contributing little to the local economy and adversely affecting island ecology (Chandi et al., 2012). Most carrying capacity assessments are severely restricted in their study areas, looking at only the beaches of Neil Island or those of Port Blair (Bera, Das Majumdar, & Paul, 2015; Rengarajan et al., 2016). This ignores areas where tourists actually stay, and increasing pressure on water resources, sewage capacity, and other supporting infrastructure. To counter this, assessments end with an emphasis on ecotourism, which itself is far from a panacea. Ecotourism hides other environmental costs, such as carbon emissions, pollution, and waste, or increasing pressures on ecosystems and biological resources (Fonseca et al., 2015). The impacts of tourism on the Andaman islandscape require further critical investigation, but it is clear they are far from negligible.

Responding to this burgeoning pressure, the administration plans to convert the already touristic islands of Havelock and Neil into ‘high-end’ tourist destinations, and to open 29 ‘new’ islands to cater for what is assumed to be ‘low-end’ tourism. Issues of exclusion and social justice notwithstanding, these projects urgently require private players and the leveraging of a Public Private Partnership model. In a bid to generate interest, the BJP-led government has relaxed rules on environmental impact assessments, modified Coastal Zone Regulations, and promised to fast-track licenses for food and liquor (D. Sharma et al., 2019). In a pre-emptive strike, Havelock’s Radhanagar beach has received Blue Flag certification, which includes it into a *globalised* vision of ecotourism. Judged on parameters of environmental education, water quality, conservation, and services and safety, Denmark’s Foundation for Environment Education awards this certificate globally, and to India’s first eight beaches in 2020 (Gokhale, 2020, October 12). Yet no clarity exists on what ‘ecotourism’, or ‘sustainable development’ means or

entails. Reports seldom define the terms or even the parameters of what constitutes ‘unsustainable’ development (D. Sharma et al., 2019). The quantification and commodification of ANI’s land and sea has led to few actionable plans, which makes one wonder who they are for. The verbose use of jargon and buzzwords keeps the message unclear to deliberately confuse and deflect their audience, as is exemplified in NITI Aayog’s (2018, p. 2) latest vision statement:

“... To develop Andaman and Nicobar Islands as an up-market island destination for eco-tourists through environmentally sustainable development of infrastructure without disturbing the natural ecosystem with the objective of generating revenue creating more employment opportunities and synergise socio-economic development of the islands.”

7.3.2 Insiders vs. Outsiders

Both indigenous and settler societies have suffered under the post-tsunami rhetoric of ‘holistic/sustainable development’, albeit differently.

Indigenous groups

Journalist Naomi Klein’s (2005) analysis of the post-tsunami displacement of Sri Lanka’s fishermen by the tourism industry finds resonance in the ANI. The ‘temporary’ resettlement of Nicobar’s coastal communities to inland shelters, and subsequent military interest in the Nicobars, coupled with aggressive tourism development in the Andamans augurs a similar outcome (S. Reddy, 2018). Facets of disaster capitalism are discernible as a host of autonomous, and often temporary, private organisations threatens the sustainability of local institutions, eroding accountability and furthering business interests. Scholars working on the Nicobars postulate that the tsunami: created a ‘complex disaster’ (P. Singh & Bedi, 2006); was followed by a ‘second tsunami’ of aid, reconstruction, relief, and rehabilitation (Ramani, 2010; Wickramasinghe, 2005); and represented an opportunity for military expansion (Sekhsaria, 2017). Across the board, an understanding that the Nicobari tribes have suffered more than just the disaster persists, through increased land appropriation, cultural disturbance, and outsider settlement (Saini, 2016; P. Singh & Bedi, 2006; Tripathi, 2018). par An increase in tourism has culturally commodified other indigenous groups with dark consequences. In 2012, British newspapers *The Observer* and *The Guardian* released a video of naked Jarawa women on the Andaman Trunk Road being sexually harassed by a policeman and forced to dance for tourists in exchange

for food (Chamberlain, 2012, January 7). The Supreme Court quickly banned all tourist traffic and activity in and within the five-kilometre buffer zone of the Jarawa reserve (Shrivastava, 2012, July 4). Two years later, an audio clip by the Andaman Chronicle featured a Jarawa man speaking in broken Hindi of sustained sexual exploitation of the tribe's women and girls by outsiders, and the peddling of alcohol and drugs to the tribe (Giles, 2014, February 1). In 2015, Survival International called for a boycott to 'human safaris' and Jarawa tourism, partnering with tourist companies and operators who strove to be 'ethical and sustainable'. In 2016 however, a *New York Times* article picked up the controversy of the alleged 'ritual killing' of a 'mixed-race' baby by a Jarawa tribesman, sparking debates on the imposition of Indian legal and criminal systems on the tribe (Barry & Kumar, 2016, March 13). These debates surfaced again in 2018, following the killing of an American national by the Sentinelese tribe. John Allen Chau, a 26-year-old missionary, attempted to land on North Sentinel to proselytise. After ignoring their repeated warnings over multiple days to stay clear, he was sadly killed by the Sentinelese, who live in isolation and for whom contact may spell disease and possible extinction. The retained memory of epidemic loss and violence might have led to self-chosen isolation in the first place. This international incident led to calls for the Sentinelese to be booked for murder under the Indian Penal Code, while attempts to retrieve the body were under discussion.

Chau's repeated attempts may be viewed through the persisting image of a 'stone-age', war-like Sentinelese which adds to the mysterious allure of the islands and is kept alive by a subtle state-media-settler nexus (Pandya, 2009, p.4). Others blame mainland-led tourism development, lack of communication between agencies, and hasty or ad hoc rules imposed without regard for island complexities. A few months prior to the incident, the Government of India removed the requirement for foreign nationals to obtain a Restricted Area Permit (RAP) for 29 islands in a bid to open them to tourism. This included twenty islands in the Andaman group, and nine in the Nicobar group. Of the 29, seventeen are inhabited by indigenous populations: nine by PVTGs, and eight others by the Nicobarese tribe¹⁰. North Sentinel was included in this list, despite an administrative 'eyes on, hands off' no-contact policy regarding the Sentinelese tribe. Crucially, the removal of the RAP contained a caveat that visiting tribal reserves or wildlife sanctuaries (which most of these islands are) still required separate approval from the concerned departments, but headline-driven media coverage was shallow. This transferred the

¹⁰These 29 islands (with indigenous groups) are as follow. In the Andaman Islands: Middle Andaman (Jarawa), Baratang (Jarawa), South Andaman (Jarawa), North Andaman (Great Andamanese), Strait (Great Andamanese), Landfall (Great Andamanese), North Passage, North Sentinel (Sentinelese), Little Andaman (Onge), Havelock, Neil, Long, Smith, Stewart, Aves, Flat, East, Curlew, Narcondam, Interview. In the Nicobar Islands: Great Nicobar (Shompen), Little Nicobar, Nancowry, Chowra, Katchal, Tillangchong, Teressa, Kamorta, Pulomilo (B. Jain, 2018, December 30).

onus of deciphering complex legal restrictions in these sensitive islands onto foreign nationals. The timing of Chau's attempt, barely three months after the RAP was lifted, was uncanny. Though he wrote in his diary - 'I do not blame the people who helped me or the Sentinelese for what happens to me', most of the blame was pinned on the poverty-stricken fishermen whom Chau paid handsomely to transport him to the island. Plans to retrieve the body from the island were shelved after Chau's parents forbade it and in a reactionary move, the administration considered reimposing the RAP for six islands¹¹ inhabited by PVTGs. This has gained little traction (B. Jain, 2018, December 30), with Little Andaman and Great Nicobar conversely being primed as potential ecotourism and maritime hubs. Calls for the de-notification of the Onge tribal reserve to convert Little Andamans into 'India's Singapore' are being fought by activists (Sekhsaria, 2021, February 1), while in a sad and ironic move, India's stripped-down National Board for Wildlife has recommended the de-notification of Great Nicobar's 12-kilometre Galathea Bay Sanctuary to make way for an international shipment project (Nandi, 2021, January 28).

Tourism activities in indigenous spaces will spell further problems for these tribes. Mainstreaming and contact with outsiders has already resulted in loss of tribal culture, change in diet, introduction of vice and addiction, and the spread of disease. After the Jarawa tribe 'made contact' in the 1980s, changes in dress and diet followed, with a preference for new technologies over traditional ones. The dole meted out to the Onge and their displacement has halted traditional hunting and fishing practices, and vice has proliferated. Journalist Denis Giles (2018, October 3) recalls an incident where the tribe lost ten young men who consumed a mysterious liquid washed up on shore. The contraction of COVID-19 is the latest danger and could prove a death knell for whole tribes. While contact with settlers is a danger, a bigger concern is contact with government personnel and doctors. AAJVS staffers in close contact with the Jarawa tribe tested positive, and the first few cases amongst Little Andaman settlers brought concern for the vulnerable Onge tribe. As of September 2020, a few of the 40 remaining Great Andamanese had already contracted and recovered from the disease, as had a small percentage of the Nicobarese tribe (J. Sharma & Kar, 2013). In February 2021, the first ever malaria case was reported amongst the Onge. Administering medicine and vaccines to the PVTGs remains an issue, as genetic profiles are far from complete, and experts are unsure of how their bodies would react (Giles, 2021, February 2).

¹¹The islands under consideration were: Strait (Great Andamanese), Middle and South Andaman (Jarawa), North Sentinel (Sentinelese), Little Andaman (Onge) and Great Nicobar (Shompen).

Settler groups

Sustainable development is supposedly geared towards settler society, which was in a state of panic post-tsunami. Beach properties and other land holdings devalued and became lucrative for mainland buyers as settlers opted to sell property and emigrate to the mainland or lease their beach properties and move further inland. This has led to the over-development of coastal property by mainland or Port Blair developers who sometimes defy Coastal Zone Regulations (S. Reddy, 2018). The tsunami-prone nature of both Havelock and Neil, noted in the state's Disaster Management (2016) and Climate Change Plans (2013) for the region, have received little consideration as development in Havelock's low-lying eastern coastal 'tourist strip' and Neil's northern areas is intensifying. The degradation of traditional livelihoods, a function of state motives, climate change, and tourism interests, is leading to land use change, from predominantly agricultural to tourism development, and pushing people out of agricultural and fishing livelihoods, which are riddled with challenges to begin with.

Agriculture is a singularly difficult venture for the 20,000+ farmers in the ANI. Soils here contain medium levels of Nitrogen but are low in both Phosphorus and Potassium. Fertiliser use is a tricky business, creating imbalances which then need to be corrected. Soil imbalance and climatic variability contributes to pests, insects, and weeds, and the use of a range of biocides (insecticides, pesticides, fungicides) is necessary. A reliance on rain-fed irrigation means the southwest monsoons are eagerly awaited. Though the ANI receive an average of 3,000 mm of rainfall per annum, the evapotranspiration (i.e., evaporation from land and transpiration from plants) rates are high. Groundwater availability is slim, except in parts of South Andamans and in the coralline islands of Ritchie's Archipelago. Population and development pressures lead to acute water shortages at the end of the dry season. This time is crucial, as water stress and excess heat affects vegetable and pulse crops which are cultivated in the *Rabi* season (November-April). While Port Blair is serviced through the Dhanikari dam and Dhilthaman tank, rural households rely on streams, storage tanks, and dug wells.

The onset of the monsoon is also a mixed blessing, as heavy rainfall can be damaging. During settlement, flat paddy land was extensively farmed but deforested hilly land was left fallow or sparsely cultivated. Heavier bouts of rain may carry torrential rivulets of loose onto flatter land and into the sea, necessitating the placement of ditches and holes to hold water and prevent leaching of the soil. This has contributed to aluminium and iron toxicity in low-lying areas, and phosphorus deficiency in the virgin hill slopes. Conversely, water logging is another danger caused by flash floods due to excess rain. Vegetables and flowers cannot be cultivated if

conditions are too rainy or too dry, which gives them a short growing season between November and March. Unpredictability of rainfall has increased; where five-year cycles were generally assured, today annual cycles are hard to rely on. Stray cattle, wild pigs and deer, rodents, Giant African snails, other insects and pests, and myriad viral and fungal disease can also wipe out full paddy, vegetable, and fruit crops, causing farmers to give up on their cultivation or abandon land altogether. (ANET, 2003).

Even when crops succeed, poor post-harvest facilities and weather changes result in a loss of more than 25% (UNDP, 2013). Efforts to mechanise farming are paltry, and community threshers, tractors, and tillers are regularly afflicted by the salty air and lack of repair shops. In addition, farmers report a paucity of extension services and the provision of mostly low-quality inputs. Attempts to boost soil fertility, such as soil testing or multi-cropping are complex, confusing, and in some cases futile. Declining yield has led many farmers to shift to the production of cash/plantation crops. Coconut and areca nut, for instance, are high-demand-low-investment crops, need little area, and can be intercropped with spices on previously inviable hilly land. Table 7.1 reveals the decline of area and production of paddy, pulses, and root crops, with increases in coconut, areca nut, spices, vegetables, and fruits. Claims that weather and climate have changed after the tsunami centre on changes in temperature, wind patterns, humidity and rainfall, and an increase in the uncertainty or failure of planning mechanisms. Of the 50,000 hectares under agriculture in 2016, more than 4000 were declared permanently submerged (by the tsunami), while another 500 were left fallow or vacant. With land fragmentation, the average number, size, and area of marginal and small holdings have increased significantly with a corresponding decrease in semi-medium, medium, and large holdings. Table 7.2 reveals the effects of global change, an increasing population and land fragmentation on agricultural productivity. Rising sea levels, flooding, groundwater salinisation, waterlogging, and coastal erosion are all predicted to affect the future viability of regional agriculture (Srivastava, 2012).

Crop	2006-07		2017-18	
	Area	Production	Area	Production
Paddy	7776	21535	5341	16845
Coconut (m nuts)	21416	89	16268	125
Areca nut	4056	5839	3498	15283
Pulses	726	400	550	117
Vegetables	3805	30000	5085	34700
Fruits	2950	22511	3427	28214
Spices	1611	3250	552	4136
Rootcrops	890	7638	458	5602

Table 7.1: A ten-year comparison of the area and production of major crops in the ANI, between 2006-07 and 2017-18. Compiled from ANI Department of Agriculture (2019).

Holdings:	2000-01			2015-16		
	Number	Total Area (ha)	Avg. Size (ha)	Number	Total Area (ha)	Avg. Size (ha)
Marginal (<1 ha)	3656	1431	0.4	5154	2373	0.5
Small (1-2 ha)	2686	3694	1.4	2533	37378	1.5
Semi medium (2-4 ha)	3254	8244	2.5	2875	7874	2.7
Medium (4-10 ha)	1711	7374	4.3	1364	6129	4.5
Large (>10 ha)	42	1965	46.8	28	1107	39.5
Totals	11349	22708		11954	21220	

Table 7.2: A comparison of the number, area, type, and average size of landholdings in the ANI between 2000 and 2016. Compiled from ANI Directorate of Economics and Statistics (2021).

Fishing in the Andamans is an equally challenging livelihood, and one that does not bring the security afforded by the ownership of land. More than 130 fishing villages in the ANI support a population of 22,000+ fishers, of which 75% are engaged in fishing full-time, with the highest concentration in the South Andaman district. Some fish for subsistence, but artisanal fishing for local sale and commercial fishing for wider sale of pelagic and demersal fish are the main fishing activities in the region (Advani et al., 2013). Fishing here is divided into two zones; Zone A extends up to six nautical miles from coast where only motorised (≤ 30 horsepower engines) or country craft and gear are permitted, while Zone B extends beyond, where mechanised boats which may use long lines and trawl nets. Between June and October, rough seas and monsoon weather makes distant fishing grounds and offshore areas inaccessible for smaller boats, and fishermen go missing in cyclonic weather almost every year. The tsunami destroyed more than 34,000,000 rupees worth of fishing infrastructure and deepened the fishers' fear of venturing out to sea (Government of India, 2008). In an interesting anecdote, the months after the tsunami saw a sudden and sustained harvest of previously rare Milk Fish in the Nicobars. Scientists attribute this to thermohaline fluctuations, which are changing fish habitat, life cycles, and proliferation, along with coral bleaching events, mangrove siltation and debris, and algal

blooms This fish became so lucrative for a while that it was dubbed the ‘tsunami *macchi*(fish)’ (Sekhsaria, 2009).

The loss of forestry and agricultural livelihoods, and an increase in demand for fish to cater to tourists, has led to the rise of ‘opportunistic’ fishers. This has increased conflict over resources, access, and practices between ethnic communities, regions or territories, and islanders and mainlanders. Both the Ranchis and Bengalis have shifted from taken to fishing, to the consternation of the settled Andhra and Tamil fisher communities (Whittingham et al., 2003). Fishers in Ritchie’s Archipelago competes with fishers from Port Blair, and all islander fishers are in competition with migrant fishers from the mainland. Policymaking around fisheries increasingly favours deep-sea commercial trawling and tuna fisheries at the expense of artisanal fishers, who are accused of causing ecological damage to reefs and coasts. The website of the Department of Fisheries, for instance, claims it is committed to ‘sustainable fisheries’ but has more information fish stock assessments, catch potential, and how underutilised the marine resources of the region currently are, than on sustainable extraction. Transitioning artisanal fishers to deep-sea fishing has yielded little success, as trawlers and tuna boats are populated by migrant fishers, and few islanders are given the opportunity. As noted earlier, traditional fisher communities tend to be low-caste and socioeconomically marginalised. In 2010, more than half of ANI’s fishers lived in mud or thatch housing, and a similar number were literate (Fisheries Survey of India, 2010). Men do the fishing, with women involved in vending, net-making, and fish processing, though this varies by community; amongst the Bengalis, for instance, fishing and its allied activities tends to be an all-male affair (Advani et al., 2013). These divides and tensions within the fisher community have resulted in a lower level of collectivisation. Only about 10% of fishers belonged to fishing collectives in 2010 (Government Directorate of Fisheries, 2019), though this has presumably increased between 2018 and 2020, with a rise in the number of registered fishery cooperatives from 59 to 121 ((Directorate of Fisheries, 2020).

Year	2000	2010	2020
No. of licensed fishers	NA	7204	6253
Marine and inland fish landed	27684	27804	40801
Value in <i>lakh</i> rupees	12386	12472	73615
No. of country craft	1640	1465	1545
No. of mechanised/motorised craft	472	1348	1632

Table 7.3: A comparison of fishery statistics between 2000 and 2020. Source: (Directorate of Economics and Statistics, 2021)

The ANI administration attributes the decline in fish catch and size to the bad fishing practices and over-exploitation of a rising ignorant fisher population, but it is the mismanagement

of fisheries that is most concerning here. Harassment and discrimination by administrative officials, restricted mobility, and arbitrary rules and regulations have forced many fishers out of their livelihoods and into tourism, where they face similar challenges. In 2009-10, a ban on using country craft (or *doongis*) for tourism came shortly after incentives had been given to fishers to motorise their craft for this very purpose (Chandi et al., 2012). The push towards deep-sea tuna fishing has led to a rising number of unchecked motorised and mechanised craft. Table 7.3 provides a picture of increasing catch and value, as well as the move towards mechanisation. The number of licensed fishers shows a downward trend even as Fisheries Census reports indicate an increasing fisherfolk population, from 15,000 to 22,000 between 2005 and 2010 alone. This is clearly much higher in 2020, though a decrease in the number of licensed fishers (those with licensed fishing craft) may further reflect a move towards tourism livelihoods.

Apart from economic and ecological repercussions, tourism has also contributed to the decline of traditional livelihoods. Traditional livelihoods are repositories of culture, knowledge, and placemaking, as well as of household legacies, and people are emotionally reluctant to jettison them. Yet the administrative push towards tourism to the exclusion of other livelihoods development is perhaps the biggest stressor. A focus on tourism has meant less attention towards agricultural policies, extension services, and quality of inputs over the years. Increasing land demand for tourism projects coupled with land fragmentation has caused rifts within households over property. The commercialisation of this land (i.e., the conversion of agricultural land to commercial land) has decreased agricultural productivity. Within tourism, most profits are reaped by outsiders who own resorts with multiple locations or multi-faceted businesses. Islander-owned tourism ventures are few, and tend to consist of small hotels and restaurants, or backpacker 'eco-huts', all of which generate low incomes compared to the number of visitors (UNDP-GEF, 2003). The highly competitive tourism sector offers little job mobility for islanders, who are conscious of their lower educational and skill levels. Savvier, better skilled, or English-speaking mainlanders dominate jobs as resort managers or diving instructors. Meanwhile, islanders in resorts are often employed in housekeeping, kitchens, or gardening, or run small businesses such as taxis and transport rental, tour guide services, or massage parlours. Driving down a road which runs parallel to the coast in Havelock, one could not escape the divide, of resorts on the beaches and tourism services in the interior. Noting the proliferation of laundry services, my auto rickshaw driver sadly stated – "Look at this. We were proud land-owners once, and we gave up our land for what? To wash other people's clothes".

With skewed policies and decreasing yields and catch, both agricultural and fishing communities are turning en masse turning to tourism, which has brought some prosperity but its

own stressors. Like farming and fishing, tourism relies inordinately on natural resources and weather, which are affected by hazards, climate change, and development. Tourism arrivals have seen a steady increase except for a few years (Figure 7.2). The most major dip came the year after the 2004 earthquake and tsunami; the 2014 dip and 2018-19 levelling off are attributed to severe cyclonic disruptions; and the sharp decline in 2020 (and 2021) is due to the current COVID-19 pandemic. This reveals the volatility and unpredictability of the tourism sector, and the economic fragility a heavy reliance on tourism entails. The economics of tourism in ANI is especially problematic. First, tourism is highly subsidised owing to subsidies on transport, travel, and utilities. The subsequent loss to the exchequer is offset by raising the costs of living for islanders (D. Sharma et al., 2019). Second, ownership of tourism businesses is monopolised by local businessmen, intermediaries, and mainland contractors or developers. Islanders are economically excluded, left to compete with an influx of service workers, and seasonal and contractual labour, adding to pressure on limited resources and jobs. Third, unregulated tourism policy makes islanders susceptible to supply chain disturbances, rising prices, scarce resources, water and air pollution, and poor waste management. Finally, though tourism is claimed to be non-extractive, the construction of tourist infrastructure and recreational water-based activities affect the ecology of the Islands (and beyond) in myriad ways.

A revival of nostalgia for the 'way the islands used to be' is discernible, as the chasm between tourist and islander is deepening. The exclusive focus on the tropical richness of the islands and their aesthetic or recreational value obscures the culture and quotidian struggles of their inhabitants (Mazumdar, 2016a). 'Mini-India', which celebrates ANI's societal diversity, now connotes a 'mainland mundane' which domestic tourists endeavour to escape; exotic 'tribal culture' is more appealing (and fits the tropical narrative well). With the advent of tourism in the 1980s and 90s, foreign backpacker tourists were its bread and butter, and are remembered with mixed feelings. While they brought foreign exchange and some tipped generously, many were on low budgets. Prone to offending islander sensibilities, through beachside nudity or alcohol/drug usage, they nevertheless retained a fascination for islander culture. Their numbers are negligible today, deterred by rising restrictions and crowded out by domestic tourists. The resulting bustle and noise has also changed their foreign tourists, and foreign tourists now prefer higher-end or diver accommodation, both of which bring limited islander interaction. Domestic tourists offer high volumes and a range of budgets but demand modern amenities such as television and air conditioning, are uncomfortable within the island environment (of sea swimming, beaches, forested areas, insects, frogs, snakes etc.), and disinterested in islander culture. Some are reported to bring 'mainland attitudes' to bear on an island society which is

considered 'less than' or the 'other'. This includes prejudices against certain ethnic communities or towards rural populations, or caste-based ones, such as maintenance of purity and pollution principles in food preparation or social interaction. Similarly, competing mainland/Port Blair businesses have transposed their constructed economic competition and its politics on small-island cultures, dividing loyalties. The push towards high-end tourism may bury island culture further, and bring other issues of equity, as when the marketing of exclusivity and luxury restricts islander access to certain beaches or spaces.

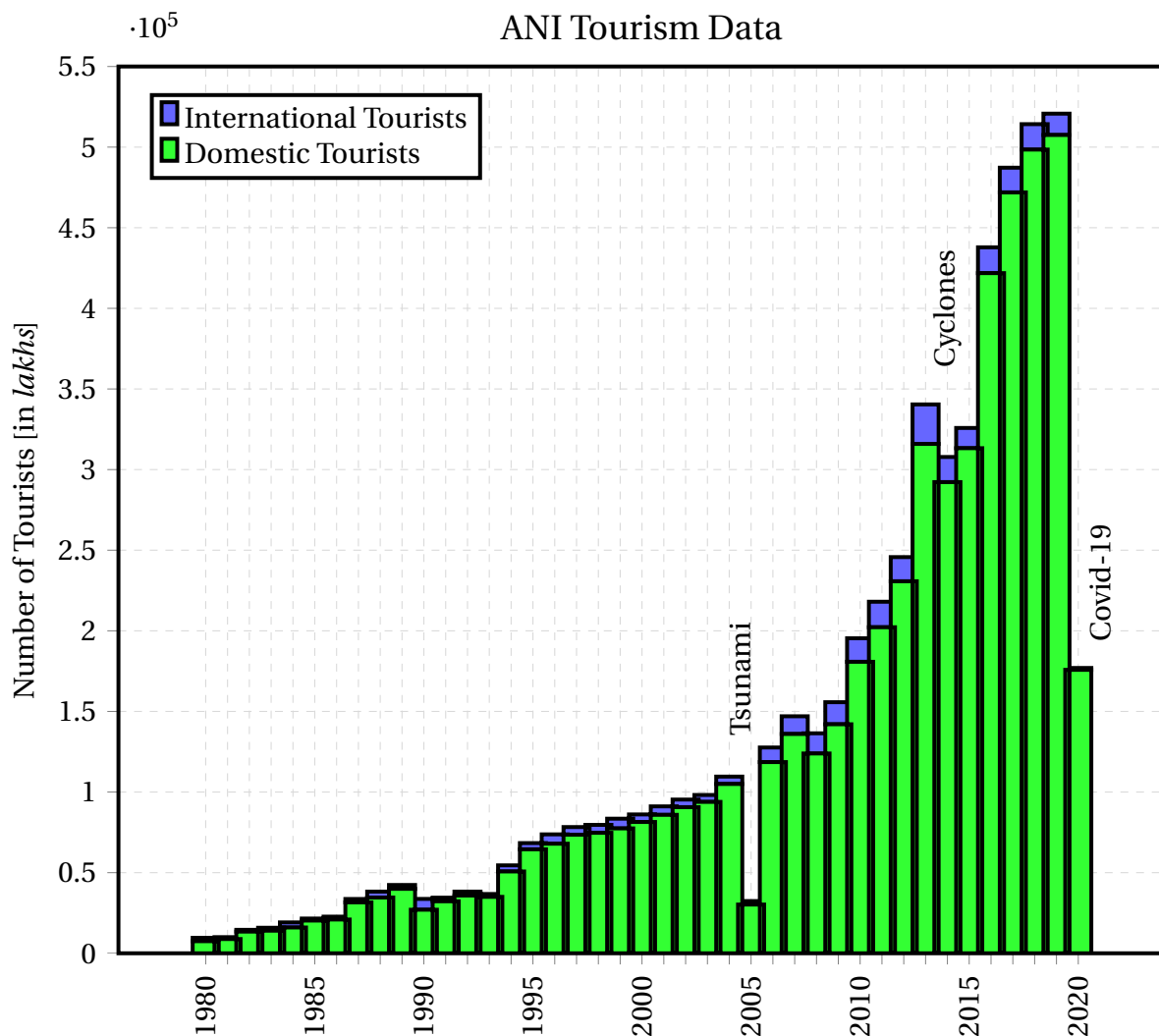


Figure 7.2: The growth of the tourism sector between 1980 and 2020, depicted through number of international and domestic tourist arrivals. Lean years are labelled with probable reasons. Source: APWD (2014), Department of Directorate of Tourism (2020) .

The figure of the poverty-stricken subaltern migrant today bears the ire of both islander and state, positioned as a common enemy, which is a familiar theme in regional settlement. Migration within Indian states is not illegal, but there is growing resentment over the 'veritable flood' of outsiders in the past decades (U. Sen, 2017). Occasional tensions between settled communities have escalated, with the Local Born accusing Bengali refugee-settlers of encouraging migration of agricultural labour from the 24 Paraganas district of West Bengal. For the refugee-settlers, mainlander migrants provide cheap manpower and ways to forge marital alliances with mainlanders, an extra security blanket in case of economic or environmental crisis. Rapidly growing in-migration for tourism jobs has brought these settled communities together, prompting a joint demand that migrants apply for Inner Line Permits to arrive in the Andamans (Z. Ahmed, 2019, February 1). Islander appropriation of the discourses of defence and conservation discourses are both discernible here; the military's framing of migrants in criminal light mingles with unchecked migration as a catalyst for environmental degradation. Portrayed as encroachers, poachers, smugglers, illegals, sand-miners, and even terrorists ((Sing, 2017), they are routinely blamed for over-fishing, bad agricultural practices, sand mining, and high unemployment rates. Though migration was encouraged at one point, the administration now voices similar concerns, and the control of in-migration is paraded as the first solution for every problem (even as increasing tourism is recommended as the next). This obscures administrative complicity in creating the problem, by ignoring encroachments or the illegal settlement, clearance, and conversion of land (S. Reddy, 2018). The socioeconomic mobility that has accrued to (most) settled societies means jobs requiring extensive labour are usually populated by migrants. Settler mobility aside, big tourism and 'sustainable development' projects, products of both private and military interests, also require the external labour market provided by the mainland, and the Inner Line Permit is unlikely to be implemented. The label of 'migrant' also does not extend to everyone: defence personnel are excluded as are tourism workers from urban cities, or those employed in or in search of government jobs (Murthy, 2005). Exploited and villainised, the migrant is positioned as the ultimate outsider.

7.3.3 Privatised and Nationalised Islands

The vast scope for privatisation in the Islands has been a running theme in development 'vision' documents and master plans ((APWD, 2014; D. Mohanty, 2011; NITI Aayog, 2018)). The role of the private sector increased somewhat after the tsunami, but the administration kept it at arm's length, citing the ecological and military importance of these islands. A mega-tourism

proposal, already making the rounds in 2002, gained impetus in the post-tsunami recovery package. Outlays in the range of 50 billion rupees led to grand plans and proposals, which included twinning and connecting Port Blair and Phuket through charter planes, canopy walkways, an international golf course, a 50-yacht marina, opening new islands or sites for tourism, and a yearly Island Tourism Festival to attract private players (S. Reddy, 2018). Of all these plans, only the last two were implemented. This reluctance to yield power meant private players, especially in tourism, were given short shrift. For instance, in 2009, the administration charged a mainland-based Barefoot Resorts with violating a 2007 notification that forbids commercial activity within a 5-kilometre buffer zone around the Jarawa reserve. The company's legal representatives argued that other commercial operations were operating in the area and that to abide by the letter of the notification would necessitate shutting down the Andaman Trunk Road. The 2002 Supreme Court order stipulated closing parts of the ATR that lay in the Jarawa tribal reserve but has not been implemented to date. The owners believe the case was the result of a personal vendetta on behalf of a newly appointed Lieutenant Governor. In another arbitrary regulation, it was decided that, for 'defence reasons', all foreign nationals would need to register upon arrival at the main airport at Port Blair, as well as upon arrival in different islands, such as Havelock or Neil. This relied on airport officials and island police spotting foreign nationals based on their appearance, a practice riddled with bias. The responsibility was then transferred to the resorts and guesthouses, which had to complete the online registration of foreign nationals within 24 hours of their arrival. The lack of a reliable internet connection or no connection in some islands meant registration had to be done personally at the police station, and cases ensued where resort managers were arrested for 'untimely registration of foreign nationals'.

The current scenario is a bit different. The BJP-led government came to power in 2014 on the promise to boost business and industry. Imbricated within the ensuing industrial push, privatisation of natural resources and services, corporatisation of governance, and engagement with new globalised trade networks and policy, is an aggressive form of nationalism and a right-wing desire to make India a predominantly Hindu nation. In the ANI, this means a loosening of restrictions for private players, but a different consolidation of power, couched in terms of resilience, which in fact imposes mainland models of (often nationalised and Hinduised) development. The government mandate for 'all round national development' combines economic progress and ecological protection in the ANI (Andaman and Nicobar Administration, 2016, p. 3). Development plans and vision statements are riddled with resilience corporate-speak; words such as 'integrative', 'holistic', 'sustainable', 'eco', 'green', 'clean', and 'smart'. The centre has announced significant outlays for 'sustainable' marine fisheries (Indian Council for

Agricultural Research, 2014), 'holistic' coastal development (Ministry of Ports, Shipping and Waterways, 2016), and 'eco'-tourism (NITI Aayog, 2018) in the region.

It may be argued that the government's NITI Aayog think-tank¹² is a major avenue of this consolidation of power. In partnership with the Island Development 'Agency' (the new avatar of the Island Development Authority resurrected in 2016), NITI Aayog is now eliciting private-sector participation in four to six ecotourism projects in newly opened islands (NITI Aayog, 2018). Under a new 'ease of tourism' policy, the government has lifted Restricted Area Permits for foreign nationals, relaxed CRZ rules, and given key approvals in advance (such as the 'consent to establish' or liquor/bar licenses). Customs duties have been waived on imports from Southeast Asian countries in a bid to attract foreign investment under the 'Act East' policy (Giles, 2018, October 3). Simplified water sport regulations, floating jetties, and orchid/butterfly gardens are in the works, and Port Blair's Veer Savarkar Airport is now an authorised immigration check post¹³ (Press Trust of India, 2019, April 7). Privatisation in the Islands thus far has helped existing businesses to expand, but very few new players have entered the market (S. Reddy, 2018). Under a Public Private Partnership (PPP) model, this is expected to change, and the Islands, in development shorthand, are projected as the 'next' Maldives, Mauritius, Bali, Singapore, or Antalya. To further this globalised vision of development vision requires more revenue land than is currently available in the islands. The de-notification of reserves and conserved tracts is being fast-tracked at a time when India is distracted with a global pandemic. Afforestation proposals 'displace' island conservation through forest offset projects in the mainland state of Madhya Pradesh (Ranjan, 2021, January 8). The next years might well bring the de-notification of two major areas to make way for development projects: Nicobar's Galathea Bay Sanctuary, for an international shipment project, and Little Andaman's Onge tribal reserve, for a greenfield city (Nandi, 2021, January 28; Sekhsaria, 2021, February 1).

Yet the private sector's caution towards tourism development in the region is evident. That PPP bids have few takers is evident in the continued extension of deadlines. Mainland developers face the challenges of an island context, a disjunctive/restrictive administration, and opposition from islanders who demand tourism remain a local affair. The official mandate lies with the Department of Tourism, but the military and Forest Department are more powerful, granting permissions for tourism activities around protected or military areas (EQUATIONS, 2008, p.

¹²Chaired by Prime Minister Narendra Modi, the CEO of the think-tank is Amitabh Kant, who headed the Incredible India campaign and is now spearheading the 'ease of doing business' strategy.

¹³The airport was designated an immigration port for foreign nationals entering/exiting India in 2019, but this remains a useless gesture, as international carriers are prohibited from flying to Port Blair (Press Trust of India, 2019, April 7).

77). The absence of a comprehensive ANI tourism policy is worrying for a sector predicated on long-term business planning and modelling. Even 'ease of tourism' policies have not helped, as shoddy environmental impact assessments and the lack of logistical/support infrastructure in newly opened islands is concerning for private players, and the pandemic has depressed both the development and tourism industries.

All this is secondary to the ANI's strategic contribution towards the defence of the country, a fact which 'cannot be overemphasised' (Planning Commission, 2008, p.24). Narratives of national security and geopolitics lament the paucity of land available for future development, and the abysmal state of connectivity and infrastructure (Basu et al., 2019; Das, 2011; Kaul, 2015). The general argument is that India's general neglect of the Islands and kowtowing to conservation interests has led to stagnant issues and restrictive policies. These accusations have worked, and defence projects now take the highest priority. In May 2018, the National Board of Wildlife approved a long-range missile test facility in South Andaman's Rutland Island, which would divert almost 50 hectares (or 0.5 km²) of Reserved Forest, a hectare of which lies within the Mahatma Gandhi Marine National Park. Proposed by the Defence Research and Development Organisation in 2012, and stuck in government channels since, it was approved citing 'the strategic importance of the project for the country's defence' (Vishnoi & Pubby, 2018, July 14). The ongoing scepticism of defence analysts is concretely challenged by a new bilateral cooperation with Japan to develop 'smart islands', a result of increased Chinese submarine presence in the region. The Navy conducts regular defence exercises (Figure 7.3), wargames, and joint friendly operations with Southeast Asian allies as a show of strength, deploying Israeli-made 'searcher' drones, and maritime surveillance aircraft for antisubmarine warfare (Gady, 2016, January 19; Murthy, 2009).

Opening new islands to tourism is now being offered as a viable means to better intelligence-gathering (Das, 2011, p.474). This conflation of tourism and defence echoes Pacific scholar Teresa Teaiwa's (2001) idea of 'militourism', or the mutual constitution of the military and tourist industries. Developing geopolitically sensitive areas as hubs of tourist activity allows militarisation to continue unabated with little resistance, behind a vision of growth and economic development for all. The military has been a driving force for regional development in recent years. Proposals for an 'Integrated Headquarters of Ministry of Defence' include the construction of a port, a trans-shipment terminal, and a Special Economic Zones (SEZ) in ecologically fragile and tribal protected areas, but also an integrated tourist complex (Sekhsaria, 2018). The increasing role of the military in non-traditional areas of development, conservation, and climate change is portrayed as the need to fight for a 'common good' and wrest these subjects from the hands



Figure 7.3: A 'Defence of Andaman and Nicobar Islands Exercise' (DANX-17) off Havelock Island, 2017. Image provided by Government of India, under Government Open Data License ([url:https://www.indiannavy.nic.in/content/defence-andaman-nicobar-islands-exercise-danx-17](https://www.indiannavy.nic.in/content/defence-andaman-nicobar-islands-exercise-danx-17)).

of local politics (*ibid.*). The Navy has been particularly active, carrying out soft forms of 'green militarisation' (Dutta, 2020). For instance, the Naval 'Samudrika' Marine Museum houses coral and marine exhibits to educate visitors, and the local Navy Wives Welfare Association (NWWA) collaborates with NGOs to ship waste to mainland recycling plants and run segregated waste collection centres. Military and police personnel are regularly enlisted in beach clean-ups and conservation training. A Fibre Optic Cable laid in 2019-2020 for better defence communications will replace sketchy and slow internet with fast speeds for the entire region. Most of this development benefits the capital of Port Blair and the centre of New Delhi, with the Islands often being referred to as an 'unsinkable aircraft carrier' or 'Delhi's Pearl Harbour' (Abraham, 2018).

The defence of the nation is almost fetishised in the nationalised and Hindu-dominant rhetoric, and this translates into attempts to ideologically 'mainstream' the Islands into the homogeneous national territorial space (Abraham, 2018). Prime Minister Narendra Modi visited the ANI in 2018 to commemorate the 75th anniversary of the first Indian flag hoisting by Netaji Subhash Chandra Bose, a freedom-fighter and head of the Indian National Army (INA)¹⁴. Emo-

¹⁴In contrast to Mahatma Gandhi's 'passive resistance', the INA was an armed force which collaborated with Imperial Japan to gain Indian independence from British rule. He is a controversial figure amongst those who remember the Japanese occupation, and the INA was accused as being complicit in Japanese war crimes.

tionally stating that, for him, the mainland and the Islands were one and the same, Modi went on to declare that three islands had been renamed to reflect the nationalist importance of the Islands for India; Ross Island to 'Bose Island', Havelock Island to 'Swaraj Dweep' (or 'self-rule' island), and Neil Island to 'Shaheed Dweep' (or 'martyr' island). In an atmosphere where any criticism of the government is met with retorts of 'anti-nationalist', 'Muslim-sympathiser', or 'go to Pakistan', a recent controversy has emerged regarding changes to a memorial plaque outside the Cellular Jail. The first name is now that of Veer Savarkar, an inmate and subsequent founder of the radical right-wing 'Hindutva' policy, and the names of more than 450 convicts, most of them Muslim, Bengali, and communist, have been erased (Goswami, 2020). This erasure of convict or subaltern histories is accompanied by the instrumental appropriation of others, as the memorial for the 1859 Battle of Aberdeen between the Andamanese and the British reveals.

Anthropologist Itty Abraham notes a general mainland discomfort towards the Mini-India narrative in recent years, a narrative incongruent with the current government's projection of India as a predominantly Hindu, conservative society, and the Islands as a natural extension of this mainland space (Abraham, 2018). The Local Born Association's argument that there would be no Mini-India without the creolised community reveals the politicisation of the moniker from an idealised microcosm or future of India to an arena where local ethnicities compete for state recognition (Sanjib, 2016, April 10; Zehmisch, 2014). Amidst discontent over unchecked in-migration, especially from West Bengal, Modi's visit and his focus on Bose, a Bengali figurehead, was perceived as pandering to the majority Bengali community (Z. Ahmed, 2019, February 1). Newer arrivals (and even tourists) project themselves as more 'traditionally' Indian and thereby more 'advanced'. 'Andaman Hindi' is now regarded a pidginised or bastardised version of a purer Hindi spoken on the mainland, and is recognised as nothing more than a dialect of necessity for inter-ethnic communication, with regional languages being favoured. A rising sense of island sub-nationalism is also evident in disdain for 'a continental mind-set, distinctly different from that of a true islander' (Acharya quoted in in Sekhsaria and Pandya, 2010).

Tourism has proved far from a panacea or key to sustainable development in the Islands. Conflicts between conservation and consumption inherent within ecotourism and sustainable development, are now placed within a mainland-oriented vision of nationalism, militarisation, and privatisation, creating further confusion and marginalisation amongst islanders. These dynamics are little explored, amidst national-level corporate agendas and the harsh repression of Indian civil society, both of which are mirrored in the Islands. Action against 'anti-nationals' is justified through the 'defence of the nation', and ranges from the 'deportation' of mainlander activists and researchers to the arrest of local journalists.

Part II

An Islander Vision

Chapter 8

Trajectories of Change

This chapter traces the mutual historical interactions between the island environments and the development of islander livelihoods in Havelock and Neil, creating a 'coupled-human environment narrative'. It also identifies aspects of the discourses (or discursive notions of the hegemonic discourse of power) put forth in Part 1 which relate to the historical settlement and development of these post-colonially settled islands. From the time of settlement by East Bengal refugees to the advent of tourism, a coupled human-environment narrative traces the impact of the island setting, its geology, topography, land-/sea-scapes, resources, as well as external factors, on livelihoods decisions and societal structures. These are also conditioned by the histories of place, by wider interactions with the colonialism, state-making, or the global economy. Further, individual circumstances (e.g., birth, gender, caste) or their decisions and capabilities (e.g., education, diversification) also determine livelihoods decisions. For instance, the choice of rice farming is a function of flat and fertile land and enough water, but also of the staple diets and knowledge that refugees maintained in their erstwhile homes. Growing rice also suited India's desire for self-sufficiency of food-grain and was buoyed by the myth of tropical fecundity. With a few decades of rice-growing, this myth is broken, and declining soil fertility meets the impacts of pests and insects, of extreme weather events such as cyclones, heat waves, of oceanic currents (El Niños/La Niñas). Socio-political processes such as rising populations, in-migration, inclusion into globalised trade networks, and the state's efforts to 'engineer the trajectory of livelihoods' towards tourism also affect islanders. To cope with or respond to these changes, islanders diversify their livelihoods, embarking on what political ecologist Simon Batterbury (2001) dubs 'productive bricolage'. State institutions play an important facilitatory role in the ANI, but islanders also respond autonomously, relying heavily on their own resources and social capital (Adger et al., 2003). Aspects of discursive notions used to produce the his-

torical Andaman islandscape are also identified in the islander vision of these two islands. For instance, their initial projection as isolated and marginalised has transformed today to touristic islands which are in high demand. In the interim, they have been seen as bounteous tropical paradise which developed a thriving rural Arcadia, and as vulnerable places prone to declining fertility, disasters, and climate change.

8.1 Narratives of settlement: Isolation and hardship

An isolated forest outpost during colonial times, Havelock was first settled by East Bengal refugees in the 1950s. This settlement was not officially part of the ‘colonisation schemes’ but was allowed as a one-off scheme, at the behest of the West Bengal government to counter the overcrowding of its refugee camps (U. Sen, 2018). The Forest Department first cleared the island of valuable timber using Ranchi labour, and the first ‘batch’¹ of 40 families arrived in 1955. These were joined by a second batch of 56 families in 1960, and a third of 85 families in 1961. These 181 families are today referred to as the ‘original settler families’ of Havelock, numbering about 1000 people (NCR, 28.09.2015). Refugee-settlers were predominantly farmers, and members of the Matua sect of the *Namasudra* caste, a plebeian sect which rejected Brahmanical orthodoxy and agitated for social reform within Hinduism (Lorea, 2020). Arriving from Calcutta on the S.S. Maharaja, settlers were offloaded onto a Landing Craft Tank, a relic of the Japanese occupation. Originally used to ferry timber between islands and along creeks and channels, they now ferried settlers to beaches near ‘colonisation sites’, from where they followed forest trails made by timber-dragging elephants (U. Sen, 2018, p. 129). Stuck between an ‘unknown jungle and sea’ (NCR, 28.09.2015), life initially was tough. Pioneering was hard and lonely work as the settlers strove to rebuild their lives and reconcile themselves to their new ‘jungle’ homes. The hardships they endured were perhaps not as severe as those of settlers on Great Andaman, who came into conflict with the indigenous Jarawa population (Ibid., p. 149), but their sense of isolation was arguably deeper; the community’s inability to build seaworthy boats meant they relied on a monthly boat for rations and contact with the wider world. Most of the land was covered with tropical foliage that took years to clear. Elephants used by the Forest Department were perhaps the most dangerous threat, as they could run amok and destroy settlements. Yet many were happy to finally have a home and land, after being shunted

¹A ‘batch’ usually refers to all refugees who began their journey together on the same ship from Calcutta and landed in the Andamans. Later settlers were dispersed regionally, so a ‘batch’ here also refers to those who began their journey together from Port Blair to their destination.

around multiple transit camps and losing contact with their kin (Chakrabarty, Mukhopadhyay, & Mukhopadhyay, 1998). Herds of deer or wild pig were a nuisance that could devastate crops but were relatively easy to catch and supplemented an already protein-rich diet of abundant near-shore fish (Chandi et al., 2012). NCR (28.09.2015) noted that the same amount of dole and provisions created a sense of equality between families and within a batch, adding that ‘no-one was greedy back then’. Attachment to land was also difficult with such few people (U. Sen, 2018, p. 154). But as settlers came in ‘batches’, each subsequent batch was provided less land or amenities, and RS (29.09.2015) remembers disputes and in-fighting from the very beginning.

When the 20 km² island of Neil was first settled in the 1960s by East Bengal refugees, the thick jungle and mangrove forests scared them. Fleeing escalating violence in East Bengal (or East Pakistan), they were settled in one-off schemes, brought for their utility as forest or plantation labour. Much contention surrounds the years, numbers, and batches of Neil². but the consensus is that at least three ‘batches’ ended up in Neil in the 1960s. Ranchi labour had cleared a significant portion of land with the help of elephants, and the refugees spent their first few years completing this arduous task. The Ranchis taught the refugees about the island, though the two groups often conflicted due to language and cultural barriers. Only after mediation and translocation provided by the Revenue Officer, Mr. Chakraborty, was peace restored (AB, 11.02.2016). Like its neighbour Havelock, Neil relied on a monthly boat from Port Blair, though a cargo boat ferried goods and people between the two islands.

Since only refugees were allowed to settle Havelock initially, a ‘distinctive and compact island society of Bengal refugees’ has emerged (U. Sen, 2018, p. 121). Chakrabarty et al. (1998) dub Havelock’s settlers a ‘small population’, to signify a larger population transformed to a smaller entity due to Partition and island isolation, both of which gave rise to a strong community. They claim, that since batches came from different camps, many lost contact with their kin. In the absence of kin, refugees ‘made’ kin along the way, usually of the same caste³, and would collectivise to ensure their selection as a group (U. Sen, 2018), NCR (28.09.2015) was married when he came to the Andamans, but only ‘on paper’, as the British-era ‘family emigration’ policy was still in place. Separated shortly after arrival, he married a woman from a

²One interlocutor claims 99 families arrived between 1963 and 67 (RKB, 18.12.2015), mostly from the Hastinapur refugee camp in North India. Another claims it was 198 families (AB, 11.02.2016). The Rehabilitation Report (1978) notes 100 families were settled by 1968, while Kundu (1996) claims 140 families arrived in total by 1969, 35 of which later left for Little Andaman.

³The settlers belonged uniformly to the *Namasudra* caste, and this mono-caste settlement presented an opportunity but also a problem. The *Namasudra* movement to secure social respect in Bengal was transferred to the Andamans as settlers demanded the import of Brahmin priests and *Napit* barbers to perform social rites of birth, marriage, death, to which the government purportedly acquiesced (Lorea, 2020; U. Sen, 2018).

later batch of settlers. Though he claimed in his case it was mutual, he added that wife desertion was common across batches and had fuelled the rise of inter-ethnic/caste marriage. The village elders, and later the *panchayat*, became a key arbiter of all marriages. As Telugu and Tamil settlers maintained mainland ties and did not inter-marry, ‘deserted women’ were usually ‘given’ in marriage to poorer communities who demanded no dowry, such as the Ranchis or Oriyas. Merit was valued, and slowly class and economic status have overtaken caste and ethnicity as the important criteria for marriages. Some kin groups were separated in Port Blair and sent to different destinations. This maintained inter-island ties which developed with better inter-island transport. Havelock is often characterised as a relatively open society, a label the settlers wear with pride (Chakrabarty et al., 1998). Udit Sen (2018, p. 229) sums up - ‘a new social setting, a hitherto non-existent population composition and a strong sense of solidarity and interdependence within the island population have helped them to cope with their changed environment through certain unique socio-cultural means’.

This kind of close-knit solidarity was harder to achieve in Neil, whose settlers were not as isolated from the world as Havelock’s had been. Many seemed to have come from different areas and spent less time together in mainland camps and maintained caste endogamy. Solidarity was further affected by the paucity of land; only 1090 hectares of flat land was available and very little hilly land existed. Each settler family was allotted five acres (or fifteen *bigha*) of land, as well as house construction material, agricultural implements, and other inputs. This was five acres less than Havelock’s settlers had received, and conflicts over amenities and location ensued, prompting some families to leave Neil for Little Andaman after a few years. Social harmony suffered further over the years, within and between batches but also between ethnic communities - the Bengalis, Ranchis, and later settlers such as the Telugu or Tamil fishermen largely kept to their own in terms of connubiality and commensality. This is revealed in the spatial distribution of communities today; Tamils, Telugus (from Andhra Pradesh), Oriyas, and Ranchis tend to live around the jetty and market, while Bengalis live in the rest of the island.

8.2 Development of livelihoods: Tropical paradise

“One could drop seeds anywhere back then, and they would sprout within a few days.”

– AS, 11.02.2016

Both islands had sandy, loamy, and clayey soil. Well-drained and permeable, this soil pre-

vented water logging in the rainy season and caught moisture even during dry spells (J. Sharma & Kar, 2013). Coupled with the high annual rainfall of 3000-3500 mm, the islands were excellent groundwater repositories in comparison to Great Andaman. Havelock had a few perennial streams which generated in the chalk stone of its higher elevations, while Neil's water demands were 'well' met (through ground wells). Livestock was too scarce to use manure as fertiliser, but the soil did not need it. The rain in the beginning was torrential and steady. Some root vegetables would not grow in the soil, but both sugarcane and jute grew well, and rice harvests were so plentiful that labour could not keep up. Some wastage was inevitable, but the rice did manage to dry, sometimes helped along with palm fans; in the humid areas of North Andaman, farmers had to parboil rice for storage as it would never dry (MF, 05.03.2016). Plantation crops, such as coconut, areca nut, bananas, and fruit trees, also grew well in this soil (J. Sharma & Kar, 2013). In the relatively drier winter months, vegetables and flowers flourished. Wild pigs and elephants were significant dangers, but no large herds of the deer were present on both islands, unlike in Great Andaman where deer could destroy an entire crop in a single night. For weevils and pests, wood ash mixed with 'medicine' would occasionally be used (BKR, 11.02.2016).

Havelock's settlers were incentivised to clear land initially with the vague promise that they would "own whatever they could clear" (RS, 29.09.2015). This proved false as allotments followed shortly after. This included five acres (or fifteen *bigha*)⁴ of flat land to grow paddy, an additional five acres of hilly land for horticulture, and a parcel of land for homesteads (or 'house-sites'). Timber to build houses, farming inputs, and some livestock were accompanied by food rations, loans, and other sundry provisions (NCR, 28.09.2015). The collection of Non-Timber Forest Products (NTFP, signifying firewood, cane, bamboo, leaves etc.) was also vital, and later regulated. After the arrival of the second batch of settlers, each family received a cash allotment (or 'dole') of 1520 rupees per month for a period of one year. Given initially as loans, these were never reclaimed.

The first batch of settlers took two years to clear the forests and planted their first paddy crop in 1957. Rice and vegetables were supplemented by a diet of fish, deer, and wild pig. It is claimed there were hardly any mosquitoes, and mosquito nets provided to the settlers would be used to catch wild pig instead⁵. A traditional cultivar of rice, *dhaan*, grew and flourished in abundance. Festivals revolved around its sowing and harvest, which was a collective task, and *dhaan* became valuable currency, being bartered for fish. Fish could be caught off beaches with a simple hook-and-line or cast net. Ten fisher families from the states of Tamil Nadu and

⁴A *bigha* is a non-standard traditional unit of land area measurement commonly used across India. It varies from 0.2 to 0.6 of an acre according to region; here it signifies 0.3 of an acre.

⁵NCR attributes the advent of electricity in 1974 with the arrival of the first mosquitoes (28.09.2015).

Andhra Pradesh were settled in the island between 1960 and 1965. They would row through the archipelago in wooden dinghies, to the east coast of Great Andaman, and even to Port Blair, to sell dried fish or buy fishing gear. In the 1980s, no fish traders or middlemen, and Port Blair had only one fish stall. Door-to-door fish vending was common, and still exists in ANI's more isolated areas (Mustafa, 1983; Whittingham et al., 2003). A thriving barter system emerged between the farmers and fishers, with rice and vegetables being exchanged for fish and seafood (Chandi et al., 2012).

On Neil island, the first batch rejoiced at the overwhelmingly flat land, suitable for both paddy and vegetable cultivation, and at the fertility of the land, which was unlike anything they had previously experienced. The relatively small population found this unprecedented fecundity challenging. Harvesting increasing amounts of paddy and vegetables required considerable communal effort to prevent against spoilage or wastage. As mainland ties were stronger within these refugee-settler groups, many called for 'kin' from West Bengal to come help. As labour-intensive vegetable production increased and the word spread, landless wage workers and seasonal labourers began to arrive regularly from West Bengal, particularly the two districts of the 24-Parganas. Subsidies on inputs and transport, a higher price for vegetables, a Bengali population of kin, and the relative lack of risk meant a lucrative opportunity for these migrants (CH, 08.02.2016). A local share-cropping system soon emerged - *bhaaga* (meaning 'share') allowed migrants to lease and use agricultural land from settlers, in return for one-third of their produce or proceeds. Agricultural migrants would stay for a season or for years, and inter-marriage did follow, especially for those who had eligible daughters but no sons to inherit land. The system slowly found favour, though to a much lesser extent, in Havelock as well, as it provided settlers with the opportunity to cultivate mainland relationships and diversify risk. Even new 'migrant' or 'encroachment' villages, such as Havelock's youngest Kalapathar village, sprung up in the mid-1970s.

In the 1970s, *bagichas* or horticultural gardens of coconut, banana, and areca nut were planted by the Forest Department in preparation for the settlement of landless peasants from the state of Kerala in both islands. Upon arrival, the peasants preferred making a living from petty business or forestry work. The timber industry was still thriving, and trees were logged for the WIMCO factory (Western India Match Company) in Port Blair, which would send raw material to mainland factories "from Bombay to Bareilly"⁶ (NM, 07.10.2010). The gardens caught on with the refugee-settlers, who had hilly land to spare. A handful of Telugu and Tamil fishermen

⁶This alliterative quote is meant to signify the breadth of transport, from modern-day Mumbai (Bombay) on the Western coast of India, to landlocked Bareilly in the northern State of Uttar Pradesh.

families were also settled in Neil in the 1970s, receiving boats and nets, and smaller house-sites close to the shore and jetty. They were ‘shown the ropes’ by their counterparts in Havelock, and both had the run of the wider archipelago, sharing common fishing grounds. Concomitant development ensued in both islands, though it was consistently hampered by rain, humidity, and an erratic boat service for supplies. Nevertheless, both islands soon possessed middle and primary schools, medical dispensaries, post offices, police outposts, ration shops, farmer’s centres, power houses, community wells, and even new villages (Krishnakumar, 2009).

8.3 Responding to change: The vulnerable islands

“This land that can support these big trees can’t even support rice anymore.”

– SB, 20.02.2017

The first cyclone after settlement struck Ritchie’s Archipelago in 1976. Though no loss of life was reported, the damage to trees and livestock was dire. Storm surges and flooding severely affected the flatter island of Neil, and epidemics of cholera and malaria spread on both islands (NCR, 28.09.2015). The following years witnessed extremely low levels of rainfall, with 1979 recording only 1540 mm, against the usual 3000-3500 mm. A long and severe El Niño event was in play, and water levels on both islands plummeted to their lowest by 1984. *Dhaan* did not mature adequately between 1982 and 1990, and each year saw lower paddy yields. Some mechanisation, through communal tractors, power tillers, and threshers, was attempted, but with a lack of repair and maintenance, these soon fell prey to the humid salty air. Disease outbreaks forced many to abandon cattle in the jungle, and a livestock shortage soon followed.

In 1980, the rice harvest was lost due to extreme heat. The fertility of the soil also seemed depleted, and chemical fertilisers were introduced to boost potassium (K) and phosphorous (P), which were low to begin with, and later nitrogen (N) which was found in medium quantities in the soil. Urea was a simple fertiliser which provided nitrogen, while Diammonium Phosphate (DAP), would boost phosphorus⁷. Older farmers claim they did not want to use fertilisers (known as *khaad*), but that the agricultural department refused to provide seeds and fodder if fertiliser was not used in conjunction (MF, 05.03.2016). Changes in rainfall, humidity, and the availability of host plants meant insects increased, and pesticides started to supplement the inputs being provided.

⁷Both were already in production in India, Urea from 1959 and DAP from 1967 (FAO, 2005).

Borers, weevils, beetles, snails, and slugs proliferated and bred continuously. When government supply could not keep up or was deemed low-quality, the first private pesticide shop opened in Neil in 1989 (AB 11.02.2016), selling mostly endosulfan and DDT-based pesticides (Murugan, Swarnam, & Gnanasambandan, 2013). Migrants arrived *en masse* in the 1990s from the states of West Bengal, Tamil Nadu, Andhra Pradesh, Chhattisgarh, and Jharkhand, in search of economic opportunities in forestry and agriculture, guided by their previously settled kin. Most of the Bengalis took on the *Bhaaga* share cropping systems with settler families who were now upwardly mobile and looking to diversify their economic interests. In Neil, many of these ‘agricultural migrants’ came from the village of Naffarganj, in the Sunderbans region close to the India-Bangladesh border. Here, farming livelihoods had long been in peril, due to a changing climate, loss of land through intertidal inundation and salinity, and scant remuneration from agriculture. Even diversifying livelihoods to wood collecting or prawn fishing was risky in the low-lying mangroves that housed man-eating tigers deprived of food sources. With a lack of labour, subsidised inputs, and better vegetable prices, a few seasons of growing vegetable on Neil was much more lucrative than on the mainland (MP, 07.10.2015).

Farmers now needed to diversify from rice into vegetables and other plantation crops. A scarcity of rice was supplemented by its subsidised import from the mainland, along with potatoes (which cannot grow here). Farmers in Neil started planting a wider variety of vegetables and fruit, while Havelock turned to cash crops of coconut, areca nut, and bananas. The informal barter system between farmers and fishers that existed in the 1970s and 80s was replaced by reliance on pure money. While *dhaan* remained a local and now much-valued product, Neil soon saw a surfeit of vegetables and a weekly boat was instituted to export them to Port Blair. Rainfall slowly returned to normal levels, and a productive period ensued between 1990 and 1998. Now vegetable traders, mostly from the Tamil community settled in Port Blair, would make a three-hour journey to Neil, to haggle prices with farmers. Deal made, the produce would be weighed carefully in local units of weight. Bananas were measured in *KBs*, each containing 17.5 *maunds*; one *maund* weighed 40 kgs. In a week, farmers had 5 *KBs* (or 3500 kgs) to sell on average. Tomatoes were measured in ‘tokris’ or wicker baskets, and farmers usually managed 25 of these a week. Sometimes traders would be forced to call for more boats, and the prized produce would make its way to Port Blair’s bustling vegetable market (AB, 11.02.2016). Dubbed the ‘vegetable bowl’ of the Andamans, Neil’s thriving business helped Havelock too. With falling rice yields, plantation and cash crops made much headway in the Andamans, and the coconut and areca nut gardens planted by on 33 acres around Havelock’s jetty started to mature, with bananas doing almost as well on its hilly land.

To grow cash crops, encroachments sprouted on the forested lands adjacent to villages, given the lax enforcement of law. It is reported that a 'land reshuffle' in 1987 in Neil provided the 130 original settler families with 1 hectare of paddy land each, first in the village of Laxmanpur, and then in the villages of Ramnagar and Sitapur. These families then informally 'leased' their encroachments, which were on barren and hilly plots, to later migrants, gaining a perennial source of farm hands. In a twist of fate, with the regularisation of encroachments in 1989, migrants ended up owning the land. Located near the beaches and on cliffs, this is today prime real estate for tourist development (RKB, 18.12.2015). The older settlers objected, and were wary of future encroachment, sometimes demanding the administration forcefully evict encroachers. Political rivalry ensued, with a fight between settlers and migrants for control over the local *panchayat*. It is unclear if migrants won, but the battle-lines were firmly drawn (Mukhopadhyay & Mukhopadhyay, 2006, p. 161-173).

Artisanal fishing was still in the hands of the Telugu or Tamil fishermen, who would sell their catch in the one fish market in Port Blair (Mustafa, 1983). Bengali refugee-settlers started taking to the livelihood for subsistence, using row boats to fish off shore or along mangrove creeks, and occasionally selling excess catch. The Havelock fishing community was larger and dominated by the Telugu and Tamil fishermen, but there was a constant demand for boat-hands. Bengalis quickly learned the trade, buoyed by their love for both sea and brackish-water fish. Fisheries in the ANI have moved opportunistically to meet export markets, especially with the trade of sea shells and illegal sea cucumber that took shape between the 1970s and late 1990s. Fish traders or middlemen emerged in response, and mechanised boats made a bigger entry in the 1990s. The notification of the Rani Jhansi Marine National Park in 1996 was not huge cause for concern, as fishing grounds were closer to the islands and the Park seemed geared towards ecotourism.

8.4 Islands in demand: *The tourist destinations*

In 1975, three European tourists are said to have arrived from Port Blair on the *Chauranga*, an "extraordinary boat that carried everything" to and from Havelock - people, rations, cargo, even livestock (NCR, 28.09.2015). Journeying to the Andamans required a four-to-five-day journey from the mainland on a packed, rat-infested ship, so only the hardiest of tourists ventured here, and in minuscule numbers. For tourism purposes, Havelock seemed the ideal destination. At a comfortable distance from Port Blair, its beaches, reefs, and forests could cater to a wide variety of tourists looking to swim and laze, snorkel and dive, or fish and camp. A coffee-table

book written by former forester CS Oberai on the emerging 'eco-tourism paradise' that were the Andamans dedicated an entire chapter to Havelock (Oberai, 2000), describing the island in the following words:

"If you are looking for idyllic lush green hills and marigold sunsets, your destination is Havelock. If you have a craving for nature study, zest for wondrous marine life, interest for a peep in the course of the Indian freedom struggle and flair for outdoor life, itinerary Havelock. For students of ethnobotany, marine biology, natural history and oceanography – all roads lead to Havelock."

The 'Indian freedom struggle' bit in the quote above is an anomaly, as Havelock was uninhabited during colonial rule, but the reference is relevant to the target audience at the time, mostly government employees on Leave Travel Concession. This scheme allowed employees and their families to avail of subsidised travel and board once a year to visit different parts of India (D. Sharma et al., 2019). The first guesthouses on both Havelock and Neil were run by the government and built on prime land. The Dolphin Resort, run by the Department of Tourism, opened its doors in 1993 on Havelock's Beach No. 5. Neil had two government guesthouses, one for the Andaman Public Works Department, and another called 'Hawabill Nest', by 2001. The first private enterprise, 'Jungle Resort' (today the Serai Barefoot), was established in Havelock in 1996, and others soon followed. In November 2004, Havelock's beaches received worldwide attention when *Time* magazine declared them two of the 'Best Beaches You Can Get To' in its 'Best of Asia' issue. The 2004 tsunami followed soon after this article, bang in the middle of peak season for tourists. Both islands avoided casualty or any major destruction or casualty, though the shock of the immense and long earthquake was followed by rising water levels and flooding around both jetties. The sense of trauma and fear was palpable across the ANI and the globe, and the 2005-06 season saw a significant dip in tourist footfall.

The return of tourists the next year gained much impetus from the extension of the Leave Travel Concession scheme. Earlier restricted to ship travel, this was now extended to air travel and to a wider range of government employees. The Andamans were now being primed as a jewel in the 'Incredible India' campaign initiated by the national Ministry of Tourism. A slogan that had wallowed in government pamphlets and brochures since the 1970s, 'Incredible India' was re-branded and marketed to an international audience under the aegis of an international advertising firm in 2002⁸. The sun-sea-sand image of a lone mangrove tree on a Havelock beach,

⁸This was the firm Ogilvy and Mather (India). During my first visit to the Andamans in May 2005, I travelled with the Incredible India team for two days. Amitabh Kant, who ran the campaign, is now CEO of the NITI Aayog think tank, responsible for most big tourist development projects in the ANI in recent years.



Figure 8.1: An Incredible India poster featuring a lone mangrove on a Havelock beach. Conceptualised by Ogilvy and Mather, 2013.

with the words ‘Enjoy unspoilt nature - Spoil yourself - Find what you seek’ became representative of the ANI in both international and, with an exploding Indian middle class, domestic imaginaries (Figure 8.1).

In the same year the Rani Jhansi Marine National Park (RJMNP), was demarcated, the first first professionally-accredited dive resort opened in Havelock: the Andaman SCUBA Club and the Cafe del Mar. The club catered mostly to foreign tourists as diving was not popular amongst mainlander government employees. The Forest Department, however, became a facilitator of dive tourism, as the authority to grant access to the Park lay with its officials. The post-tsunami years saw a significant rise in dive shops, either affiliated to a resort or offering their own accommodation. These were all located on the eastern coast of Havelock, where sheltered and shallow waters afforded good access to almost 25 dives sites in and around the MNP, catering to various levels of divers. All dive shops complied with international recreational diving standards (such as the Professional Association of Diving Instructors - PADI) and in the international ‘dive circuit’, Havelock soon became shorthand for the Andamans, with divers returning in subsequent years (D. Singh, 2015).

From the year 2000, Havelock was already witnessing the development of one tourist resort per year. In 2008, the ANI administration increased incentives to encourage ecotourism, and

this rate skyrocketed. Increasing domestic tourism now brought Indian honeymooners and others on ‘tourism packages’ or charter holidays offered by travel companies such as Make-MyTrip. These groups would visit for a day or two of beach tourism before moving on in a packed itinerary (‘Jarawa’ tourism was popular amongst package tourists). The revenue generated for islanders was scarce, and the inability to monitor numbers or regulate group activities meant a larger environmental impact (Chandi et al., 2012). From a once-sleepy backpacking destination, Havelock became a hub of various categories of tourists. Returning visitors and foreign tourists started preferring Neil⁹. With pastoral charm and a more ‘small island feel’ navigable with bicycles, Neil offered quietude and relief from Havelock’s bustle. With more resorts, a few dive shops also opened on Neil. By 2010, both islands saw a sudden hike in land prices, and the standard price for an acre of land became one *crore* (or ten million) rupees, the basis of a “*crore mentality*” which spread across landed settler society in both islands (MB, 18.12.2015).

Year	1991-2001	2001-2011	2011-2021	1991-2011	1991-2021*
Havelock	45.4	17.9	34.6	71.5	129.6
Neil	16.4	6.0	34.0	23.4	65.4
Total ANI	26.9	6.86	5.1	35.6	42.5

Table 8.1: Percentages of decadal population growth between 1991 and 2021 for Havelock, Neil, and the ANI (APWD, 2014).

The growing popularity of both islands is evident in their rising populations. With the arrival of migrant labour for agriculture, fishing, and tourism, the decade between 1991 and 2001 saw phenomenal growth (Table 8.1). Havelock’s population grew by 45%, while Neil recorded a 23% growth. This stabilised in the next decade, down to 18% for Havelock and 6% for Neil, but this past decade is expected to surpass the previous one in the upcoming census. The average of 2021 predictions from two sources (APWD, 2014; Srivastava & Ambast, 2009) is given in table 8.2. A rise of 34% from the previous decade is predicted for *both islands*. The thirty-year averages reveal above average growth for both islands, but Havelock’s growth rate for the twenty-year

⁹One long-term visitor told the author that Neil was what Havelock “used to be five years ago”.

Year	1991	2001	2011	2021*
Havelock	3,681	5,354	6,315	8,450
Neil	2,463	2,868	3,040	4,073
Total ANI	280,661	356,152	380,581	400,000

Table 8.2: Population numbers between 1991 and 2021 in Havelock, Neil, and the ANI (APWD, 2014).

period of 1991-2011 is phenomenal, almost double that of the population growth rate for the entire ANI at the time! The net density in Neil is 63 persons per hectare, one more person per hectare than Havelock, though it must be noted that Havelock's residents are concentrated on 15% of its land, while Neil's are concentrated on 65%. The table reveals the increasing popularity of Neil, attracting in-migration to cater for the significant expansion of tourist facilities. NITI Aayog initiatives to convert both islands into high-end tourism destinations might displace some tourist populations, but migrant labour for development and construction might offset any positive gains.

Today's spatialised 'islandscape' is the result of island topography, geology, resources, and livelihoods, and this complexity is captured to a certain extent through the island landscape profile reproduced in Figure 8.2. The ways in which islanders map, navigate, and eventually know their islands, may even signal the first step to understanding the elusive quality of 'islandness'.

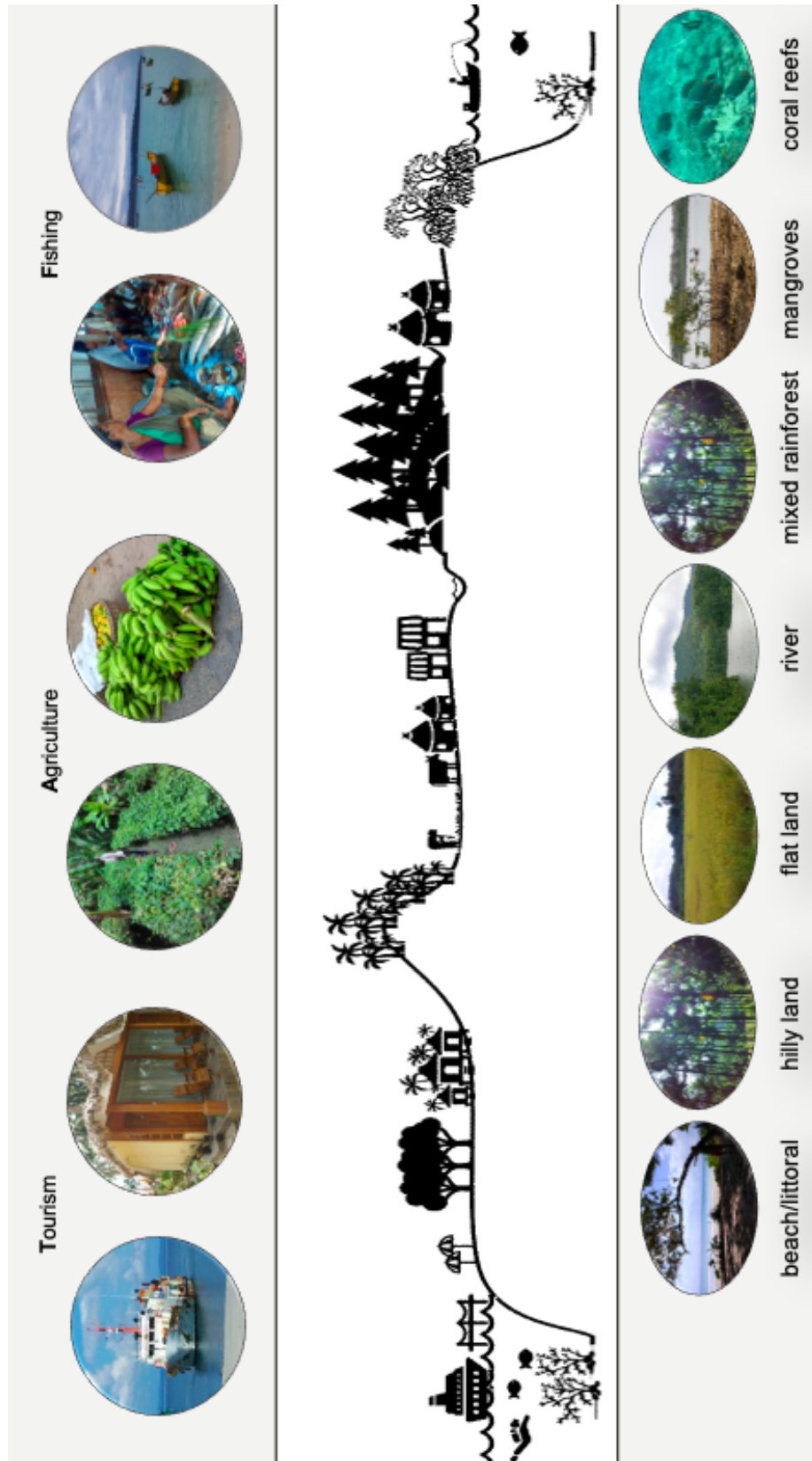


Figure 8.2: An island landscape profile for Havelock and Neil, reproduced from Focus Group Discussions, 2015-2019.

Chapter 9

Perceiving Vulnerabilities

This chapter analyses and discusses the results of a Livelihoods Vulnerability Index (LVI) conducted on both islands between 2016 and 2019. Taking from Hahn et al. (2009), the LVI analyses eleven major components, categorised according to the five livelihoods capitals/assets of the 'asset pentagon' in the Sustainable Livelihoods Framework – Human, Natural, Social, Physical, and Financial (Scoones, 2009). Perceptions of wider change and livelihood vulnerability expose facets of islander discourse, local-level environmental realities, and future concerns. Each component is discussed in length and in tandem to reveal further interconnections within the islandscape, and to further an understanding of island-island relations within archipelagoes. Three variations of comparative LVI results are presented to highlight similarities and differences between the islands; the Major Components LVI, the Capitals LVI, and the IPCC-LVI (which further categorises components according to the IPCC indicators of sensitivity, exposure, and adaptive capacity). The last reveals that the smaller island of Neil is relatively less vulnerable than larger Havelock, challenging the myth that small islands are inherently more vulnerable than larger ones and mainlands.

9.1 The Livelihoods Vulnerability Index (LVI)

The **Livelihoods Vulnerability Index** was used in this work to understand the perceptions of islanders regarding the impacts of change on their livelihoods. The sample, household surveys, and calculation of the LVI are outlined in Chapter 1. Table 9.1 depicts all eleven Major Components informed by the household surveys (Appendix C): Knowledge and Skills (K&S), Health (Hlth), Socio-Demographic Profile (SDP), Social Networks (SN), Food (Fd), Infrastructure (Inf), Water (Wa), Ecosystems (Eco), Natural Disasters and Climate Variability (NDCV), Land and Income (L&I), and Livelihood Strategies (LHS). The table further provides their sub-categorisation into Capitals and IPCC indicators, and the Sub-components which make up each Major Component, with an explanation where necessary as well as the source.

Table 9.2 reveals the Sub-component results obtained in both Havelock and Neil, their units, actual values, and standardised values calculated through the minimum and maximum values for each indicator within the sample. The directionality of each Sub-component has been arranged in a way where a **higher number always denotes more vulnerability**, acknowledging once more that both the choice of indicators and how they denote vulnerability are generally rational, but also subjective and contextual. The results of the Major Component-LVI are visually compared through a spider diagram and briefly discussed in the next section, as are the results of its two other iterations: the **Livelihood Capitals Vulnerability Index (LCVI)** which categorises the Major Components according to the five Livelihood Capitals i.e., Human (HC), Social (SC), Physical (PC), Natural (NC), and Financial (FC); and the **IPCC-LVI** which categorises the Major Components into the three indicators which make up vulnerability according to the Intergovernmental Panel for Climate Change (IPCC) i.e., exposure, sensitivity, and adaptive capacity. The scale for all three is defined from 0 (least vulnerable) to 1 (most vulnerable). This is followed by an in-depth discussion on each 'Capital' and its Major Components to reveal how islanders perceive their island and changes within them, as well as aspects of similarities and interaction within the Havelock-Neil islandscape.

9.2 LVI Results

9.2.1 Major Components-LVI

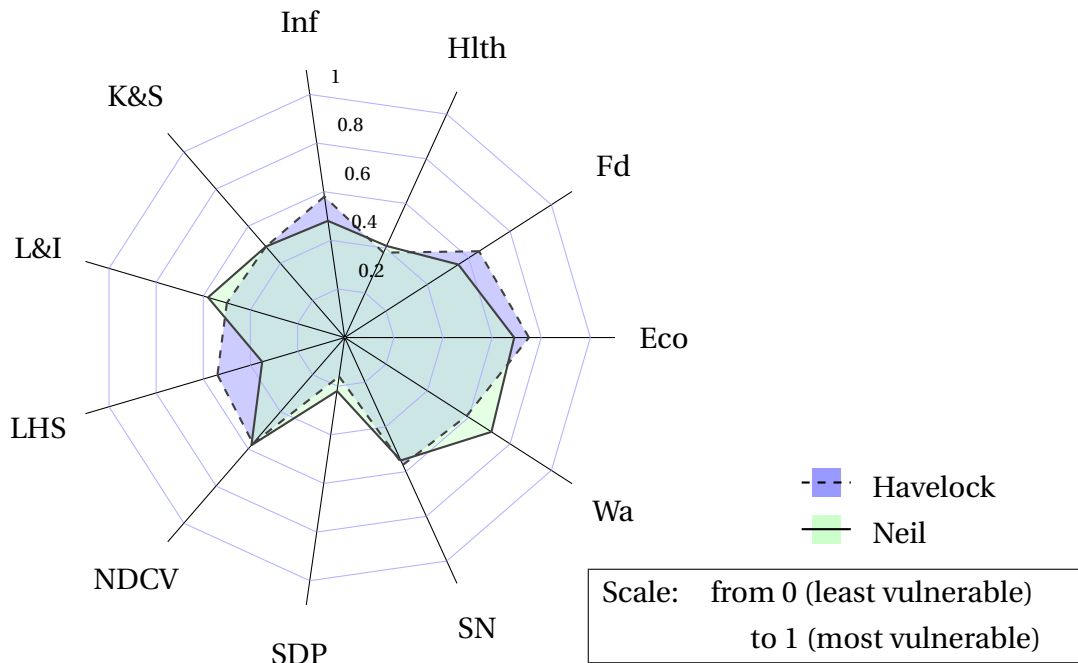


Figure 9.1: Vulnerability spider diagram of Major Components of the Livelihood Vulnerability Index (LVI) for Havelock and Neil Islands, India.

The spider diagram in Figure 9.1 depicts and compares the results of the Major Components for Havelock and Neil. For Havelock's 312 sample households, Ecosystems (Eco) are perceived to be most vulnerable, closely followed by Food (Fd), and Infrastructure (Inf). The least vulnerable component is Socio-Demographic Profile (SDP), followed by Health (Hlth), and Knowledge and Skills (K&S). For Neil's 129 sample households, the component perceived as most vulnerable by far is Water. This is followed by Ecosystems (Eco), and Land and Income (L&I). The least vulnerable components in Neil are Socio-Demographic Profile (SDP), Livelihood Strategies (LHS), and Health (Hlth). The two islands had almost identical scores for Health (Hlth), Knowledge and Skills (K&S), and Social Networks (SN). As the two are neighbouring islands in the same region, the Natural Disaster and Climate Variability (NDCV) scores are almost the same.

With no perennial streams and a flatter terrain, Neil's populace is wholly reliant on groundwater reserves. With a falling water table, Neil is understandably most vulnerable with regard

to Water (Wa). In contrast, Havelock's hilly terrain feeds three perennial springs for the island's consumption. Neil's small size and burgeoning population means Land and Income (L&I) is also cause for concern, which is not the case in Havelock. Yet Havelock is more vulnerable than Neil when it comes to Infrastructure (Inf) and Food (Fd). Both components seem based in the shift away from agricultural and fishing livelihoods towards a cash-crop and tourism economy. The development of tourism infrastructure and the number of tourists translates into larger stress on public utilities such as transport, electricity, and water. The seven-month tourist season demands the import of more food, and its peak clashes with the peak activities in the agricultural calendar, such as the harvesting of the *dhaan*. Cash crops make more money, but island food reserves are low and depend majorly on imports.

The biggest discrepancy between the two lies in the component of Livelihood Strategies (LHS), suggesting that the adaptive capacity of households and livelihoods in Neil is higher than in Havelock. At the time of research, Neil was relatively less developed in terms of tourism, remaining predominantly focused on agriculture and allied activities. This is certainly changing rapidly, but Neil's sample revealed *significantly* less vulnerability in the LHS component. Strategies such as diversification, temporary migration, and collectivisation are more pronounced in Neil, and it is expected that this will help the island cope better with change.

9.2.2 Capitals-LVI

The Capitals-LVI, also referred to as the Livelihood Capitals Vulnerability Index (LCVI), categorises the eleven Major Components into those of livelihoods capitals inherent in the Sustainable Livelihoods Framework. To recap, the 'capital/asset pentagon' categorises these resources into five types; Natural Capital or the natural resource base of land, trees, or reefs; Human Capital or the quality and quantity of productive individuals; Social Capital, the sum of trust and socio-political relationships; Physical Capital, including livelihoods inputs and infrastructure; and Financial Capital, such as income, savings, investment, credit, and insurance (Carney 1998). This is a subjective categorisation, based on the context and the author's understanding¹.

Figure 9.2 shows that both islands perceive Natural Capital (NC) as the most vulnerable capital. This category includes the Major Components of Ecosystems (Eco), Water (Wa), and Natural Disaster and Climate Variability (NDCV). This is followed by Physical Capital (PC), which includes the Major Components of Food (Fd) and Infrastructure (Inf). However, the biggest discrepancy between the two islands is with regard to Physical Capital, which reiterates the

¹For other LCVI categorisations, see Azam et al. (2019); Lamichhane (2013); Piya, Maharjan, and Joshi (2012).

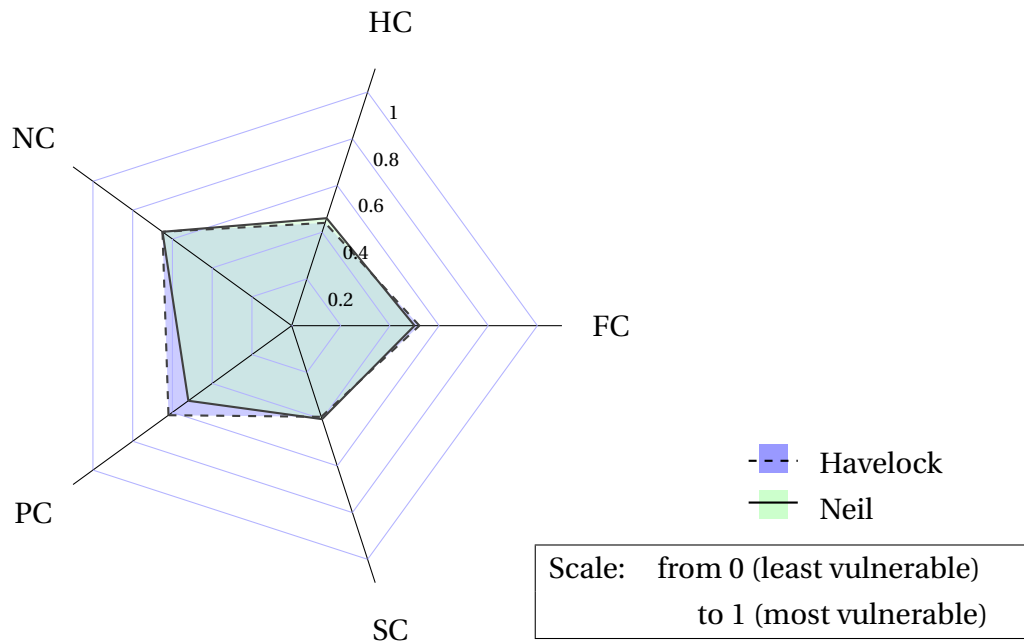


Figure 9.2: Vulnerability spider diagram of contributing factors for each capital for Havelock and Neil Islands.

pressure than tourism and concurrent population increase puts on this capital resource. Somewhere in the middle lies Financial Capital, which includes the Major Components of Land and Income (L&I) and Livelihood Strategies (LHS), followed by Human Capital, which involves the Major Components of Health (Hlth) and Knowledge and Skill (K&S). The least vulnerable for both islands is Social Capital which includes the Major Components of Socio-Demographic Profile (SDP) and Social Networks (SN). In literature surrounding development and adaptation to climate change, robust Social Capital is considered crucial to develop coping and adaptive capacities, and respond to other stressors (e.g., Adger 1999).

9.2.3 IPCC-LVI

Figure 9.3 depicts a 'triangle diagram' of the results for the IPCC-LVI indicators of sensitivity, exposure, and adaptive capacity. Exposure to external stressors is combined with the amount of sensitivity, of livelihoods assets or patterns of resource use, to this exposure (Eakin & Bojorquez-Tapia, 2008). Adaptive capacity is dictated by livelihood assets, but also by culture, the islandscape, individual decisions, and capabilities. In this research, sensitivity is a composite of the Major Components of Health (Hlth), Food (Fd), Water (Wa), Ecosystems (Eco), and Land and Income (L&I), while exposure includes Natural Disasters and Climate Variability

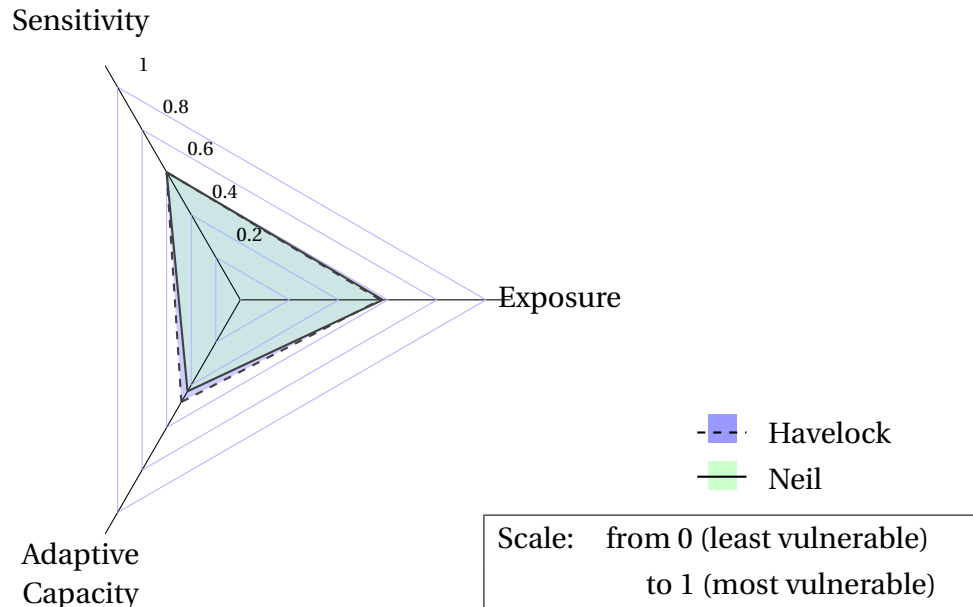


Figure 9.3: Vulnerability triangle diagram of contributing factors for the IPCC-Livelihood Vulnerability Index (IPCC-LVI) for Havelock and Neil Islands.

(NDCV)². Adaptive capacity is assessed through the components of Socio-Demographic Profile (SDP), Social Networks (SN), and Livelihood Strategies (LHS). The average sensitivity (0.60) and exposure (0.58) of both islands contribute more to their vulnerability scores, than adaptive capacity (0.45). The overall ‘vulnerability score’ of both islands is calculated using Equation 1.7(in simple terms, $IPCC-LVI = (exposure - adaptive\ capacity) \times sensitivity$). The scores reveal that the smaller island of Neil (0.01) is perceived as *less* vulnerable than Havelock (0.03). This casts doubt on the assumption that small islands are naturally *more* vulnerable than larger islands and reiterates the importance of grounded research in specific island contexts for any assessment of vulnerability.

²For similar categorisation, see Hahn et al. (2009); Madhuri et al. (2015); Pandey and Jha (2012); Shah et al. (2013).

Table 9.1: Details of LVI Major and Sub-components chosen.

Major Component	IPCC	Capital	Sub-component	Explanation	Source
Knowledge & Skills (K&S)	Adaptive capacity	Human	% of households where household head has not finished primary school (grade 5)	Percentage of households where the head reports not finishing primary school	Hahn et al. (2009); Shah et al. (2013)
		Human	Household Decision Ratio	Ratio of households where primary adult is male, finished primary school, and above 50 years of age to those that do not fall into this group. (To standardise directionality, the complementary percentage is used.)	(Pandey & Jha, 2012)
		Human	% of households where household head has not attended any training		Author
		Human	% of households with no skilled members		Author
Health (Hlth.)	Sensitivity	Human	Household Education Index		Author
		Human	Average time to health facility in minutes		(Hahn et al., 2009)
		Human	% of households with a member suffering from chronic illness		(Hahn et al., 2009)
		Human	% of households with a member missing school/work in the past month due to illness		(Hahn et al., 2009)
Socio Demographic Profiles (SDP)	Adaptive capacity	Human	% of household without toilet facilities		Author
		Social	Dependency ratio	Ratio of population <15 and >65 to population between 19 and 64 years of age	(Hahn et al., 2009)
		Social	% of female-headed households		(Hahn et al., 2009)
		Social	Average age of female-headed households	Percentage of households where the primary adult is female	(Hahn et al., 2009)
Social Networks (SN)	Adaptive capacity	Social	Average size of household		Author
		Social	Average Receive:Give ratio		(Hahn et al., 2009)
		Social	Average Borrow:Lend ratio	Ratio of (the number of types of help received by a household in the past month + 1) to (the number of types of help given by a household to someone else in the past month + 1)	(Hahn et al., 2009); Shah et al., 2013
		Social	% of households that have not gone to their local government for help in the past 12 months	Ratio of a household borrowing money in the past month to a household lending money in the past month e.g., borrowed but didn't lend = 2, lent but didn't borrow = 0.5	(Hahn et al., 2009)
Food (Fd)	Sensitivity	Physical	% of households which are not politically active		Author
		Physical	% of households with no member in a collective/political group		Author
		Physical	% of households primarily dependent own farm/fishing boats for food		Author
		Physical	Average Crop Diversity Index	Inverse of (the number of crops a farming household cultivates + 1)	(Hahn et al., 2009)
Water (Wa)	Sensitivity	Physical	% of households that do not save crops		(Hahn et al., 2009)
		Physical	% of households that do not save seeds		(Hahn et al., 2009)
		Physical	% of non-fisher households fishing for subsistence		(Hahn et al., 2009)
		Physical	% of households with no poultry/livestock		Author
Infrastructure (Inf)	Sensitivity	Physical	% of farming households reporting problem crops		Author
		Physical	% households that do not utilise natural sources of water (wells, ponds, streams)		(Hahn et al., 2009)
		Physical	% of households with no daily water supply		(Hahn et al., 2009)
		Physical	% of households with only one source of water		(Hahn et al., 2009)
Infrastructure (Inf)	Sensitivity	Physical	% of households with no govt. supplied water		(Shah et al., 2013), Author
		Physical	House type diversity index	Percentage of houses unable to withstand a severe climatic event: Inverse of (type of house+1), ranked 1 to 5	(Pandey & Jha, 2012; Shah et al., 2013)
		Physical	Average time to reach road		Author

Continued on next page

Table 9.1 – Continued from previous page

Major Component	IPCC	Capital	Sub-component	Source	
Ecosystems (Eco)	Sensitivity	Physical	Average time to reach market	Author	
		Physical	% of households with no regular electricity	Author	
		Physical	% of households not using livelihood public infrastructure e.g., godowns/ice plants	Author	
	Exposure	Natural	% of farming households reporting decrease in soil fertility in the past 6 years	Derived through increase in usage of fertilisers	(Hahn et al., 2009)
		Natural	% of households which depend heavily on reef resources		(Hahn et al., 2009)
		Natural	% of households perceiving degraded reefs in the past 6 years		(Hahn et al., 2009)
		Natural	% of fishers reporting decrease in fishing grounds in the past 6 years		(Hahn et al., 2009)
		Natural	% of households with encroached land		(Hahn et al., 2009)
		Natural	% of households perceiving loss of island biodiversity		(Hahn et al., 2009)
		Natural	% of households reporting decline in fish available in market in last 6 years		Author
Natural Disasters and Climate Variability (NDCV)	Exposure	Natural	% of households collecting Non-Timber Forest Produce	Author	
		Natural	% of households burning waste	Author	
		Natural	% of households reporting increase in pests over the past 6 years	Derived through increase in usage of pesticides	Author
	Sensitivity	Natural	Average number of flood, drought, and cyclone events in the past 6 years	Derived from secondary data	(Hahn et al., 2009)
		Natural	% of households with loss of assets due to natural disaster in the past 6 years		(Hahn et al., 2009)
		Natural	Mean Standard Deviation of daily average maximum temperature by month (2010-16)		(Hahn et al., 2009)
		Natural	Mean Standard Deviation of daily average minimum temperature by month (2010-16)		(Hahn et al., 2009)
		Natural	Mean Standard Deviation of average precipitation by month (2010-16)		(Hahn et al., 2009)
		Natural	% of households reporting changes in temperature		Author
		Natural	% of households reporting changes in rainfall		Author
Land and Income (L&I)	Sensitivity	Natural	% of households reporting increase in cyclonic activity	Author	
		Financial	Average Household landholding index	Author	
		Financial	% of households with annual income less than USD 177 (Below India's Poverty Line)	Inverse of (acres of land held + 1)	Author
	Adaptive capacity	Financial	Annual Average per capita income index	Inverse of (annual income + 1)	Author
		Financial	% of household with debt	Inverse of (annual income + 1)	Author
		Financial	% of households with no insurance		Author
		Financial	Average number of income sources per households		Author
		Financial	% of fishing households reporting decline in income from catch		Author
		Financial	% of all households perceiving less fish in market		Author
		Financial	% of farming households reporting decline in income from produce		Author
Livelihood Strategies (LHS)	Adaptive capacity	Financial	% of households with no members working in a different community	Diversified area and avenues of employment	
		Financial	% Livelihood Diversity Index	Inverse of (the number of livelihood activities+ 1)	
		Financial	Agricultural Livelihood Diversification Index	Inverse of (the number of agricultural livelihood activities + 1)	
	Sensitivity	Financial	Natural Resource Dependence Index	Inverse of (the number of livelihood activities dependent on natural resources + 1)	
		Financial	% of households with no seasonal/secondary livelihoods of members		
		Financial			

Table 9.2: LVI results for Havelock and Neil

Major Component	Sub-component	Units	Havelock		Neil		Minimum	Maximum
			Actual value	Standardised value	Actual value	Standardised value		
Knowledge and Skills								
	% of households where household head has not finished primary school	%	22,4	0,2	37,9	0,4	0,0	100,0
	Household Decision Ratio	No.	113,0	0,4	41,0	0,4	0,0	100,0
	% of households where household head has not attended any training	%	50,3	0,5	49,6	0,5	0,0	100,0
	% of households with no skilled members	%	77,9	0,8	60,5	0,6	0,0	100,0
	Household Education Index	Ratio	3,4	0,6	3,4	0,6	1,0	5,0
Health								
	Average time to health facility in minutes	Minutes	20,0	0,4	15,0	0,3	5,0	45,0
	% of households with a member suffering from chronic illness	%	34,9	0,3	39,5	0,4	0,0	100,0
	% of households with a member missing school/work in the past month due to illness	%	17,3	0,2	31,0	0,3	0,0	100,0
	% of households without toilet facilities	%	62,4	0,6	67,3	0,7	0,0	100,0
Socio-demographic profile								
	Dependency Ratio	Ratio	1,2	0,2	1,5	0,2	0,0	7,0
	% of female-headed households	%	8,7	0,1	19,4	0,2	0,0	100,0
	Average age of female heads of households	Age in years	65,0	0,2	64,3	0,2	35,0	80,0
	Average size of household	Number	4,3	0,2	5,7	0,3	1,0	17,0
Social Networks								
	Average Receive:Give ratio	Ratio	1,3	0,4	1,4	0,4	0,2	3,0
	Average Borrow:Lend ratio	Ratio	1,2	0,5	1,2	0,5	0,5	2,0
	% of households that have not gone to their local government for help in the past 12 months	%	63,8	0,6	65,9	0,8	0,0	
	% of households which are not politically active	%	63,5	0,6	57,4	0,6	0,0	100,0
	% of households with no member in a collective/political group	%	72,8	0,7	53,2	0,5	0,0	100,0
Food								
	% of households primarily dependent on own farm/fishing boats for food	%	37,2	0,4	27,9	0,3	0,0	100,0
	Average Crop Diversity Index	Ratio		0,7		0,4	0,2	1,0
	% of households that do not save crops	%	62,1	0,6	38,8	0,4	0,0	100,0
	% of households that do not save seeds	%	88,9	0,9	71,4	0,7	0,0	100,0
	% of non-fisher households not fishing for additional food	%	64,4	0,6	43,5	0,4	0,0	100,0
	% of households with no poultry/livestock	%	68,2	0,7	53,1	0,5	0,0	100,0
	% of farming households reporting problem crops	%	96,6	1,0	95,1	1,0	0,0	100,0
Water								
	% of households that do not utilise natural sources of Water (wells, ponds, streams)	%	40,0	0,4	3,0	0,0	0,0	100,0
	% of households with no daily Water supply	%	100,0	1,0	100,0	1,0	0,0	100,0
	% of households with only one source of Water	%	63,1	0,6	85,3	0,9	0,0	100,0
	% of households with no govt. supplied Water	%	32,2	0,3	95,4	1,0	0,0	100,0
Infrastructure								
	House Type Diversity Index	Ratio		0,5		0,4	0,1	0,5
	Average time to reach road	Minutes	5,6	0,2	5,3	0,2	2,0	20,0
	Average time to reach market	Minutes	21,7	0,4	14,0	0,2	5,0	45,0
	% of households with no regular electricity	%	100,0	1,0	100,0	1,0	0,0	100,0
	% of households not using livelihood public infrastructure e.g., godowns/ice plants	%	74,4	0,7	58,2	0,6	0,0	100,0

Ecosystems							
% of farming households reporting decrease in soil fertility in the past 6 years	%	100,0	1,0	100,0	1,0	0,0	100,0
% of households which depend heavily on reef resources	%	69,9	0,7	48,8	0,5	0,0	100,0
% of households perceiving degraded reefs in the past 6 years	%	65,1	0,7	46,5	0,5	0,0	100,0
% of fishers reporting changes in fishing grounds in the past 6 years	%	86,1	0,9	88,9	0,9	0,0	100,0
% of households with encroached land	%	15,7	0,2	16,3	0,2	0,0	100,0
% of households perceiving loss of island biodiversity	%	90,1	0,9	92,2	0,9	0,0	100,0
% of households collecting Non-Timber Forest Produce	%	80,1	0,8	58,9	0,6	0,0	100,0
% of households burning Waste	%	82,4	0,8	77,5	0,8	0,0	100,0
% of farmers reporting increase in pests over the past 6 years	%	89,8	0,9	93,9	0,9	0,0	100,0
Natural disasters and climate variability							
Avg. no. of flood, drought, and cyclone events in the past 6 years	Average Number	2,9	0,5	2,8	0,5	1,0	5,0
% of HH with loss of assets as result of natural disaster in past 6 years	%	42,6	0,4	48,1	0,5	0,0	100,0
Mean standard deviation of daily avg. maximum temp by month (2010-16)	Degree Celsius	0,6	0,4	0,6	0,4	0,3	1,0
Mean standard deviation of daily avg. minimum temp by month (2010-2016)	Degree Celsius	0,6	0,5	0,6	0,5	0,2	0,8
Mean standard deviation of avg. precipitation by month (2010-16)	Millimetres	126,7	0,5	126,7	0,5	38,2	222,2
% of households reporting changes in temperature	%	89,4	0,9	87,6	0,9	0,0	100,0
% of households reporting changes in rainfall	%	68,3	0,7	73,6	0,7	0,0	100,0
% of households reporting increase in cyclonic activity	%	65,1	0,7	68,2	0,7	0,0	100,0
Land and Income							
Average Household Landholding Index	%	0,6	0,6	0,5	0,4	0,1	1,0
% of households with annual income less than USD 177 (Below India's Poverty Line)	%	32,4	0,3	48,1	0,5	0,0	100,0
Annual Average per capita income index	Ratio		0,2		0,3		
% of households with debt	%	25,8	0,3	26,3	0,3	0,0	100,0
% of households with no insurance	%	83,7	0,8	83,7	0,8	0,0	100,0
Average No. of income sources per household	Number	2,0	0,2	3,3	0,5	1,0	6,0
% of fishing households reporting decline in income from catch	%	100,0	1,0	100,0	1,0	0,0	100,0
% of all households perceiving less fish in market	%	38,2	0,4	68,3	0,7	0,0	100,0
% of farming households reporting decline in income from yield	%	77,3	0,8	87,2	0,9	0,0	100,0
Livelihood strategies							
% of households with no members working in a different community	%	67,3	0,7	58,1	0,6	0,0	100,0
Livelihood Diversity Index	Ratio	0,4	0,3	0,3	0,2	0,1	1,0
Agricultural Livelihoods Diversification Index	Ratio	0,6	0,5	0,4	0,2	0,3	1,0
Natural Resource Dependence Index		0,5	0,4	0,4	0,2	0,2	1,0
% of households reporting no secondary/seasonal occupation for members	%	91,3	0,9	55,0	0,6	0,0	100,0

9.3 Human Capital

The category of Human Capital (HC) contains two Major Components of:

- Knowledge and Skills (K&S), which consist of five Sub-components; and
- Health, which consists of four Sub-components.

9.3.1 Knowledge and Skills (K&S) Component

This Major Component was assessed on the basis of five indicators or Sub-components:

- % of households where household head has not finished primary school (grade five);
- Household Decision Ratio, or the percentage of households where the head is male, above 50, and educated;
- % of households where household head has not attended any livelihoods training;
- % of households with no skilled members; and
- Household Education Index, which standardises members of a household in a rank of 1-5, ranging from whether they are college graduates, senior secondary school graduates (grade 12), secondary school graduates (grade 10), primary school graduates (grade 5), or have no education whatsoever.

At 0.49, the households in both Havelock and Neil perceived this component as equally vulnerable. Higher levels of vulnerability (>0.5) were found in the lack of skilled members, and in the Household Education Index. The percentage of household heads who have not finished primary school was higher in Neil, which may indicate more vulnerability in household decision-making, while Havelock had a higher percentage of households with no skilled members, suggesting a need for better capacity-building. **Education** in the ANI has improved considerably over the past decades, in both quality and the number of schools. Between 1971 and 2011, the literacy rate³ (Government of India, 2011) rose from 50% to 86.6%, accompanied by increased enrolment, lower dropout rates compared to the all-India average, and a narrowing male-female literacy gap. Amongst India's 28 States and 8 Union Territories, the ANI currently rank 7th in literacy.

³Literacy here refers to any person, aged 7 and above, who can both read and write with comprehension in any language.

However, both islands fall far short of the 88% average literacy rate for their South Andaman district is 88%, with Havelock at 78% and Neil at 76%. This lower rate is a function of the illiteracy of original refugee-settlers, a high migrant population, and lower enrolment due to the demands of shifting livelihoods activities. The 2014 Master Plan declared their educational facilities to be adequate for current populations, but also recommended an additional higher secondary school be built in Havelock, and two more primary schools be built in Neil to cater for the future ((APWD, 2014). The 2009 Right of Children to Free and Compulsory Education (RTE) Act provides free elementary education⁴ in all government schools. A high dropout rate after grade eight and grade ten (secondary school) was evident in both islands during this research, even amongst teenagers. Rising population pressure, fragmented landholdings with little productivity, and the absence of 'agricultural will' amongst the youth means that while earlier generations dropped out of school to work in the fields or on boats, the younger population does so to avail of opportunities in the tourism sector. Temporary daily wage labour, such as working on resort construction sites, or more permanent employment as housekeeping/restaurant/dive shop staff is considered more lucrative. A decent knowledge of English and basic business skills are an asset for this sector, but even teachers complain of poor English education, which is either taught badly (or not at all) at the primary school level (AB, 11.02.2016). Both islands also do not offer the 'Commerce' subject which is a common stream for Indian students to choose for grades eleven and twelve, apart from Science or 'Arts/Humanities'⁵. Some with the drive and money shift to Port Blair for their last few years of school, but others may drop out or fail out of school (AB, 11.02.2016). An influx of urban or mainland-based entrepreneurs skilled in business or specialised activities has led to growing ambitions, which cannot be met with a lack of business skills and poor English education. In fact, island-wide enrolment in government-run schools has declined from 86,000+ in 2007-08 to 83,500 in 2016-17, and even enrolment in Andaman colleges and universities has lessened (Z. Ahmed, 2015, June 9).

New skills and training are also hard for older islanders to acquire. Sporadic capacity-building programmes conducted by different administrative departments are generally characterised as lacking vital information and/or follow-up training. For instance, farmers are taught to collect soil samples to send for laboratory testing, but not to interpret the results which are come back. Sometimes, this is a question of public safety at the expense of ecological preservation. For instance, the Department for High Value Agriculture conducts training on coconut planting and harvesting, and even bee-keeping, but steers clear of information on areca nut

⁴This refers to education from grade one to grade eight in a twelve-grade system.)

⁵At the time of research, Havelock's school offered only Humanities or Science, while Neil offered only Humanities.

or *supari*, which is a WHO-classified carcinogen with addictive properties similar to nicotine. Yet the lucrative areca nut market is unlikely to collapse, while its mismanaged planting can be ecologically harmful. Occasionally, farmers are chosen to be sent to the mainland for training, a process some claim is politicised and skewed towards better-off farmers, or “puppets of the state” (CH, 08.02.2016). Even for decisions which require community participation, locals are seldom included. In a multi-stakeholder meeting for the participatory management of the Rani Jhansi Marine National Park Engagement in 2010, I could clearly see the tensions between islanders on one side, and the Forest Department and tourism developers on the other (Chandi et al., 2012). In recent years, capacity-building programmes, or gatherings to ratify public tourism projects have also excluded local communities. This was the case for meetings around Blue Flag Certification for Havelock’s Radhanagar beach, which involved only larger tourism developers (D. Sharma et al., 2019).



(a) Women working with coir



(b) Coconut tree souvenir

Figure 9.4: A woman’s Self Help Group training in Neil teaching souvenir-making from coconut coir. Images by author, 2016.

Training to avail of tourism opportunities is especially lacking in the ANI. At the time of research, sixteen institutes offered higher and technical education in and around Port Blair, but none catered to hotel management or tourism entrepreneurship. Islanders find it hard to meet a rising demand for English-speaking tour guides and managers. SCUBA diving especially requires both knowledge of English and skilled dive training, a combination the Karen community has leveraged. Converted to Christianity in the British era (and thereby taught English), many Karen men now work as skilled divers and boat hands for Havelock's SCUBA and water sport activities. In light of increasing domestic tourism, English is not always required, but water skills are still important. Snorkelling or simpler 'Discover/Try Scuba Dives'⁶ are popular with mainlanders, presenting perfect 'selfie opportunities'. To conduct these requires training, even to deal with panicking first-timers who are not familiar or comfortable in the ocean.

Few opportunities for building technical or business skills combined with lower financial capital and a sense of exclusion translates into a low level of entrepreneurship amongst islanders. Much-needed training or even awareness-building is left to NGOs or resorts/dive shops, which impart basic dive/swim training and raise ecological awareness through beach clean-up drives or school field trips. An initiative to incorporate island ecology into ANI's school curriculum has been spearheaded by NGOs such as Kalpavriksh, Dakshin, and ANET (Dakshin Foundation, 2014). In Havelock, similar contributions have been made by Seacology and The Turquoise Change (2021). The extent of trainings this author witnessed in nine months of research included one disaster management drill, and one Self-Help Group training, where the NGO Yuvasakthi taught women to weave tourist souvenirs from coconut coir (Figure 9.4).

9.3.2 Health (Hlth) Component

This Major Component was assessed on the basis of four indicators or Sub-components:

- average time to health facility in minutes;
- % of households with a member suffering from chronic illness;
- % of households with a member missing school/work in the past month due to illness;
and
- % of households without toilet facilities.

⁶A rudimentary shallow 5-metre dive for beginners where their mobility and buoyancy are regulated by a dive master or instructor.

Both islands are on the lower end of the vulnerability scale with regards to health, averaging a score of 0.40. This is a somewhat surprising result, as the quality of health facilities are a common source of complaint and necessitates further contextualisation. The provision of health facilities in the ANI is higher than the national average. Health facilities in the ANI have doubled since 1967, from 51 to more than 160 at present. Health indicators, such as Infant Mortality Rate (IMR), Birth and Death Rate and Maternal Mortality Rate (MMR), have all improved considerably from the past, as have incidences of nutritional deficiency diseases, diarrhoea, and communicable disease. Government medical facilities are free for general public, and the government health infrastructure consists of one referral hospital, 4 district hospitals, 4 community health centres, 21 primary health centres, 115 sub-centres, 5 urban health centres, 8 homeopathic dispensaries and even an Ayurvedic dispensary. In addition, the defence service also has its own hospital, and some private practices have opened in Port Blair. Air ambulances and helicopters are also provided in case of emergencies. Compared to the all-India average of one medical unit for 100,000 residents, there are more than 9 medical units for the same number, and the ANI rank 3rd in the country for per capita medical facilities (Dey, 2019, July 17).

Owing to the isolation of inhabited islands, difficult terrain, and transport/communication bottlenecks, the administration has relaxed norms for the provision of facilities. Primary Health Sub-Centres (PHSC) are established at a distance of five kilometres, and Primary Health Centres (PHC) at ten kilometres, irrespective of population. Havelock, with approximately twenty kilometres of road, has one PHC at the central market, and a PHSC in the more remote Shyamnagar *panchayat*, while Neil has one PHC near its jetty and market. The high amount of government medical facilities per capita does not speak to their quality, which is generally considered dismal. The one referral hospital, G.B. Pant, is overworked and understaffed, and many interlocutors avoid it at all costs, stating in unison that “one comes out sicker than one goes in”. A lack of hygiene in the hospital was recently revealed in horrific pictures during the COVID-19 pandemic (Facebook comm., Denis Giles, 2021). Additionally, both Havelock and Neil’s health facilities are grossly ill-equipped to cater to increasing tourism populations, and sometimes even their own, containing no specialised care (e.g., dentistry), no emergency facilities (such as decompression chambers in the event of diving accidents), and no diagnostic ultrasound or even X-ray machines.

Chronic illness is reported as low, though Neil seems worse off in this regard. Chronic health issues in both islands have been linked to the composition of water, changes in diet, alcoholism, and even pesticide use. According to the one doctor in Neil (SP, 10.02.2016), the hard-

ness of water results in the formation of kidney stones, while increasing dietary starch, sugar, spice, and alcohol causes hypertension, diabetes, peptic ulcers, and liver damage. Fungal skin infections and eczema are common amongst farmers exposed to the sun and to chemicals. The majority of complaints are of acute respiratory infections, pyrexia or viral fever, gastro-intestinal disorders, anaemia, and vitamin deficiencies. In the early 2000s, Neil's PHC was overwhelmed by more than 100 daily outpatients, with symptoms of respiratory issues and suspected cancer. The doctor further claimed that accumulation of chemicals in water and milk manifested in complications with pregnancy, and in babies born with birth defects or respiratory issues. Infectious disease has been generally low in the past, barring some outbreaks of malaria after the tsunami and cyclones. The permeability of the soil does not allow for intensive mosquito breeding, and the endemicity of spreader mosquitoes is rare. The use of DDT has been effective, though with other ramifications (Kartick et al., 2017; S. S. Singh, Rao, Thatkar, & Raj, 2017). HIV and other Sexually Transmitted Diseases are low, though the doctor felt they needed further monitoring in the Islands' "promiscuous society".

Air-borne vectors remain the biggest threat for these islands, and Havelock's veterinarian (DV, 25.02.2016) used the outbreak of Canine Distemper amongst its stray dog population as an illustration. Despite sterilisation attempts, large gangs of dogs had become a menace for the islanders, and incidents of dogfights, biting, and even road accidents caused by dogs were on the rise. The first case of distemper was reported in Port Blair in August 2015, but vaccination attempts could not keep up. By November, the dogs of Havelock had almost vanished (DV, 25.02.2016)⁷. The current COVID-19 pandemic is therefore a bigger threat on these islands, and one that is vital to contain. The first cases of COVID-19 in Havelock were purportedly spread through medical and pharmacy staff who had either returned from Port Blair or had contact with medicines supplied from Port Blair hospitals (BJ, pers. comm., 20.11.2020).

The lack of toilet facilities also stood out, with almost 65% of sample households reporting no permanent structures. Port Blair has been declared an 'open-defecation free' by the Clean India Mission (Swachh Bharat Abhiyan) in 2017, but toilet facilities on household premises in both these rural islands are low. In the absence of a proper sewerage system, individual and combined septic tanks are used. Drainage is poor, but the permeable soils absorb rainwater quickly, though waste management is a chronic problem in both islands and waste is regularly dumped in mangroves or on the beach (APWD, 2014).

⁷The doctor ventured the virus might have spread from packaging material, such as a gunny sack, from Port Blair which was thrown away in a Havelock dumpster where dogs rummaged for food. Given the 'dog menace' plaguing both islander and tourist, he did not rule out foul play.

The mangroves are also popular suicide spots, and many respondents think them haunted by the disturbed ghosts of suicide victims⁸. In 2015, the Union Territory ranked 3rd in the country for its suicide rate, at 29 suicides per 100,000 people (Ministry National Crime Records Bureau, 2015). Health is undoubtedly a deeply personal subject, but in the ANI, a stigma is attached to disease, especially in cases of mental illness and addiction, both of which are high and often interconnected. A survey of 100 families by the NGO Humane Touch reported 72 being affected by addiction (Giles, 2016, August 23). The majority of suicides are related to alcoholism/drug addiction, though the despair of mental illness and chronic diseases like cancer also play a part (Dey, 2019, July 17)⁹.

9.4 Natural Capital

The category of Natural Capital (NC) contains two Major Components of:

- Ecosystems (Eco), which consist of nine Sub-components; and
- Natural Disasters and Climate Variability (NDCV), which consists of eight Sub-components.

9.4.1 Ecosystems (Eco) Component

This Major Component was assessed on the basis of nine indicators or Sub-components, all of which were based on the past six years (2010 to 2016):

- % of farming households reporting decrease in soil fertility
- % of households which depend heavily on reef resources
- % of households perceiving degraded reefs
- % of fishers reporting decrease in fishing grounds
- % of households with encroached land
- % of households perceiving loss of island biodiversity
- % of households collecting Non-Timber Forest Produce

⁸Even during this research, I was intimidated of a suicide by hanging in the mangroves.

⁹Suicides also seem to be seasonal, increasing in the festive months of November and December.

- % of households burning waste
- % of farmers reporting increase in pests

The Ecosystems (Eco) component was perceived as the most vulnerable in Havelock (0.75) and the second-most vulnerable in Neil (0.69). *All* farming households surveyed reported declining soil fertility, and the need for increasing amounts of Urea and DAP. In Neil, the conversion to organic inputs means manure and neem is being employed as fertiliser, though black markets for Urea do exist. Almost all households perceived a loss of island biodiversity. In Neil, the loss of biodiversity is both visible and audible for the islanders (through the loss of birdsong) and the narrative is as follows. With rising misuse of pesticides, especially by untrained migrant sharecroppers, insects built up resistance and infestations became larger and more regular. In the aftermath of the tsunami, the large invasive Indian Bullfrog (*sona maindak*) proliferated, and the absence of snakes and birds, which had dwindled due to human disturbance and possibly pesticide use, was deeply felt. Snakes big enough to eat these massive frogs are now hard to find, as the frogs indiscriminately eat smaller snakes and rats, poultry chicks, lizards, and geckos, and ‘anything they can find’ (MB, 18.12.2015). Interlocutors have expressed sorrow at the loss of sunbirds, bulbuls, and bee-eaters, and even bees (LN, 09.02.2016). An avifaunal survey in Neil between 2012 and 2015 highlighted more bird variety in agricultural land, owing to the loss of other habitats, particularly evergreen forest (Rajeshkumar et al. 2015). Pests for fruits and vegetables include parrots, bulbuls, and even the ‘wild cat’, a probable reference to the Andaman masked palm civet which reportedly enjoys aubergines (AM, 05.10.2015). Large pests are easier to tackle than insect infestations or bacterial/viral disease. Mealy bugs attack papaya trees, while white flies and rhizome weevils like bananas, and a host of other vegetables and fruits appeal to pod/fruit borers, black ants, aphids, red palm weevils, and the American bollworm. An increase in the number of insects has occurred with a parallel decrease in bird, snake, lizard, and bee populations.

Disease is nevertheless the hardest problem to tackle. Promising progress in growing and exporting bananas was abruptly halted, as mass decimation of banana trees followed a combined attack by the ‘bunchy top virus’, leaf spots, and rhizome weevils (AM, 05.10.2015; AB, 11.02.2016). It is claimed the virus arrived within hybrid seedlings from the Department of Agriculture, and was disseminated by aphids across the islands, though this is unsubstantiated. With more banana trees, Havelock was worse hit. Once piled in *gods*, or 10 kg bunches, bananas would crowd Havelock’s jetty, fetching 30 rupees per *god* in 2005. Today this is upwards of 250 rupees, and not worth exporting, as a small bunch of bananas can be sold to tourists for

50 rupees. The scarcity of banana trees has also interestingly contributed to the island's waste problems. Plastic has now replaced the once ubiquitous banana leaf, which would be used as packaging for cereal, vegetables, and fish, and even as plates to eat from (RD, 21.02.2016).

The same amount of (minimal) encroachment was reported in both islands, though islanders are understandably reluctant to reveal this information. With sale and fragmentation of revenue land, the number of encroachments have increased manifold. Earlier a household would encroach around its allotted area, but with crowding and disputes, encroachment has shifted to the middle of Havelock's hilly Reserved Forests. Protected trees and vegetation is illegally cut down for intercropping areca nut, spices, and coconut. In this research, encroachment was viewed as common practice, though not all households admitted to encroaching land. An estimate of over 500 acres of encroachment in Havelock were met with the opinion in Neil, that for every 100 acres of revenue land, another 100 had probably been encroached (FGDs 1, 3). Encroachments are more visible given the paucity of forested area in Neil. The regularisation of all pre-1978 encroachment up to one hectare had been sanctioned by Prime Minister Rajiv Gandhi in 1987 (Dhingra, 2005). This one-time act has given subsequent populations hope, buoyed by political parties which demand regularisation on behalf of their ethnic vote banks in the region. This is despite the 1980 Forest (Conservation) Act which states that no forest land can be used for non-forest purposes and the 2002 Supreme Court which has ordered all post-1978 encroachments be cleared. The government's firmer stance on encroachment is visible in occasional 'eviction raids' by teams from Port Blair. One 2015 raid in Neil is reported to have broken down ten houses and cleared over a thousand (cash crop) trees (MS, 08.02.2016).

Unlike encroachment information, islanders freely admitted to burning waste in their backyards or dumping them on beaches. The disposal of solid waste is perhaps the biggest problem plaguing both islands. With no proper dumping yard, Neil's beaches near the jetty are often littered with garbage, and the deposition of trash from Southeast Asia via sea currents adds fuel to a literal fire, as burning plastic waste is a common practice. Estimated waste production in 2014 was 2.5 metric tonnes per day in Havelock (APWD, 2014); In 2019, this was probably 5 tonnes (LK, pers. comm., 03.01.2019). Havelock has a single dumping yard in a more remote part of the island (No. 6), and one garbage truck. Resorts and even residents often carry their refuse to the dump in three-wheelers, which charge a hefty sum for 'garbage runs'. Plastic and other waste is routinely dumped or burned on beaches, backyards, or in the mangroves (Figure 9.5).

A higher percentage of Havelock's households reported being dependent on reef resources either as fishers or as snorkelling/diving operators (0.70 compared to Neil's 0.49), but all these households noted degraded reefs, especially during after the 2010 bleaching event. They opined



Figure 9.5: A beach near the jetty in Neil. With no garbage dump, Neil's beaches are repositories for waste or sites for burning waste dump, and garbage also washes up on shore. Image by author, 2016.

that the slow recovery of bleached coral had to do with anchor damage, overcrowded dive sites, and fishing spots. The majority of fishers on both islands reported a decrease in fishing grounds due to incursion by Port Blair fishermen, trawlers, and heavy policing of the Rani Jhansi MNP. More households collect Non-Timber Forest Produce in Havelock, mostly for house repairs e.g., bamboo, canes, thatch. This may reflect the preference for wood and tin houses in Havelock and cement and tin ones in Neil.

9.4.2 Natural Disasters and Climate Variability (NDCV)

This Major Component was assessed on the basis of eight indicators or Sub-components, all of which were based on the past six years (2010 to 2016):

- Avg. no. of flood, drought, and cyclone events
- % of HH with loss of assets as result of natural disaster
- Mean standard deviation of daily avg. maximum temp by month
- Mean standard deviation of daily avg. minimum temp by month

- Mean standard deviation of avg. precipitation by month
- % of households reporting changes in temperature
- % of households reporting changes in rainfall
- % of households reporting increase in cyclonic activity

Households in Havelock and Neil perceived fairly similar vulnerability with regard to the NDCV indicator, with an average score of 0.58, which is understandable given the proximity of the two islands and that four indicators require secondary data from the Meteorological Department. The same numbers apply for four indicators: the three mean standard deviations and the average number of flood, drought, and cyclone events. This paints a fairly moderate picture. For the remaining four indicators, almost 90% of households reported changes in temperature, mostly higher temperatures, though perceptions of rainfall and cyclonic activity were more varied.

Climate change research in the area is still at a nascent stage. Despite scientific efforts to highlight the issue, the government has made token gestures, such as a draft of a State Action Plan for Climate Change drawn up with the UNDP in 2013, interestingly subtitled ‘bulwark against falling off the map..’. Uploaded to the Ministry of Environment and Forests website in 2017, it seems to have made little impact on policy (UNDP, 2013). Even the IPCC’s 2015 warning that the Islands are threatened by Sea Level Rise and may have to be evacuated has generally gone unnoticed. Scholars and civil society assume that issues of unsustainable development and ecological degradation are more pressing for the local populace. The 2010 SocMon surveys did not feature climate change amid developmental and socio-political concerns, though many expressed concern for climate and ecosystem change. In this research, perceptions of climate change were incorporated in survey design, but came up independently in almost every other forum or discussion.

Of the flood, drought, and cyclone events, the most destructive remains the Very Severe Cyclonic Storm Lehar of November 2013. Flatter Neil suffered more flooding and damage, with few hills to break wind speeds of 140 km/hour. No loss of life was reported, but asset losses, of crops, coconut and areca nut trees, homes, and infrastructure, are still being felt. The 2004 earthquake and tsunami occurred before the time period decided for this research, and the tsunami’s impact here was nowhere near as severe as in the Nicobars, where waves washed completely over some islands. In Great Andaman and Ritchie’s Archipelago, the experience was of tide lines ebbing and receding, coming back stronger and inundating hundreds of metres of land in a

matter of hours. In Havelock and Neil, the tide ebbed more than ten times, and inundated over 200 metres. In Havelock, low-lying resorts, and shops at the jetty were flooded, as people took to higher ground (CH, 08.02.2016). In comparison, Neil was relatively more damaged by this disaster, which caused seawater to “rush out of the ground” in inland areas (NCR, 28.09.2015). Along with landslides, cracks in the ground emerged on the southwest part of the island, cutting across fields, wells, and metalled roads (V. Singh, Nandakumar, Sarma, & Dimri, 2005). In Havelock, a ‘see-saw effect’ was observed, with subsidence in the western mangrove forests and upliftment on the eastern side (Channabasappa, Kalaskar, .K, & Muddarmaiah, 2018).

Compensation for tsunami damage in the two islands consisted of 10,000 to 20,000 rupees depending on damage, an amount the islanders accepted in that time of crisis and loss in ANI. Yet regional disparities in compensation in the Andamans led to resentment and tension. Diglipur in North Andamans for instance received more compensation. Reasons cited for this were not more damage, but the political power wielded by Diglipur’s fifteen *panchayats*, against three each in Havelock and Neil, and that the ANI’s Member of Parliament at the time hailed from Diglipur. After Cyclone Lehar, similar complaints ensued. The damage wrought in this region was worse than after the tsunami, yet compensation was much less, between 2000 and 2500 rupees, mostly for loss of paddy or cash crops. Apart from clear differences in severity, the difference in the two compensations may also be attributed to the 2004 tsunami being a ‘high-profile’ disaster of international significance, which was followed by a flood of national aid and relief. Cyclones in contrast are routine hazards which occur annually, and compensation is a local administrative affair.

Amongst the households surveyed for this work, an average of 78% perceived changes in climate and ecology as a reaction to the tsunami. The author has opined elsewhere that the tsunami might have served as a ‘revelatory shock’ (R. Deol & Zehmisch, 2020), resulting in a mental periodisation into ‘before’ and ‘after’ in local consciousness and memory. This is similar to old settler reminiscences of the 1975 cyclone in the region but is naturally more widespread. The sheer magnitude of the disaster notwithstanding, no cultural memory of tsunamis exists in settled communities, and thus no response mechanisms. In the Prologue to this work, Karen conservationist Saw Agu instinctively knew to run to higher ground when the waters receded, but others ran towards the sea to investigate. A coastal tribe, the Burmese Karen might retain a collective memory of tsunamis, as might other ANI indigenous groups (Bhaumik, 2005, January 20). It is unclear whether the Nicobarese tribe retains a similar memory, though action might be futile given proximity of the epicentre, the magnitude of the earthquake, and the swiftness and unrelenting power of the tsunami waves. For months after the tsunami, strange phenomena

was noticed, such as increasing stocks of ‘tsunami *macchi*’, changes in wave action, and erratic rainfall. This has led to some conjecture that subsidence and upliftment have small effects on micro-climates which become greater as time passes (RD, 21.02.206; CH, 08.02.2016).

An increase in temperature over the past six years is perceived by over 90% of respondent households. Many older settlers talked of a “winter season” between November and January, when temperatures would fall below 25 degrees Celsius, and they would feel cold. Others referred to “*thanda girna*” or the “falling of the cold” from the sky, an increase in dew which necessitated the use of umbrellas at night (NCR, 28.09.2015; KM, 04.10.2015; RH, 06.10.2015). Now temperatures during this period are seldom perceived as falling below 28-30 degrees, and the period is more often referred to as “the peak of the tourist season” than as “winter”. A single historical analysis of climate trends in the region reports an average increase of 0.5 degrees between 1951 and 2014, with a corresponding increase in both mean maximum and mean minimum temperatures, by 0.4 and 0.7 degrees respectively (Bhat et al., 2015).

The perception of warming is also visually confirmed in certain ecosystems. Rising Sea Surface Temperatures (SSTs) during ENSO years have affected the extent and biodiversity of ANI’s coral reefs over the years. Between 2002-2005, 20-40% of its corals were bleached, while the 2016 event was longest on record. The mean SST in Ritchie’s Archipelago has risen from 28.4 degrees in 1985 to 28.8 in 2005, with mass coral bleaching events in the ENSO events of 1998, 2002, 2005, and 2010¹⁰ (Krishnan et al., 2011). This last event, followed by monsoon storms, laid waste to one of the Archipelago’s most popular dive and snorkelling sites, South Button. This islet is surrounded by shallow waters, and bleaching occurred most intensely for its surrounding reefs, all located above 15 metres of depth (Krishnan et al., 2011). In this critical state, monsoon storms followed, battering the reefs further. By November, almost 70% of the Archipelago’s shallower reefs were bleached or broken. Divers and snorkelers returning to South Button likened the scene to the aftermath of war, where the once vibrant coral garden was now a white wasteland strewn with broken coral and covered with sand. The 2010 bleaching was a global catastrophe, affecting 74-77% of the world’s corals (Arora et al., 2019).

Changes in rainfall are perhaps of highest concern for the island populace. Some note a decrease in rain, but many more talk about erratic changes and the disruption of what were once predictable seasonal, yearly, or even five-yearly cycles. Multiple observations emerged regarding rainfall in almost all the Focus Group Discussions: a shortening of, and changes within, both monsoon seasons, ‘false starts’ for monsoon onsets, heavier monsoon rainfall events, changes in monsoon wind movement and intensity, higher rainfall dissipation over sea instead of land,

¹⁰The year 2016 also witnessed some coral bleaching, but mainly around Port Blair.

untimely rain, and more intense and frequent drought-like conditions before the onset of the southwest monsoon. The 2015 study on climate variability also noted a decrease of rainfall by more than five millimetres a year between 1951 and 2014, regardless of season (Bhat et al., 2015). Perceptions of cyclonic activity are not as uniform, and the Bay of Bengal is still perceived as a 'breeding ground' for cyclones which move on to the mainland. Some talk of rising intensity and frequency (RD, 21.02.2016); others report similar or declining occurrences. The author argues that an increase in cyclone frequency and occurrence is discernible in the ANI (see Chapter 6). Given the stranding of tourists in 2016 following Cyclone Vardah, the disruption to the 2018-19 tourist season by Severe Cyclone Phethai and Cyclone Pabuk, and communication disruptions during the 2020 Super Cyclonic Storm Amphan, respondents today might agree.

9.5 Physical Capital

The category of Physical Capital (PC) contains three Major Components of:

- Water (Wa), which consists of four Sub-components;
- Food (Fd), which consists of seven Sub-components; and
- Infrastructure (Inf), which consists of five Sub-components.

9.5.1 Water (Wa) Component

This Major Component was assessed on the basis of four indicators or Sub-components:

- % of households that do not utilise natural sources of water (wells, ponds, streams)
- % of households with no consistent water supply
- % of households with only one source of water
- % of households with no govt. supplied water

Water in Neil is regarded as the most vulnerable component, with a score of 0.71 against Havelock's 0.59. While all sample households in both islands reported an inconsistent water supply, most also reported dependence on just a single source of water (a well or government pipeline), and this number was significantly higher in Neil. The biggest discrepancy between

the two lay in households with government-supplied water, with 95% citing a complete absence in Neil, compared to 32% in Havelock. The Islands depend significantly on three sources of water: surface water (lakes, streams, and rivers), rainwater, and groundwater. With high rainfall, a high evapotranspiration rate, and few riverine systems, springs and groundwater reserves are crucial for the rural population. The urban area of Port Blair relies heavily on the catchments of the Dhilthaman tank, and the Dhanikari dam (Srivastava & Ambast, 2009). Springs emerge at higher elevations in all three geological formations found here (marine sedimentary, volcanic or igneous, and coralline limestone), helped by an undulating topography. On Great Andaman, the Port Blair soil series holds little groundwater, but the Archipelagic series in Havelock and Neil allows for coralline aquifers, resulting in comparatively higher groundwater reserves (Government Ministry Of Water Resources, 2013; J. Sharma & Kar, 2013; Srivastava & Ambast, 2009).

Havelock sources water from one major stream (in Krishnanagar) which has a check dam, and two minor streams (in Radhanagar and 'Bamboo Nallah'). Water from the dam is pumped to a treatment plant and supplied through communal taps on alternate days. Neil, being mostly flat, has no streams and relies wholly on rainfall and groundwater reserves. Dug wells are its main source of water, and the island has more than 200 wells, compared to the same number on the much larger and comparatively water-rich Havelock. Pressure on water resources is exacerbated by tourism development and rising populations. Resorts rely on ring wells and a few tube wells, while drinking water is supplied through filtered or bottled water (Chandi et al., 2012). The lack of drinking water facilities in these tourist hubs has led to increased consumption of bottled water, which results in more plastic waste.

As of 2020, of the almost 400 villages in the ANI, piped water supply existed in only 290, and less than 34,000 households had a tap connection (Ministry Press Information Bureau, 2020, October 26). With regard to government water supply, the 2014 Master Plan noted that Havelock's residents used 0.75 million litres per day (mld) of an available 1.01 mld. Neil on the other hand had a supply of 0.18 mld in the same year and used 0.12 mld. This means the average Havelock resident used 118.7 litres per day (measured in litres per capita per day, or lpcd) compared to the average Neil resident who used 39.4. This is a highly simplified calculation, as populations are higher than census figures, and it does not account for migrants, tourists, or water for infrastructure development. The Ministry of Urban Development mandates that the government deliver a minimum water supply of 40 lpcd to rural areas, and 135 lpcd to urban areas. Thus, government supply in Neil is clearly inadequate, and the Master Plan acknowledged that a minimum level of 70 lpcd was needed just to support Neil's current tourist numbers (APWD, 2014).

Potability of water is another concern. Groundwater is considered non-potable due to its salinity and a high iron content in pockets (J. Sharma & Kar, 2013). Bore wells and ring wells are used to draw water for bathing and washing, and government supply is usually boiled or filtered (through Reverse Osmosis in resorts) before consuming. In 2010, one Havelock resort reported installing an RO plant and supplying filtered water even for bathing needs. This was not for luxury, but to protect expensive and hard-to-replace pipes from salt build-up (BM, pers. comm., 18.10.2010). Groundwater salinity has increased after the 2004 tsunami, especially around low-lying areas, such as near the jetties and markets of both islands. Apart from iron and salinity, pesticide residue is another major concern, particularly for Neil. Two research teams, from Kolkata and Hyderabad, are said to have found few wells or soil samples in Neil that did not contain high levels of pesticide (RKB, 18.12.2015, Saxena, Singh, Mondal, and Maurya, 2005).

In Neil, the earthquake caused cracks in the aquifer on its southwestern edge, leading to a considerable decrease in groundwater volume, driving water deeper underground (V. Singh et al., 2005). Where once water was found at 1.5 metres, depths of 5-6 metres are now needed to source water (RKB, 18.12.2015). Digging deeper for water is risky, as it increases the potential for saltwater flooding of the aquifer (Saxena et al., 2005). Wells also cannot be dug everywhere. Havelock's youngest village, where many migrants have settled, is near a mangrove system which yields brackish groundwater. A government pipeline stretches from the nearby Bamboo Nallah stream, and at the time of research, the village's households were being supplied water for one hour a day. The entrance of the village hosts a communal tap which for some means walking almost a kilometre on a mud road to collect water. If it rains, flip-flops and even shoes can disappear in the mud. During the monsoons, children walk barefoot and in regular clothes, as the mud invariably soils their uniforms, to the school bus at the entrance of the village. There they use the communal tap to wash their feet, and often change into their uniforms at school. By 2017, a proper road was under construction, spurred by the construction of tourist resorts in the village (Figure 9.6).

Droughts are now a common occurrence at the end of the dry season before the southwest monsoon hits the islands in May. In April 2010, Port Blair's Dhanikari dam ran drier than it had in the previous dry years of 2002 and 2007. A project to raise the dam's height and another to transport water to Port Blair from south-lying Rutland Island via an under-sea pipeline, are in the works. A 2009-supply of 1,500,000 litres of drinking water is expected to grow to 3,700,000 by 2025 (Srivastava & Ambast, 2009). For agriculture, rainfall is the most crucial resource but



Figure 9.6: A photograph of the main (dirt) road entering Havelock's Kalapathar village, taken from near the communal tap. Image by author, 2016.

also the biggest problem. A lack of water has decreased the planting of rice ¹¹, and even the prized areca nut is said to consume too much water (FGD4). The undulating hills in Havelock require channels to be dug to keep water from draining into the sea (along with harmful but also precious chemicals). In low-lying areas, the water is too saline and the soil too porous for agriculture. Reports recommend a range of solutions: local rainwater harvesting and grey-water usage, micro-irrigation systems, groundwater monitoring of development projects, tank-well systems, and integrated pond farming systems. All these recommendations reportedly come with challenges of their own in the island context. Farmers harvest rainwater of their own accord, and some have even concocted innovative drip-irrigation techniques (KM, 4.10.2015).

9.5.2 Food (Fd) Component

This Major Component was assessed on the basis of seven indicators or Sub-components:

- % of households primarily dependent on own farm/fishing boats for food

¹¹After meat production, the highest amount of water in the ANI is used for cereals and paddy cultivation, followed distantly by vegetables (Srivastava & Ambast, 2009).

- Average Crop Diversity Index
- % of households that do not save crops
- % of households that do not save seeds
- % of non-fisher households not fishing for additional food
- % of households with no poultry/livestock
- % of households reporting problem crops

Regarding food stocks and production, Havelock is perceived as more vulnerable, with a score of 0.65 compared to Neil's score of 0.55. All farming households surveyed report problems associated with crops, a function of pests, disease, decreasing soil fertility, questionable inputs, and climatic changes. Neil's reputation as a 'vegetable bowl' has suffered in a government-mandated shift towards organic cultivation in 2014, though its populace is still reliant on agriculture and allied activities. Livestock-rearing and poultry farming are on the rise, and vegetable exports are supplemented by sale of milk and eggs. Havelock's farmers are shifting away from low-value agriculture towards cash crops and tourism jobs. Exporting areca nut and coconut, markets geared towards tourists import cereals, vegetables, fruits, and even seafood (Figure 9.7). Havelock's crop diversity is lower, with fewer saving mechanisms for seeds and crops. Less households need to fish for subsistence, or own poultry and livestock, as everything is available in the market. The effort and labour involved in farming, severe land fragmentation, falling fertility, and lack of administrative interest in developing these livelihoods in this touristic island, have forced many to diversify from agricultural livelihoods, or leave agriculture altogether. Though Havelock's per capita incomes and spending power are higher, its dependence on external transport and supply chains for food and a volatile tourism industry is risky.

Changes in rainfall and falling yields have affected rice production, and the traditional *dhaan* is now only harvested for household use (Figure 9.8). In Havelock, the number of acres under rice cultivation have halved, from more than 1000 in the 1970s to barely 500 today. The soil in its latest-settled village, Kalapathar, is considered more fertile. Home to less than 150 families, the majority of the island's rice acres are found here (RS, 29.09.2015). Kalapathar's farmers reported a drop in per acre yield in the past six years from 150 to 100 *maund* (1 *maund* = 40 kgs), accompanied by doubling of price, from 200 to 400 rupees per *maund* (FGD10). With silos and godowns full of areca nut and coconuts, post-harvest rice storage is problematic, as rats are drawn to stored grain.



Figure 9.7: Imported and local produce at a stall in Havelock's main market. Image by author, 2016.

With ideal soil, climate, and groundwater reserves, tomatoes used to grow well, especially in Neil (see Chapter 8). In 2010, farmers noticed a decrease in yield due to changes in wind patterns and the presence of “salty air” in the fields. Followed by untimely rain and pest infestations, an agricultural emergency ensued, leading to a desperate use of pesticides. Neil's tomatoes and vegetables now developed a reputation for being laced with chemicals, and demand fell. The Lieutenant Governor declared the island ‘organic’ in 2014; island rumours claimed he had done it after eating some bad spinach from Neil (FGD7). A shift to organic cultivation without other support mechanisms has led to a further fall in yields. Hybrid seeds have crowded out local seeds, and only *dhaan* seeds are preserved for their cultural and emotional value. Hybrid vegetables last longer, are bigger, and allow for cultivation of vegetables that would normally be too expensive to grow, such as bell-peppers. They are also more resistant to the exigencies of climate and storage, though they are considered inferior in terms of taste and quality. Saving or storing crops is also hard with pests and the few storage facilities or godowns being used for coconut or areca nut storage, though traditional methods are employed, such as storing grains with neem leaves to keep pests away.

Animal husbandry, particularly for milk and egg production, has gained increasing relevance, especially in Neil. Between 2010 to 2016, the price of milk more than tripled, and egg prices more than doubled (DV, 25.02.2016). Cows are valuable for ploughing, and their manure



Figure 9.8: Grains of the traditional rice cultivar *dhaan*, laid out to dry in Havelock island. Image by author, 2016.

(*gobar*) is natural fertiliser and fuel. Nevertheless, animal husbandry is a time-consuming and expensive business, involving procurement, feeding, care, disease control, grazing land, and breeding. Cattle need bigger tracts of land, but it is their feed or fodder which constitutes 60% of the expense: a weekly bag of feed to sustain one cow (25 kg) costs upwards of 1400 rupees. Supplemented by dry fodder and the *Azolla* algae (both of which come by boat), dry island grass would be used in emergencies, though rising temperatures are decreasing its growth. For choice of cattle, milk yield is an important consideration, but so is hardiness in hot and humid conditions. Jersey or Holstein Friesian cows produce the most milk, up to 26 litres, compared to indigenous breeds such as Gir or Tharparkar, which produce an average of 10-15 litres. However, Indian breeds considered hardier ploughing animals, and better suited to the heat and environmental conditions. The government has been encouraging the use of Indian breeds, but the most popular cows are crossbreeds such as the Karan Fries (Figure 9.9) or Karan Swiss, which produce decent milk and are suited to the Indian climate. Milk is tested with a lactometer to check for adulteration and then sold to the Andaman and Nicobar Islands Integrated Development Corporation Limited (ANIIDCO) or private players at 40-50 rupees per litre, for the Port Blair market (ND, 10.02.2016; FGD7). In Neil, almost 100 settler households were involved in this business and production stood at 800 litres per day, at least 300 of which were sent to Port



Figure 9.9: A 'Karan Fries' cow, a cross between the European Holstein Friesian and the Indian Tharparkar breeds, known for milk yield, reproductive capacity, and tolerance to heat and humidity. This particular cow was popular on Havelock for giving birth to twin calves, a rare phenomenon. Image by author, 2017.

Blair. Havelock also produced a respectable 500 litres per day, though mostly for island consumption. Apart from milk, livestock numbers are too low to provide manure, and artificial insemination means bulls are dispensable, especially Jersey or Holstein Friesian bulls, which are unsuitable for ploughing. The disposal of unproductive or sick livestock is illegal and unethical and involves either being abandoned in the jungle or in other uninhabited islands or being sent to slaughter to Port Blair on a boat (a practice which has since ceased amidst fear of Hindu retaliation). A tick outbreak following the tsunami led to fears of the animal-human transmission of Crimean-Congo Haemorrhagic Fever, and many animals were culled or abandoned (DV, 25.02.2016). The viral 'Ranikhet disease' almost wiped out the entire poultry population of the islands in 2010, but hatcheries and better veterinary facilities have revived it. Chicken and ducks provide meat and eggs, and some goats are also reared for meat and milk (Ibid.).

Fishing is becoming more lucrative now, with Havelock's fishers catering to both domestic and export markets. In 2010, six fish traders worked in Havelock while three were present on Neil, mostly for export of fish. At the start of the booming live grouper trade to supply southeast Asian markets, dead groupers were sold domestically at the low price of twenty rupees per kg.



Figure 9.10: Fish vendors at Havelock's Fish market. Image by author, 2017.

Today only dead fish are exported, which includes red groupers, coral trout, black coral trout, potato groupers, and seer/king fish. Export markets and tourist tastes have also changed local fish preferences. Dead groupers are now a delicacy and sell for 600-800 rupees per kg (Chandi et al., 2012). Sharks have increasingly been targeted for their fins, as shark fishing is not yet illegal in India. Tourism creates enough demand for fish, and artisanal fishers in the two islands now mainly supply local markets, which are easier to access. Fish traders now also *import* a wide variety from other regions, such as Diglipur (prawns, crabs) and Rangat (trevally). A wider variety is caught even for local demand; trevally, job fish, groupers, snappers, perches, emperors, mullets, sardines, mangrove cat fish, and mackerel. Even subsistence fishers sell extra catch or bait in the market or to fish vendors, who are typically men in the Bengali community and women in the Telugu/Tamil communities (Figure 9.10). With a rise in Bengali fishermen, Havelock has two different fishing associations based on these ethnicities with different fishing grounds and even target species. For instance, Bengalis enjoy mangrove (brackish water) fish and even cultivate freshwater fish in ponds on their land.

After the tsunami, regional fishers preferred staying closer to shore or venturing out in small groups. This led to an influx of opportunists from other regions to what are considered the traditional fishing grounds for the two islands. Post-tsunami, fishing infrastructure in and around Port Blair, where the majority of fishermen villages lie, was badly devastated and fishers received cash and nets as compensation. To avail of the opportunity, migrant fishermen arrived

from Andhra Pradesh and Tamil Nadu, with different fishing practices, inputs, and experience. Boats with big ice boxes and fish finders now allowed a fishing trip to spread over days and nights, and fishers would camp illegally on uninhabited islands (MS, 08.02.2016). Overcrowded fishing grounds mean fish stocks and fish size have perceptibly declined, and mackerel, trevally, job fish, and mangrove snappers are seen as most affected (RD, 21.02.2016). Adopting military-speak, these “interlopers” were accused of “invading our waters”, encouraged by officials who were either bribed or turned a blind eye (FGD5, FGD9). One fisheries official for instance insisted that trawling and bigger boats only fished around Port Blair as the Rani Jhansi MNP was well-policed, a claim that was loudly refuted by all fishers in the FGDs. Policing has also increased tensions between the Forest Department and local fishermen, with accusations of corruption, power struggles, harassment, and exclusion.

9.5.3 Infrastructure (Inf) Component

This Major Component was assessed on the basis of five indicators or Sub-components:

- House Type Diversity Index
- Average time to reach road
- Average time to reach market
- % of households with no regular electricity
- % of households not using livelihood public infrastructure e.g., godowns/ice plants

Havelock is more vulnerable in terms of infrastructure with a score of 0.58, compared to Neil's 0.48. This is due to the lack of regular electricity, which afflicts every household because of constant tourism development and construction, and a sparser use of communal livelihoods infrastructure such as silos/godowns and ice-plants. Electricity in the islands is generated primarily through independent power houses supplied by diesel. Havelock's power house has an installed capacity of 1.7 MW and five diesel generator sets, while Neil's two power houses have an installed capacity of 0.6 MW, with eight generator sets. Havelock has over 2000 electricity connections, of which >500 are commercial, while relatively tiny Neil has more than 1100 connections, with 200 commercial ones (Directorate of Economics and Statistics, 2021). Resorts pay commercial rates for electricity, but also have backup diesel generators, a must-have for any tourist venture. Households suffer inordinately from power outages. Instances of week-long power shortages are reported when major development works or road repairs are undertaken, and even when resorts are being constructed in some instances. The diesel generator sets installed on both islands are old and in disrepair. In 2019, one blew out in Havelock and was not fixed for a month (BJ, pers.comm., 20.12.2019). An urgent need to increase power house capacity, in the face of increasing air-conditioned resorts and even some with pools which require pumps, has been expressed. The administration sometimes requests bigger resorts to switch to generators between 6 pm and 10 pm. Two grid-connected solar power plants with a capacity of 50 kWp (kilowatt peak) were installed in both islands between 2002 and 2004 but stopped functioning after eight years and have not been repaired. Water pumps, and motors require electricity, hampering the will to mechanise farming, and even available livelihoods infrastructure, such as ice plants, can be rendered useless by electricity shortages. Fishers may resort to obtaining ice from bigger shops or resorts, even renting storage space in their freezers at points. In the event of any breakdown, a lack of repair shops means generator sets need to be

sent to Port Blair or technicians brought to the islands. Rough weather can also lead to diesel shortages, and electricity is more erratic during the monsoons.

With regard to house type, Neil's islanders tend to construct with cement and tin, while almost two out of three households surveyed in Havelock were made of wood and tin (Figure 9.11). These preferences may have to do with the availability of more wood in Havelock, Neil's requirements to protect agricultural produce from rain and sun, or perhaps just fashion trends over the years. For protection from storms, cement is considered better, though wood structures might be more resilient in the event of an earthquake. Wood is hardy and needs less repairs. Cement is often mixed with beach sand for construction. Notwithstanding the illegal and ecologically destructive nature of sand mining, beach sand contains fine particles and salt content which means buildings need repairs within the decade (Sekhsaria, 2001). Houses of cement and tin are now gaining in popularity in Havelock. Poorer migrants living as sharecroppers tend to live in houses on agricultural land, made of tin, wood, thatch, and even mud.



Figure 9.11: A Havelock settler's residence constructed with wood and tin. Image courtesy of Manish Chandi, 2012.

Road access takes longer in Havelock owing to its size and hilly terrain, and spread-out villages. Reaching the market and jetty takes the longest for people living in the villages of Radhanagar and Kalapathar. The local populace mostly gets around in buses, communal jeeps, and three-wheelers. Roads are typically narrow and potholed after monsoons, though the road from

the jetty to the market and down the ‘tourist strip’ has now been widened for tourists. Widening is not easy on the hilly portions towards the western side of the island, and heavy rainfall compresses the mud on the side of the roads, causing steep drops and leading to much damage to wheels, axles, and undercarriages. With the introduction of a vehicle ferry in 2016, automobiles, especially tourist taxis, have more than doubled from the previous 200 or so reported in 2014 (CD, 02.10.205; APWD, 2014).

The increase in privatised ferries targeted towards tourists has improved inter-island travel considerably, making day trips to Port Blair a possibility, and taking pressure off government ferries which are used mostly by islanders. Rough weather can wreak havoc on ferries, and even on inter-island movement of cargo. In the wake of a ban on country craft (*doongis*) for tourism activities, some took to ferrying cargo from Port Blair or other islands. Transport by ship, expensive and unreliable, was offset by these cargo *doongis*. These boats are generally considered stable but cannot ply in rough weather. The danger of capsizing also exists if they are filled beyond capacity. Weather and overloading have led to many accidents, and even loss of life, on the Port Blair-Neil-Havelock circuit in the last six years (D. Sharma et al., 2019). Some resorts and bigger shops have their own *doongis* which may lead to hoarding or price monopolies during shortages. *Doongi* transport is not cheap and has increased consumer good prices. Defunct *doongis* are abandoned near jetties, leading to water pollution and waste issues.

9.6 Social Capital

The category of Social Capital (SC) contains two Major Components of:

- Socio-Demographic Profile (SDP), which consists of four Sub-components; and
- Social Networks (SN), which consists of five Sub-components.

9.6.1 Socio-Demographic Profile (SDP) Component

This Major Component was assessed on the basis of four indicators or Sub-components:

- Dependency Ratio, or the number of people young and old (≤ 15 and ≥ 65 years) who are dependent on the working population of a household (≥ 19 and ≤ 64 years)
- % of female-headed households

- Average age of female-headed households
- Average size of household

Both Havelock (0.16) and Neil (0.22) displayed low vulnerability in this component, although Neil's numbers were marginally worse. The biggest discrepancy is in the average size of households, with 4.3 members per household in Havelock compared to 5.7 in Neil. This results in a higher dependency ratio for Neil. It is assumed that if the number of dependent population is greater than the working population, it denotes higher vulnerability, as each working member needs to support more dependent household members. The choice of using the number of female-headed households to denote vulnerability here is subjective. Some research has shown there is little difference when compared to male-headed households, and that female-headed households may conversely fare better (Shah et al., 2013). The author's decision here has to do with the largely patriarchal context of India, where women seldom own or have access to resources, and find it harder to navigate male-dominated political and socioeconomic arenas where labour, space, and even time is gendered¹². Women constitute a third of India's agricultural labour force and contribute between 55-66% to farm production but hold only 12.8% of operational holdings in India on little over 10% of area (Government of India, 2011). Neil's sample had a higher number of female-headed households, though respondents here tended to identify the head of the household as the oldest surviving member, who was typically female. Thus, the average age of female heads of households is also higher in Neil. Neil's sex ratio, at 871 females per 1000 males, is similar to the district average of South Andaman, and much better than Havelock's 807 females per 1000 males. This may be due to the higher male migrant population in Havelock, which leaves its families back in the mainland to pursue job opportunities in agriculture, construction, and tourism.

Despite a trend towards the feminisation of Indian agriculture, women are rarely recognised as 'farmers' or 'landowners' by the state, which often refers to them as 'farm help' (Trauger, 2004). In scoping interviews, agricultural department officials identified a handful of 'women farmers', mostly female heads of household (Figure 9.12). Women are also not allowed to 'work' outside in some households, which denotes a higher household status. When allowed (or forced) to work, 'women's work' consists of planting seeds, weeding, tending homegardens, the drying, processing, and sale of produce/fish, care of livestock/poultry, and reef-gleaning. 'Men's work' typically entails ploughing, threshing, harvesting, animal husbandry, and fishing. Instances of

¹²Prior research in the northern state of Uttarakhand noted the absence of women in the hill hamlet markets, especially after dark, and the relatively little leisure time women have in a day compared to other household and farm work, both of which are typically not perceived as 'work' (R. Deol, 2012).



Figure 9.12: A woman farmer looking out onto a dried field affected by an unusual heat wave in Kalapathar village, Havelock. Image by author, 2016.

domestic violence and rash driving have seen protests from women against the sale of alcohol, leading to a temporary ban. For a while, alcohol was only sold in resorts and restaurants at inflated prices, but tourists and tourism developers objected, and the ANIIDCO wine shop was reopened. In both islands, market and jetty spaces see fewer local women, with jetties remaining overwhelmingly male-dominated, especially after dark. In Havelock, this was predominantly due to the alcohol shop being located at the jetty and men night-fishing for squid off the jetty, but protests did manage to get the location changed, and now the wine shop is located on the road between the jetty and the market. Gender disparity gaps in the ANI seem less wide than on the mainland in certain respects. In 2018, the ANI ranked 3rd in the percentage of land holdings owned by Indian women, at almost 30% (Centre for Land Governance, 2018). During the household surveys, women were more vocal, more male heads identified the household's women as farmers and not housewives, and women seemed better-informed than men in the fields of pest management, horticulture, and seeds (Figure 9.12). They are equally vocal in village meetings (e.g., against the selling and abuse of alcohol), and have headed village and district councils. The author also interacted with many more women in administrative jobs, in the police, revenue, health, and communications departments across the ANI, compared to her experience in the mainland.

9.6.2 Social Networks (SN) Component

This Major Component was assessed on the basis of five indicators or Sub-components:

- Average Receive:Give ratio, or the degree to which households rely on family and friends for, or offer, in-kind help
- Average Borrow:Lend ratio, or the degree to which households rely on family and friends for, or offer, financial assistance
- % of households that have not gone to local government for help in the past 12 months
- % of households which are not politically active
- % of households with no member in a collective/political group

The Social Networks component yielded similar scores for both islands, with Havelock the marginally more vulnerable (0.57 compared to Neil's 0.55). The first two indicators were used to measure the degree to which households rely on family and friends for, or offer, in-kind help (Received: Give) and financial assistance (Borrow:Lend). A household which receives money or in-kind assistance often but offers little assistance to others is considered more vulnerable than those with extra money and time to help. Both islands portrayed similar scores, with Neil slightly more adept at giving and lending than Havelock. An aversion to money-related debt and loans is noticeable, compared to in-kind help. Political participation was on average worse in Havelock, with less households being politically active or holding membership of collectives or political organisations. Fewer Neil households reported needing help from the local village council or *panchayat*, but this may be a function of a more dependable societal or kin structure. Decentralisation in the islands is tricky; village councils wield less power over development subjects as compared to the ANI administration, and are easily swayed by bodies above them, such as district councils, or '*Zila Parishads*'. At the time of research, one woman from Havelock was part of the district council, which might explain the higher percentage of households that sought help from these institutions. A sense of pride for not needing institutional help and a contempt for politics were frequently expressed in both islands.

Cooperatives and livelihoods associations are popular in the ANI, though these are politicised and gendered. Both islands contain multiple Self-Help Groups (SHGs), whose members are largely women. Targeted towards women and the youth, SHGs function as group saving mechanisms, facilitating access to credit and microfinance loans for artisanal production

or small business, or to service government schemes such as mid-day meal or day-care programmes. The SHG model is problematic in certain ways and is vulnerable to being used in an instrumental or politicised manner. Marketed as a means to ‘women’s empowerment’ by the government and NGOs, women are hailed as defaulting less than men. Membership of SHGs does not always represent the poorest sections of society, thus excluding those they are meant to serve, and SHG work can even increase women’s work and drudgery (R. Deol, 2012). One solution to these problems is the collectivisation of different SHG groups as a larger cooperative. This has worked well in the ANI with the facilitation of local NGOs such as Yuvasakthi, which coordinated 1200 SHGs with a membership of 10,000 people at the time.

Fisher associations and farmer collectives are exclusively male and wield more power, having in some cases even challenged the administration’s exclusion of their communities in environmental governance. Undefined boundaries for the Rani Jhansi MNP, and the absence of a management plan, has led to conflict between the administration and local fishers. The Management Plan is yet to be finalised, though the Havelock Forest Division put forward a draft version for the period 2015 to 2025 (Bijoor et al., 2018). The Havelock Fishermen’s Association (Bengali faction) clashed with the Forest Department on the arbitrary demarcation of no-take zones in this plan, threatening to write to the Supreme Court, after which the Forest Department’s ‘attitude’ has become ‘comparatively flexible’ (Ibid., p. 28)¹³. With a smaller fisher community of about 70 people, no fisher association existed in Neil at the time of research (MS, 28.09.2017). Farmer collectives are more common, and the Krishi Service Cooperative Society, had substantial membership, even coordinating the collection and sale of milk. With the help of similar cooperatives, Neil has erected eight active polyhouses in 2017, with three more being built (Figure 9.13), and its farmers receive subsidies through the National Protected Cultivation Scheme. Each village also has a ‘Farmer’s Friend’ programme where people served as intermediaries between extension workers and farmers (FGD5). Despite a largely top-down declaration of ‘organic status’ and the resultant loss of income during land conversion, Neil is surviving fairly well due to its cooperatives.

An attempt to collectivise in a similar manner in Havelock was reported as a source of increasing strife. One enthusiastic proponent, KM, explained his frustrations with increasing departmental apathy for farming in the island, and the farmers’ lack of interest, resistance and general fear of financial schemes. In 1998, the government’s Kisan Credit Card Loan Scheme provided short-term formal credit through the National Bank for Agriculture and Rural Devel-

¹³This flexible attitude might also be an increasing realisation that fishers provide better intelligence on poaching and illegal activities in the Park than naval patrolling or aerial surveillance (Abraham, 2018).



Figure 9.13: A farmer's polyhouse in Neil. Image by author, 2016.

opment (NABARD). Havelock farmers availed of the scheme intermittently, till a 2008 fire at the market, which housed both the cooperative bank and the *panchayat*, destroyed all relevant documentation. No attempt was made thereafter to conduct audits, or update the list, which included people who had died or emigrated or left farming in the interim. The rising popularity of Neil's polyhouses rejuvenated interest, as farmers could get up to 80% of a substantial one-time investment in polyhouses reimbursed (Figure 9.13). KM stressed the need for a Registered Cooperative Society with an elected committee, which could avail of a combination of schemes for its members, including knowledge-sharing platforms or training on marketing and selling produce. An eight-member committee was formed, but KM felt the members were ambivalent, pressured by other strains on their time, and insecure about speaking to officials about financial matters (17.02.2016). As of 2018, the cooperative had not materialised, even as KM noted wryly that some potential members “were now part of the Havelock Tourist Boat Operator Association” (KM, pers. comm., 15.03.2019).

With the pressures of increasing tourism, social divisions are increasingly more visible. Tensions between ethnic communities, and between insiders and outsiders, have been discussed in Chapters 6 and 7. The outsider/insider tension is most visible within livelihoods communities. In Neil, this opposition is stronger with regard to land and farming; in Havelock with regard to fishing and tourism. Neil's settlers blame migrant labour for misusing the sharecropping *bhaaga* system, using pesticides and fertilisers in desperation and without re-

gard, illegally squatting or encroaching on land, environmental degradation and poaching, and for stealing jobs and other daily wage opportunities. Migrant fishers from Port Blair and beyond are similarly accused, of encroaching on traditional fishing grounds and hijacking opportunities that should accrue to local fishers. Havelock's settlers complain about being crowded out of daily wage opportunities, and even island spaces; the market is dominated by West Bengal migrants, with fewer settlers. They claim a political shift is palpable in the atmosphere, with more overt performances of power (or *dadagiri*), the cheating of locals, and incidents of women's harassment (KM, 17.02.2016). Older migrants also express similar sentiments, citing higher instances of crime, alcoholism, paedophilia, and the corruption of local youth (MP, 07.10.2015). Newer migrants meanwhile talk of being economically exploited, excluded from island life, verbally abused and ridiculed, or being used in power plays by being hired for menial jobs (AB, 04.10.2015; AM, 05.10.2015).

9.7 Financial Capital

The category of Financial Capital (FC) contains two Major Components of:

- Land and Income (L&I), which consists of nine Sub-components; and
- Livelihood Strategies (LHS), which consists of five Sub-components.

9.7.1 Land and Income (L&I) Component

This Major Component was assessed on the basis of nine indicators or Sub-components:

- Average Household Landholding Index
- % of households with annual income less than USD 177 (Below India's Poverty Line)
- Annual Average per capita income index
- % of households with debt
- % of households with no insurance
- Average No. of income sources
- % of fishing households reporting decline in income from catch

- % of all households perceive less fish in market
- % of farming households reporting decline in income from yield

Both Havelock and Neil are at similar levels for this component (0.50 vs. 0.58) with Neil being marginally more vulnerable. Decline in incomes from fish catch were reported by *all* fishing households, while declining income from the sale of agricultural produce was reported by 82% of farming households. Havelock's land is more fragmented, but Neil has less income security and lower incomes per capita. In all, 84% of all households sampled reported having no insurance. Ownership or access to land is an important determinant of a rural household's vulnerability (Vincent & Cull, 2010). In due course, landed property has been split into a number of shares between the children of refugee-settlers, and average per capita landholding has declined (Chakrabarty et al., 1998). An increase in family size has also led to further fragmentation of land (Chandi et al., 2012). Land titles are rarely mutated to dependants during an owner's life, and more land may be inherited upon a parent's death by the eldest or favourite son. An equal division between siblings may still lead to parcels of land for each household, which are not as productive. While close-knit siblings struggle to keep their land together, the decline in agriculture has deterred others, and fragmented land is either left fallow or leased to sharecroppers (NCR, 29.09.2015). Though women's ownership of land is better than the all-India average in the ANI, fragmentation means women might be left out of inheritance, as it is assumed their children will inherit from the husband's family.

In both islands, land use is changing fast, from agricultural use to development for tourism, for which it must be converted to commercial property. Local politics is inherent in this expensive and long-winded commercialisation process, which necessitates administrative demarcation, approval, and occasional bribes. Real estate prices for already-commercialised property have shot up, with sales of between five and nine *crore* rupees per acre, mostly to mainland businessmen (D. Sharma et al., 2019)). These exorbitant prices have led to chronic land disputes, splitting families, and causing conflicts between neighbours. In Havelock, there are two different versions regarding the commercialisation of a particular village, 'No. 6' in the Shyamnagar *panchayat*. One is that the Department of Agriculture, fearing the fragmentation and complete loss of agricultural land, has moved to halt further commercialisation here. The other version is that islanders themselves protested against the tourism-heavy recommendations of the 2014 Master Plan. Citing increasing erosion of societal peace, the islanders collectively halted further commercialisation in the villages of No. 6 and even parts of No. 1 (between the jetty and market). Regret for desperate land sales in the past, such as after the tsunami, have led to some

legal cases, where the complainants claim they were unaware or duped by mainlanders with better economic and political clout (Ibid.). In Neil, this ‘seller’s remorse’ is for sale of barren land around the jetty, or the lease of encroachments to migrants before 1978, who then inherited it through the regularisation of encroachments drive in 1987. With Havelock’s saturated development, tourist developers are turning to Neil and to precisely this prime property. Land in Neil was cheaper than Havelock at the time of research (less than one crore an acre), but has risen to similar prices (SS, pers. comm., 11.02.2021). Neil’s ‘Indian pastoral charm’ is especially appealing to foreign tourists, and those who find Havelock too crowded or cacophonous.

Neil’s economic situation is more vulnerable than Havelock’s with more households below the poverty line, and a higher number of income sources needed for lower incomes per capita. Apart from occasional life insurance policies, procuring financial insurance for livelihoods assets is unpopular in both islands. Crop /livestock insurance schemes or group accidental insurance coverage for fishers have few takers, a function of little-understood financial structures, lack of awareness of schemes, and a heavy reliance on government compensation during disasters or emergencies. All fisher households reported a decrease in income from fish catch, and this question was supplemented by the wider sample’s perceptions of fish within the market. Neil’s households perceived a larger decline in number and variety of fish sold in the market, which is attributed to the island’s smaller fishing community, and a higher demand and rate for fish in Havelock. More households in Neil also fish for subsistence, either in the sea or in ponds on their land. A decline in income from agricultural produce is also perceived more in Neil, due to the wholesale shift to organic cultivation, while Havelock’s shift towards high value cash crops has led to more income.

9.7.2 Livelihood Strategies (LHS) Component

This Major Component was assessed on the basis of five indicators or Sub-components:

- % of households with no members working in a different community
- Livelihood Diversity Index
- Agricultural Livelihoods Diversification Index
- Natural Resource Dependence Index
- % of households with no secondary/seasonal occupation

Sample size (n = 1002)	Primary Occupation		Secondary/seasonal		Totals		Percentages	
	Havelock	Neil	Havelock	Neil	Havelock	Neil	Havelock	Neil
Farmers	261	186	139	185	400	371	31,3	51,0
Daily wage labour	123	54	8	5	131	59	10,3	8,1
Fishers	74	10	15	3	89	13	7,0	1,8
Tourism	60	21	15	8	75	29	5,9	4,0
Govt.	53	47	0	3	53	50	4,2	6,9
Business	42	28	3	2	45	30	3,5	4,1
N/A	25	18	458	158	483	176	37,9	24,2
Totals	638	364	638	364	1276	728	100,0	100,0

Table 9.3: Multiple employment profile responses of individuals (n=1002) in the overall sample.

Neil's score of 0.35 means livelihood strategies make up its second-most robust component, compared to Havelock which sits at 0.54. The surveys reported a total of 1002 people as being employed in some form (Table 9.3). Of these, 959 had only a primary occupation, while 386 reported having an additional secondary or seasonal source of employment. Only 43 reported no primary occupation but a secondary occupation, while 616 reported having no secondary/seasonal employment. The number of people without a seasonal or secondary occupation in Havelock's sample is significantly higher, at 71.8% compared to Neil's 43.4%. Higher incomes and a better quality of life may mean that the need for diversification has not been identified yet. Havelock workers rely heavily on one occupation which could render them more vulnerable if the income source collapses due to market fluctuations or trade policies. For instance, a drop in demand for coconuts and copra from the Nicobar Islands in 2002 was the result of cheaper coconuts from Sri Lanka and Malaysia that flooded the market under the import liberalisation of the 'Look East' policy (ANET, 2003). Prices for areca nut have also fallen in the government crackdown against tobacco and similar products, and the 'Act East' policy which waives customs duties for imports from Southeast Asian nations. Boom and bust fisheries driven by Southeast Asian seafood demand also have wider repercussions on fishing livelihoods and fish stocks (Jaini, Advani, Shanker, Oommen, & Namboothri, 2018). Though a smaller number of people reported being directly involved in tourism, tourism boosts other livelihoods on islands, and has brought improvements in connectivity and transport. With the exception of areca nut which is for mainland export, tourists like tender coconuts, and restaurants require both local and exported produce, as well as fish. Construction for tourist infrastructure and resorts is ongoing, and daily wage labour is the next biggest source of employment after high-value farming. Petty businesses also cater to tourists and resorts.

In the Andamans, agricultural livelihoods include farming of rice and vegetables, cultivation of cash/plantation crops, and rearing of poultry (chickens and ducks) or livestock (cows,

pigs, and goats). In Neil, 51% of respondents were engaged in some sort of agricultural activity compared to 31% in Havelock, and Neil also displayed higher diversification within agricultural activities. This is corroborated with the number of households who list agriculture as the primary occupation *of the household*, 55% in Neil versus 25.6% in Havelock. In Neil, the shift to organic farming and the fall in yield and income has opened new avenues of income, such as animal husbandry for milk and manure, beekeeping, spice production, and polyhouse cultivation. The typical Neil farmer in this survey was engaged in at least two of these activities, while Havelock farmers showed a preference towards one activity, typically cash crop farming or paddy/vegetable cultivation. This is not surprising, as socioeconomic surveys conducted around two of ANI's national parks at the start of the millennium showed 40% of villagers raising paddy and plantation crops, and 54% raising plantation crops alone (ANET, 2003). Specialisation and cash crop farming helps to move beyond subsistence, and intercropping can save valuable land, though a lack of water in the dry season can hamper these crops. The High Value Agriculture Development Agency and the Coconut Development Board, both sections of the Agricultural Department, disseminate methods and inputs for coconut cultivation and beekeeping (NB, 16.12.2015). Areca nut, as an addictive substance, does not have official support, though unofficial training is given as the potential is too valuable to ignore.

Tourism may be viewed as being indirectly dependent on the natural resources of the region, but fishing and farming livelihoods depend directly on the natural resource base. A higher number of livelihood activities are dependent on natural resources in Havelock than in Neil. This is initially surprising, given the agricultural dominance of Neil, but becomes clearer when considering the number of fisher households in the sample. Data obtained from the Fisheries Inspectors in both islands reveals that fisher households in Havelock make up 12% (200) of Havelock's total number of households (1641), while Neil fishers make up 10% (75) of Neil's (735) total households (FI, 01.03.2016; MS, 08.02.2016). The sample's over- and under-representation is attributed to random sampling techniques and the lack of knowledge of household occupations prior to the survey. In light of the results of these three indicators, it is expected that livelihoods diversity, or the number of livelihood activities an individual is engaged in, is lower in Havelock than in Neil.

While the number of main workers has remained the same between 2001 and 2011, cultivators within this population decreased significantly (from 41% to 28%.) with a marginal decrease in agricultural labourers, and a corresponding rise in the number of 'other workers' (daily wage labour), from 55% to 69%. Neil still reported high agricultural dependence, though both main workers and cultivators have declined, while agricultural labour shows a marked increase.

Irregular employment in the agricultural sector means Neil's marginal workers have increased, but few people identified tourism as their primary occupation, and agriculture still seems a vital livelihood for both islands. Tourism had made less impact, though this is expected to change.

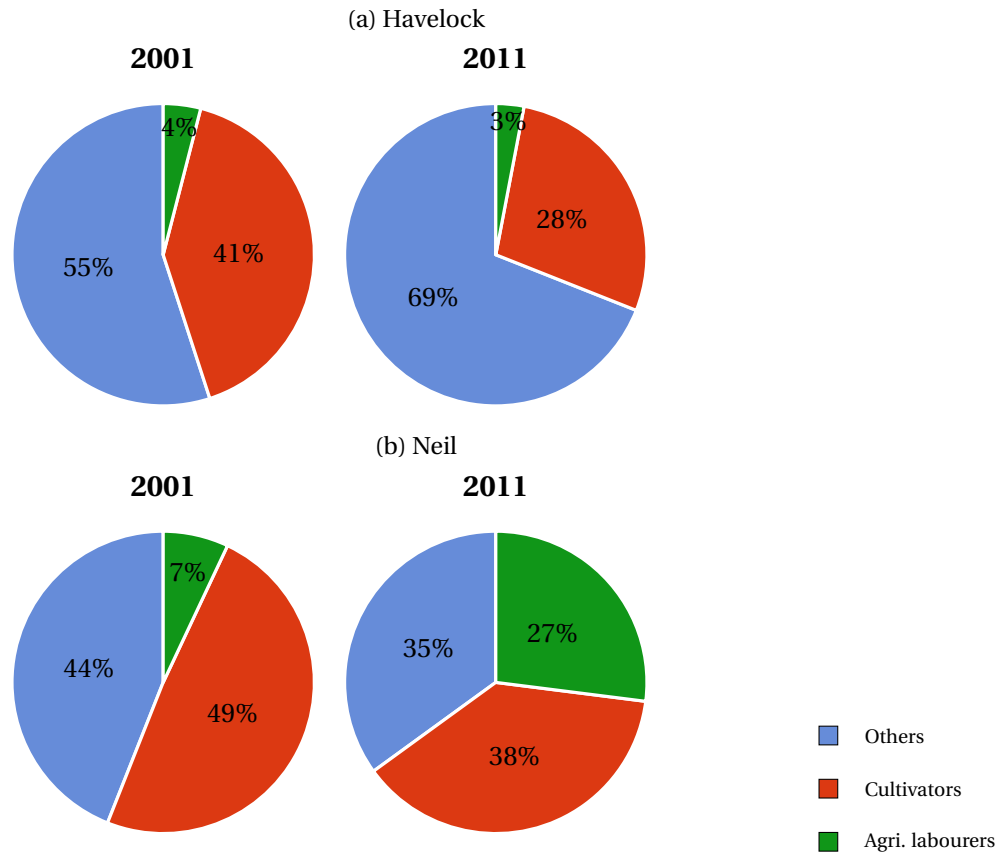


Figure 9.14: Piecharts depicting changes in types of workers in Havelock and Neil between 2001 and 2011. Source: APWD, 2014.

Another discrepancy between the two islands is in the percentage of households who do not have members working in a different community or region. Migration or mobility for work is a common strategy, especially for islanders (Connell & King, 1999), and changes the 'opportunity set' of households, though a distinction must be made between permanent and temporary, and local or long-distance migration (Paavola, 2008). In the context of Small Island Development States, the MIRAB economic model (MIgration, Remittances, Aid, Bureaucracy) involves long-distance emigration as a response to socioeconomic vulnerabilities, and labour becomes the 'monocrop' to be exported to the global market (King, 2009, p.58). Local voluntary migration can allow access to other forms of land, markets, resources, and modes of employment, while generating remittances for families back home, but sometimes households may be forced to mi-

grate due to conflict or economic and environmental stressors, and even face displacement for development or conservation projects (Paavola, 2008). The ANI are a hub for in-migration from the mainland, which is technically local migration. The islands have numerous 'pull factors' e.g., their status as subsidised sub-national island jurisdictions, a relatively lower population, a military base, tourism opportunities, low crime, and a diverse population where migrants may find their own ethnic communities and increase their kin. 'Push factors' from the mainland generally include degradation of land and agricultural incomes, overcrowding, climate change, and high rates of crime and/or disputes.

Within the islands, migration for livelihoods opportunities exists. Men of the Karen tribe migrate to Havelock from their home in Middle Andaman for the tourist season, to work in dive shops as divers and boat hands. Neil has seen periods of permanent emigration, where groups of original settler families have moved to other islands, Havelock, or Port Blair (MS, 28.09.2017). Though no such trend is discernible in Havelock, there is movement within the island, where some with land on the 'tourist strip' are leasing it to live in the agricultural villages of Krishnanagar or Kalapathar for "some peace and quiet" (RB, 16.12.2015). A similar movement occurred after the tsunami when some sold their land to move to Port Blair, and even to the mainland, while others moved further inland from the seaside, or to higher ground from low-lying areas. Emigration for work is for government jobs or higher education, and Port Blair seems to be the preferred destination. In the sample, Neil reported a higher number of people working in other communities, mostly Havelock or Port Blair, and sending money to their families on the island. Inter-island relationships are built most commonly through marriage, and women leave the islands to live with their husband's families on other islands or in Port Blair. In some cases, husbands have moved to their wives' homes in Havelock or Neil, though whether this can be dubbed migration for work is unclear. During the course of this research, other livelihoods strategies came to light which were not part of the survey, and for good reason. These illegal or illicit strategies (discussed further in Chapter 10) include poaching, encroachment, and participating in black markets for liquor, drugs, even agricultural inputs. This last caters to farmers demanding chemical fertilisers and pesticides in the wake of a shift towards organic agriculture mandated by the Department of Agriculture (also discussed in detail in Chapter 10).

Chapter 10

An Islandscape in Flux

In February 2015, the then Lieutenant Governor inaugurated a two-day state-level seminar on ‘Strategies, challenges and opportunities of organic farming of horticulture crops in A&N Islands’. A pamphlet titled ‘Neil Vegetable Organic Mission’ had been circulated to the guests and in his speech, he proceeded to declare that Neil Island was henceforth ‘organic’, acknowledging that ‘we have a long way to go in this direction, the beginning for which has been made today’ ((Giles, 2015, February 1)). Overnight, Neil was thrown into a tizzy. The inorganic inputs its settler and migrant farmers had come to rely on were now unavailable, replaced by organic inputs which were unknown and dubious. Since four pesticide shops still existed in Neil, fertiliser was the main concern. The provision of DAP and Urea were now replaced with dried organic neem cakes (*neem khali*).

Organic agriculture in the Islands was not a new idea. To facilitate the ‘New Andamans’¹ in the wake of the tsunami, a total recovery package of 250 million rupees was sanctioned, and various recommendations were made for the use of this money, mostly by mainlander organisations and officials. The M.S. Swaminathan Research Foundation noted that the ANI were ‘uniquely equipped to emerge as the Organic Islands of the world’ (MS Swaminathan Research Foundation, 2005, p. 9). Ideas for multiple cropping, high-value agriculture, floriculture, aromatic plants, and spice cultivation all saw the Department of Agriculture procure tons of organic manure and neem cakes, seeds and seedlings, and even pump sets, power tillers, and farm implements for free distribution to farmers. Shrimp cultivation was another proposed activity, with the potential to seriously damage the mangrove ecosystem, but the lack of training and organisation meant it fortunately fell by the wayside (S. Reddy, 2018).

¹A good example of islands as spatial laboratories, and of imposition of mainland models of development without regard for island context.

The enthusiasm for organic agriculture waxed and waned over the years. Converting land to organic agriculture required at least two to three years of fallow periods and decreased yield, which in the circumstances was not possible. The lack of a regulated market for organic produce in India meant farmers would not receive premiums for their produce, and organic agriculture mandated more water and care. Despite these problems, even during the 2010 SocMon survey in both islands, 70% of farmers reported switching to organic inputs and attempting to give up inorganic cultivation. Neil was already feeling the effect of pesticide and chemical contamination in its water (contaminated wells), in islander health (respiratory and vision-related disease), and its ecosystems (fewer birds and marine algal blooms). Neil's farmers were also getting tired of the bad reputation their vegetables had gained. Training on organic agriculture was popular at the time, given by a mainland NGO, the Morarka Foundation (RKB, 18.12.2015). Almost all of Neil's farmers, barring a few contractual ones, had signed up for organic agriculture, close to 400 farmers from 230 farms (Ibid.). Yet the day after the Lieutenant Governor's announcement saw angry farmers piling into Neil's two agricultural depots to protest, demanding answers from a clueless Agricultural Department staff who had been given little warning.

This anger was clearly not directed at organic cultivation but at the roughshod manner in which this declaration had been made. Land would have to be in conversion for a minimum of three years, but no alternate livelihood options had been discussed with the community. Another Indian state, Uttarakhand, had declared itself 'organic' a few years prior, but encouraged phased transitions to organic inputs and the formation of collective farmer federations which would help its members financially and technically during the three-year conversion period. Seeing the support, more farmers had joined, and demand for organic produce from the nearby urban capitals of Delhi and Dehradun was facilitated by NGOs and social businesses. No such state support, market or collective mechanism was available for the farmers here, nor had rainwater harvesting or minor irrigation facilities been considered.

Rumours started to spread that some farmers had been tipped off and had stocked up; in the days that followed, DAP and Urea were as precious as gold. As Neil was cut off, Havelock's supplies were also reduced to half of the previous amount, though its heavier reliance on cash crops meant less of an impact². The change seemed more authoritarian when private pesticide shops started to close down. As yields decreased to 25% of what they were, a black market for fertilisers and pesticides sprung up in response. In the months that followed, no one wanted organic training. The increased dependence of farmers on subsidies was a cause of concern, and

²Some farmers in Havelock even complained that Neil farmers stole their fertiliser during this time, though it was probably a local islander looking to make some money in Neil (KM, 17.02.2016)

the cultivation of *dhaan* was now increasingly jettisoned, to save precious fertiliser for vegetable cultivation. Three ‘farmer’s friends’, who act as links between farmers and extension workers, were sent to the mainland for organic training, but came back to find not only a lack of interest, but irritation and anger if they even mentioned it (RB, 05.03.2016). They were jaded themselves, as their mainland trip revealed the inferiority of the inputs they received on the Islands. This lack of quality is a longstanding complaint for inputs, seeds, and even livestock artificial insemination injections. Supplied via tenders, the cheapest bids were usually honoured, and input quality suffered. For instance, hybrid seeds provided by the department were suspected culprits for the spread of disease in bananas, papayas, and vegetables.

The agricultural imprint also reveals human effects on the island’s ecosystems, illuminating the connections between the land and sea for islanders. As one interlocutor (AR, 08.03.2016) put it: “Of every 100 litres of pesticides used, about twenty are effective against insects. Eighty of those hundred go into the land, and fifty of that eighty goes into the sea.” Multiple studies had already warned of the harmful effect of pesticide and fertiliser misuse on a range of ecosystem dynamics in the region (Birah, Srivastava, Chand, & Ahmed, 2016; Murugan et al., 2013). Pesticides introduce toxicity, while fertilisers contribute to nutrient imbalances in soil and aquatic environments. Neil’s soil samples were flagged as containing the highest amount of DDT (Dichlorodiphenyltrichloroethane) amongst seven sites across the Andamans. Though banned for agricultural use in 1989, DDT continues to be used to control malarial mosquito populations³, but has had deleterious effects on the island’s bees, lizards, and even poultry. The endosulfan in pesticides is considered especially toxic for fish and aquatic food cycles. Fertiliser and pesticide loads in the sea and their biomagnifications in marine organisms have yet to be assessed, but in 2011, divers around Neil noticed a green residue covering the reefs. After an emergency situation analysis, biologist Rauf Ali concluded that microbial imbalance had resulted due to agricultural eutrophication, causing an algal growth which was now choking the reefs. He even recommended that every diver visiting these sites carry toothbrushes and gently scrub the algae off the reefs (RA, pers. comm., 05.10.2011). Two years later, a study confirmed this harmful algal bloom of phytoplankton in the region (Sachithanandam, Mohan, Karthik, Elangovan, & Padmavathi, 2013).

Administrative officials routinely blame these ecological consequences on the islanders, who are said to be suffering from a ‘pesticide addiction’ or a ‘potash and phosphorus fixation’ (CB, 02.10.2015; AN, 11.02.2016; MS, 08.02.2016). Yet it is claimed that the Agricultural De-

³Some resorts in Havelock also use this compound to control mosquitoes and other bothersome insects for their guests.

partment practically forced fertiliser onto farmers in the 1980s (see Chapter 8) and provided pesticides while also allowing four private pesticide shops to operate in Neil (ME, 05.03.2016). Similarly, administrative apathy after the organic declaration was also apparent. The Agricultural Secretary had promised to visit the islands within a week of the declaration but did not appear for more than six months. It was only when an article titled ‘Farmers of Neil islands cry for attention, organic farming without proper support turned out to be disastrous for Neil Island farmers’ came out in a local newspaper in October 2015, did the Secretary and their team visit the island (Sanjib, 2015, December 11). In various highly emotional farmer FGDs, the declaration was likened to a Hitlerian move, and vegetable cultivation to a form of gambling. The future for agriculture in Neil seemed for many farmers as “dark as night” (FGD8 7, 10).

10.1 Islandscape connections

The narrative above encapsulates connections within the islandscape: between islanders and their environments, inherent in a growing awareness of ecological change; between land and sea mediated by the practice of livelihoods (and use of agricultural chemicals), and between islands and other geographies, specifically the power dynamics which situate the island as small, marginalised, spatial laboratories where mainland development models are imposed without regard for island contexts. Though both Havelock and Neil are self-contained islands, this ‘boundedness’ belies a deep connectivity, in terms of ecosystem change and movement of people and goods, and between the islands and the world. The following section delves deeper into other aspects of these connections to reveal a more complex picture, and the interplay of discourse and its material impacts from the perspective of the islanders.

10.1.1 Human-environment, land-sea

Ecosystem changes are now the most concerning for islanders, as the Livelihoods Vulnerability Index has also revealed. This has emerged, not from trickle-down conservation concerns, but from islander interactions with their environments. The most visible change is in forest cover and greenery, which is corroborated by various scientific studies. Government claims that Andaman or all-India forest cover is increasing would not hold up on these islands, though studies and reports can once again be confusing (see Chapter 7). For what follows, do keep in mind that official figures denote 84% of Havelock as Reserve Forest, with only 16% of revenue land (for settlement and agriculture). In comparison, 35% of Neil is designated Reserved Forest,

with more than 65% of revenue land. A 2004 study mapped almost 136 km² of Havelock's undulating land, concluding that its forests had depleted by at least five percent since 1980 (Chauhan, Padalia, Porwal, & Roy, 2004). The forest cover on Havelock's east coast has degraded considerably, and significant encroachment has ensued near settlements (Nagabhatla & Roy, 2007). Thirteen years later, in 2017, another study used remote sensing and GIS techniques to reveal a drastic decrease in Havelock's forest cover between 1979 and 2016. Over 576 hectares of forest had perished, with a corresponding rise in 607 hectares of agricultural settlement (Mandal & Dharnirajan, 2017). The study also noted that just the six-year period between 2010 and 2016 had seen an annual average reduction of 0.45%, or 3% overall of first cover, with a 14% rise in settled and agricultural area. Between 1998 and 2010, Neil's forests had also declined, as agricultural land increased in the same period from 313 to 350 hectares (Saravanan, Dharanirajan, Eswaran, & Karpoorasundarapandian, 2013). Research using satellite data and a Landscape Ecological Modelling approach classified both Havelock and Neil as 'semi-disturbed' in terms of biological richness in 2007. Reef cover has also dwindled, especially around Neil, by seventeen hectares between 1998 and 2010, with a corresponding increase of ten hectares of beach area, which signals increased deposition of dead coral (Saravanan et al., 2013).

Given its coconut groves, white sand beach, and shallow water, development is cheek-by-jowl on Havelock's eastern coast. This 'tourist strip' has cleared the littoral forest, depositing detritus and soil in its shallow coral beds (Chauhan et al., 2004). Dive shops are also located on this strip, and Havelock today has more than 30 SCUBA diving and water sports operators, Neil has eight, and even Port Blair has eighteen (Directorate of Tourism, 2020). Anchor damage and overcrowding denudes popular dive sites, where a lack of mooring buoys and the presence of up to five boats at a time can stress both reef and diver. With the rise in domestic tourism, the popularity of shallow sites for a 'Discover/Try Dive' has exacerbated stress on coral still recovering from bleaching events and storm damage. The anchors of dive boats moored offshore have also led to a loss of seagrass on Havelock's eastern coast, the feeding grounds of the endangered dugong (Mishra et al., 2019). Snorkelling and diving aside, water scooters, sea-walks, 'banana boats', and even glass bottom boats have their own issues. The boat traffic between Havelock's jetty and its hugely popular Elephant Beach, a 15-minute ride, has neared dangerous proportions, with a few collisions and other accidents reported (RD, pers. comm., 23.12.2019).

These and other changes are clearly visible to islander populations going about their livelihoods (as they were to colonial scientists on plantation islands in the 1800s (Grove, 1995)). Almost every islander I spoke to mentioned how they personally and sensorially experienced environmental and climate change: seeing less forest cover; touching dead white coral washed

ashore on beaches; the smaller fish they buy in the markets or the little rice they are able to harvest each year; earning no more birdsong, but only the whirring of cars and construction machinery; the lack of dew at night or unbearable heat and humidity on the skin; even a growing fascination with spotting snakes that once frightened them. Similar expressions of ‘ecological grief’ have also been noted by other researchers in the ANI (e.g., (Anujan, 2020, June 26)).

The one ecosystem that is less present in this narrative of ‘ecological grief’ is the mangrove forest. The importance of mangroves for islands cannot be understated; they provide shelter from tsunamis and storm surges, protect against erosion, are amazingly biodiverse, function as water filters and carbon sinks, stop seawater intrusion, and are coastal keystones for the health of reefs and seagrass beds. In these islands, mangroves have suffered due to the subsidence and upliftment of the tsunami, cyclones, and root asphyxiation through development work (Channabasappa et al., 2018), but perhaps the greatest facing them is their longstanding cultural persecution. The reputation of mangroves as swampy, malodorous, and diseased seems to persist from the colonial era. Islanders also consider them places of fear and foreboding; one can encounter dreaded saltwater crocodiles in densely wooded mangrove creeks, but even poachers or smugglers hiding from the coast guard. These forests are also popular suicide spots, and are used for funerals, leading locals to believe they are haunted. In the absence of proper solid waste disposal facilities, they become local dumping yards, or places to burn waste. They are regularly exploited for their NTFP, and firewood that is said to burn “like coal” (JD, 16.12.2015). For some, the wilderness of the mangroves is indicative of a lack of development and modernity. Perhaps one upside of all this is that encroachment is most uncommon in mangrove forests. Though fear of this vital ecosystem amongst settled populations is cited as a key reason for their continuing degradation, some argue that the impacts of envisaged tourism projects will probably be worse (Janäng & Melin, 2012).

Ecosystem changes also impact island societies, dividing or dissipating them, or leading to cultural loss. In Havelock and Neil, land is precious. Generations of fragmentation has left inheritors with tiny parcels of land which are not worth farming. The import of rice grains discourage the planting of traditional cultivars, repositories of culture and legacy. Land is either sold or diverted to cash crop farming. Landscapes change as once-open fields become enclosed, restricted spaces with more built-up land. As farmers turn to artisanal fishing, they are resented by fisher communities who do not have the security of land and are already in fierce competition with commercial fishers for dwindling marine resources in declining fishing grounds. Like its land and sea, island society faces the threat of fragmentation and division, through conflict between and within livelihoods groups and islands, increased migration and

abandonment of traditional livelihoods, changes in familial structures or gendered divisions of labour, and the loss of amity or solidarity, for instance through rice-harvest labour reciprocity and its associated festivals. Exclusionary islands emerge within islands, those of ‘interest’, ‘community’, ‘ethnicity’, ‘religion’, or ‘class’.

10.1.2 Connections with other geographies

Mainland/continental connections

As discussed before, the ANI may be regarded as a Sub-National Island Jurisdiction of India (see Chapter 6). India provides a valuable safety net in times of crisis, but most power lies in the mainland or metropole. This power shows itself in ideological appropriation which seldom involves islanders, such as renaming islands or publishing vision documents. As we have learnt, these ideological or discursive ‘projections’ lead to material ‘projects’ which impact the islandscape and maintain or even further entrench the status quo of power. In December 2018, Prime Minister Narendra Modi visited the ANI. Ostensibly to inaugurate a new Naval airport which was now running behind schedule, he took the opportunity instead to commemorate the 75th anniversary of Subhash Chandra Bose’s hoisting of the first Indian tricolour flag on Indian soil. Raising and saluting a 150-foot-high Indian flag erected on the Port Blair waterfront, Modi noted that the country took inspiration from this event and from the ANI, and that the islands to him were “as mainland as Delhi or Mumbai”. He went on to declare, that by government order, the island of Ross, visible behind him across the bay, would henceforth be known as ‘Netaji Subhash Chandra Bose Island’. Furthermore, the islands of Havelock and Neil would be named after Bose’s proposed names for the Andaman and Nicobar Islands, ‘Swaraj Dweep’ (‘self-rule’ island) and ‘Shaheed Dweep’ (‘martyr’ island). Photographs ensued in front of a banner that said ‘1943: 1st Tricolour Hoisting in India’ and an ‘I (heart) Port Blair’ sculpture (Figure 10.1) before the PM left for the Nicobar Islands.

Prior to this declaration, the administration had announced an ANI-wide naming contest, eliciting names for unnamed islets and rocks. This yielded multiple suggestions, from reverting to indigenous names, names based on the shapes of the islets, or using the names of prominent islanders. The outcome left islanders outraged: instead of naming un-named places, the government had renamed three of the ANI’s three most popular tourist islands. The renaming of Ross Island, as the British headquarters to Bose Island was understandable but Havelock and Neil had played no part in the Indian freedom movement, being settled in the decade after Independence. Even these two islands, paragons of the *neelapani* narrative, were swallowed



Figure 10.1: The 'I (heart) Port Blair' banner installed for Prime Minister Modi's visit in December 2018, after Cyclone Pabuk. Ross/Bose Island is in the background. Image by Zubair Ahmed, January 2019, January 9.

up in a return to *kalapani*. Their renaming in nationalistic terms of a bygone era speaks to the performance of a nationalisation narrative dominated by the RSS-BJP ideals of Hindutva and the Hinduisation of India. It also places Andaman history back into the meta-narratives of the Revolt and Jail. The invocation of Bose is an interesting choice, as he is generally perceived as an opposing figure to these radical ideologies. His appropriation seems to suggest a move to appease Bengali populations in the Andamans and West Bengal ahead of the 2019 election. The renaming of Havelock and Neil is a powerful acknowledgement of the importance of these islands and puts them firmly 'on the map' of New Delhi. This move was also resented by mainland tourist developers in the two islands, who had spent years building these islands as 'brand names' for the past decades. Most economic gain from tourism in these islands accrues to mainlanders, while islanders remain dependent on government doles or subsidies. Profits here are also used for the development of mainland projects. Development projects in the ANI meanwhile are geared towards mainland tourists or peopled by mainland planners and in-migrants, rather than islanders. Urban mainlanders from Chennai, Bangalore, Kolkata, and Delhi now dominate the tourism industry and buy/lease land or houses on both islands, leading to some 'island gentrification'. Yet the mainland is necessary for these islanders, providing an external labour market, more economic opportunities in case of livelihoods loss, better edu-

cational opportunities, tourism opportunities, wider social networks, and valuable help during disasters or crises. Relationships with other countries also exist, though digging deeper was beyond the scope of this work. The national security narrative discourages islander connections with its South East Asian littorals, painting their citizens as poachers and smugglers (as in the term ‘Burmese poacher’), but these relationships existed in the past and continue to exist (Abraham, 2018).

Andaman connections

Though both Havelock and Neil are self-contained islands, this ‘boundedness’ belies a deep connectivity, in terms of ecosystem change and movement of people and goods, and between the islands and the world. The discursive perceptions of these two islands within wider Andaman society employs aspects of the hegemonic discourse to marginalise these two islands to an extent, based on projections of ‘touristic islands’ and resentment at their perceived economic prosperity. The publicity and perceived success in these two islands has made other islanders envious, especially the residents of Port Blair. Within the administration, the most common refrain is the amount of ‘free’ benefits, particularly land but also subsidies, which are now taken-for-granted by the indolent and greedy refugee settlers of both islands. Older citizens of Port Blair look down on the islanders as ‘country bumpkins’, a hangover of settlement politics between the urbane Local Born and the refugee settlers, but also between the higher-caste Bengali *Bhadralok* and the lower-caste *Namasudras*. Even scholars are cynical about these touristic islands. Presentations on this research were always received with amusement and a sense of envy at my field site, or with surprise that I had not chosen more ‘relevant’ islands (read: those perceived as poorer, or with indigenous or subaltern populations). Surprisingly, even in a Port Blair conference on climate change and the Islands, organised by the Andaman Science Association in 2016⁴, my work on *these* islands was received with general cynicism.

This resentment is rooted in the imbrication of a few discourses that have persisted since the British colonial era, all revolving around the marginalisation and subservience of islands to continental or ‘mainland’ needs. The idea that islands with the ‘tropical beauty’ aesthetics will ‘sell themselves’ is linked with a benevolent state which has given this aesthetic to an indebted refugee, which keeps on giving. The emplacement of refugee populations to further India’s need to secure and develop these islands now makes them service workers in a domestic

⁴This conference was scantily given that Cyclone Vardah was raging at the time and most mainland flights were cancelled. The author’s flight was the last that landed, and flights were suspended for the next three days. The irony of a powerful cyclone interrupting a climate change conference is worth noting.

tourism industry, breaking the foundations of traditional economic survival strategies and culture. Perhaps most striking is the erasure of the labour and strife of its populations to harness limited resources for survival and subsistence. In praising pastoral or fishing village 'charm', the hardships of clearing forest, working in sun and rain, or navigating the sea in terrifying thunderstorms are forgotten. This is similarly the case for other Andaman rural villagers, such as those of Diglipur in North Andaman, but the perceived influx of money and development into these two islands means others are now valorised as hard-working and friendly in comparison to their commercially-minded, lazy, insolent populations.

Yet Port Blair and its denizens have also benefitted vastly from the two islands. Till about 2010, the timings of flights and ferries to these islands were mismatched, and tourists were forced to spend two nights in Port Blair, on arrival and departure. All flights and government ferries only operated during daylight hours, as evening winds at the Port Blair airport were considered dangerous for landings and there were only a limited number of ferries with a tedious booking system. Port Blair had the only decent mobile network and internet connectivity, so all booking and travel services were based in the capital. An increase in flights, and the number of privatised ferries has now made Port Blair more a necessary stopover than a destination, and during this research a night flight was successfully landed at the Port Blair airport, welcomed by a water canon salute!

As a growing commercial and military hub, Port Blair is currently bursting at the seams, with congestion, overcrowding, pollution, and acute water shortages. It is far from relaxing, with tourist offerings heavily skewed towards sombre Indian nationalism, evident in Port Blair's Cellular Jail, the gallows of Viper Island, and the ruinous sadness of Ross/Bose Island, which can grate on sun-sea-sand tourists, SCUBA divers, and honeymooners. Crackdowns on 'Jarawa tourism' and congestion or long waits to travel in convoys means the Andaman Trunk Road has become less appealing for tourists, as has road travel to Middle or North Andamans. Port Blair's own big businesses and tourism developers have invested in resorts on at least one of the archipelagic islands, if not both. The laying of an Optic Fibre Cable between Chennai and the ANI has brought high speed internet to the two islands as well. Multiple ferries and timings also allow Port Blair's or other Andaman inhabitants to visit these islands for the day or weekend. Other Andaman communities have also benefited from the changes in livelihoods here. Diglipur in North Andamans is now considered the agricultural hub, and fishing is dominated by fishers settled in Great Andaman's eastern coast. Both these regions export produce and fish to cater to Havelock's resorts and tourist markets. Men from the Karen community in Middle Andaman flock to Havelock during the tourist season to work in dive shops as divers or boat

hands, returning home for the off-season. Some have now settled, and even married Bengali women, in Havelock.

Havelock and Neil are now being primed as ‘high-end’ destinations. Mainland-owned Taj Exotica Resort and Spa was the first five-star resort on the island to open in 2016, joining the older high-end Serai Barefoot⁵ on Havelock’s beach No. 7, which has now received Blue-Flag certification. Targeting high-end tourism development means mainland businessmen are flocking to these islands, to the ignorance of much of the rest of the Andamans, even areas which are now being ‘opened to tourism’. A plan to make the islands ‘like Maldives’ involves the construction of individual villas stretching out over the water but calls for tenders have few applicants. Islander fears surround issues of social and economic justice, loss of access to beaches or other island space, exclusion, and the inability to compete with mainland businesses.

Havelock-Neil connections

“Havelock is too crowded now. I like to go to Neil for the weekends to relax and see my friends.”

– MS, 28.09.2017

“Neil is too boring, there’s nothing to do! I visit Havelock whenever I can.”

– MB, 18.12.2015

Numerous connections exist between the two islands, through livelihoods, culture, religion, and a recognition of their own distinct identity forged within the wider Andaman islandscape through different histories of settlement, societal and cultural development, and livelihoods. Havelock and Neil may be regarded as microcosms or synonyms of the Andamans, but their trajectories of settlement, development, and livelihoods have differed from the wider Andaman experience, with some challenges and other advantages. Settlement in the 1950s on bounded islands brought an isolation that those on the interconnected Great Andaman ‘mainland’ did not feel as keenly. The extinction of the Aka Balawa Da in the 1930s meant settler-indigenous conflict, which long characterised postcolonial settlement in the rest of the ANI, did not exist here, nor did their settlers need to contend with the resentment of pre-42 populations on the Great Andaman landmass. Their geological constitution, topography, water

⁵A backpacker establishment called Jungle Resort run by a Port Blair business in its previous life, Barefoot is today managed by mainland corporation Coffee Day Global Limited.

reserves, and coral reef environs allowed traditional island livelihoods to flourish. The tiny flat island of Neil, with intensive agriculture of paddy and vegetables, garnered a reputation as the ‘vegetable bowl’ of the Andamans (Saravanan et al., 2013). Havelock was not far behind, and its hilly terrain meant better cash crop cultivation, of coconut, areca nut, and bananas. The coral reefs around both islands offered good fishing grounds, and the settlement of fishermen from Andhra Pradesh in the 1960s built a thriving fishing community, which still contributes significantly to the Andaman catch. Both islands were relatively cut off from the Andaman mainland but their proximity to each other allowed for exchange, trade, socialisation, and communal fishing grounds, with farmers and fishers bartering rice and fish well into the 1980s (Chandi et al., 2012). As global fish export markets came calling in the 1990s, farmers took to sea-fishing as well. In the same decade, Havelock emerged as the jewel of the tourist circuit, with beautiful white sand beaches and colourful reefs, while Neil became the quieter counterpart with rural charm. After the nationalist pilgrimage aspect of Port Blair, these were the islands to visit for natural beauty, rest, and recreation.

Havelock, settled earlier, larger, and more touristic, is perceived as a kind of ‘big brother’ to Neil, even as both sets of islanders take pride in their own islands – Havelock’s bustle and noise is contrasted with the relative rural peace of Neil. When either gets too much, a trip ‘across the pond’ is easy and possible. The two are only five kilometres apart as the crow flies but one has to travel almost 20 kms by ferry to get from one to the other, owing to the placement of their jetties, the fringing coral reefs, and the bathymetry of the archipelago. Neil is the much harder jetty to dock in, especially in inclement weather, and an average trip between the two takes about 45 minutes. Yet, the circuit between Port Blair and Havelock is the most popular for tourists and locals alike, and inter-island ferries stop at both islands. The Matua religious festivals and numerous fairs (*melas*) hosted in both islands bring those on the Andaman ‘mainland’ at least a few times a year. Intermarriage between the two islands is common, and rice-harvesting elicits help from these wider kinship groups. Their fishers use similar fishing grounds, and are mobile across the Archipelago, selling fish in each other’s markets, and even in and around Port Blair. Cargo traffic is common between the two, and the lack of a cash ATM in Neil till 2018-19, meant people (especially migrants) would travel Havelock to withdraw money sometimes. The migration of labour between the two has increased with a rise in daily wage labour for tourism construction or agriculture. The two function as ‘safety valves’ for ‘pressure cooker’ situations created by tourist and migrant populations gets too much. Livelihood diversification functions similarly, as islanders move may shift between farming, fishing, and tourism, or between activities within these livelihoods.

10.2 Responding to change

Contacting journalists to tell their stories is one strong way in which islanders respond to these kind of totalitarian decisions and ‘speak back’ to the mainland. Others include using collective pressure, exercising voting rights, and even resorting to illegal activities (such as black markets) as a form of rebellion. There are also other softer, smaller, and seemingly insignificant ways in which islanders ‘speak with’ the mainland or use the ‘mainland’s voice’ for their own ends, where a trickle-down, subversion of mainland discourse is palpable in islander notions. Yet, this power play is one aspect of islander lives; the other is making a living in the face of multiple stressors ‘impinging on development trajectories and experiences’ (Adger et al., 2003, p. 192). Much of their response will have to be autonomous, facilitated by their own resources and ingenuity, reactions to sudden changes, whether in climate or power conditions in the moment, a ‘productive bricolage’ borne of necessity that is constantly evolving with the times. In this sense it is tempting to state that islander populations might offer lessons for adaptation, but this is in fact a reality for many farmers, fishers, nomads, and indigenous populations across the global South *and* the global North. Perhaps it is the ‘island laboratory’ perspective or the myth that islands offer sites of contained study, or perhaps, just like the impact of changes are easily and quickly visible on islands, so are the ways in which their populations cope with or respond to them compared to those in continents.

In the wake of global change impacts, there is also good reason for these strategies, for traditional islander livelihoods and the resources they are based on are in jeopardy, as are the very islands they call their *only* home. In 2005, the year after the tsunami struck, another old settler, and patriarch of an influential Havelock family, felt a longing to visit his erstwhile home in Bangladesh. Days spent travelling, and crossing borders, resulted in one harrowing night. His wife lay on the foot of the bed, armed with a small dagger, in fear of what his relatives, who thought he was there to claim land, would do to them. They made the long journey home, and all correspondence was thereafter severed (NCR, 28.09.2015). The urgency is also palpable in small tropical islands thanks to the politicisation of the climate change agenda by the Small Island Developing States and the debates surrounding climate refugees. The author did not assess the impact of these debates on the islands of study, but another old settler, RS (29.09.2015), revealed a poignant precarity that almost brought me to tears – “Tomorrow another big cyclone or tsunami will come and what will we do? All these other people..”, and here he waved in the general direction of his migrant neighbours, “. . . have homes in the mainland. We were already forced out from our homes. My entire village was burnt, reduced to rubble. We are not even in

our own country anymore, but our country will never take us back. This is our only home now.” Even migrants shared a similar perspective. AM (05.10.2015), forced out from his own home in the Sundarbans due to climate change, put it simply: “If something did happen, where would I go and what would I do there? I would rather die here”.

10.2.1 Discursive Entanglements

Blaming settlers for the plight of both the island’s ecosystems and the indigenous populations has met with resistance. While engagement with the issue of Sea Level Rise plaguing most SIDS seemed minimal amongst these two islands, issues of conservation and ecological degradation are certainly at the fore, and a significant area of contestation between the state and islanders. The impact of the settlement, development, and economic policies on indigenous islanders is gaining recognition amongst settled populations, owing to academic, journalistic, and activist attention. Similar interactions, legal frameworks, and visible effects of rising demographic pressures have moulded local perceptions of environmental change, internalising a need for conservation, despite the ignorance and even villainization of settlers by conservation discourse in the past.

Taking from this discourse, the state blames settlers and migrants for ecosystem degradation through bad livelihoods practices, such as the misuse of fertilisers and pesticides, encroachment, poaching, timber extraction, over-fishing, and sand mining. The islanders meanwhile highlight the de-notification of large tracts reserves for mega-development government projects, its indiscriminate use of forest land or Marine Park areas for military training, testing missile systems, ‘government-exclusive’ tourism, or allowing indiscriminate trawling and off-shore oil exploration. The Andaman Trunk Road is one bone of contention which brings both concerns, of indigenous and ecological preservation, together. In blatant ignorance of the 2002 Supreme Court order, the part of ATR which lies within the Jarawa tribal reserve has still not been closed. The administration blames this non-closure on opposition from settlers and migrants of the region, yet the road is reportedly being widened by the administration. A Forest Department official who protested, citing the absence of environmental impact assessments, was quickly transferred out, suggesting a more complex picture (S. Jain, 2020, June 10).

The ‘Mini-India’ rhetoric, a statist discourse once given short shrift by islanders, is now making a comeback in the face of growing in-migration and outsider influence. Zehmisch (2014) noted little ‘Andaman patriotism’ amongst his interlocutors during his fieldwork in 2010, citing the more important politics of community and ethnic identity, which regulated compe-

tition for resources and recognition. While community and ethnic identities show no signs of abating, this research did find an increasing sense of ‘island sub-nationalism’, inherent in increasing ‘settler humanitarianism’ for the plight of the indigenous people, joint appeals for an Inner Line Permit for migrants and mainlanders, increasing calls to preserve island ecology, and praise for islanders who had succeeded on merit, along with a general disdain for government officials, tourists, and non-islander businessmen. Radical conservation discourse is also sometimes used to justify illegal activities, such as the hunting and consumption of deer, which, though protected, are projected as invasive species destroying island ecology. Meanwhile, other black market or illegal activities, such as buying Urea, brewing a type of Ranchi rice-alcohol, mining sand or fishing in the MNP, are simply justified as resistance against a suffocating regime with ad hoc rules and overt exhibitions of power.

10.2.2 Discursive Rejections

Owing to the demand for land and skyrocketing real estate in the two islands, its populations are now in a better position to resist discourses, and ‘speak back’ to the mainland and the administration, through collective pressure, media coverage, multiple connections to globalised markets, and exercising voting rights. For instance, the renaming of the two islands to Swaraj Dweep and Shaheed Dweep, is actively resisted. Resistance against renaming in the ANI has a history. Renaming plans for the ANI had been circulating since the 1950s, when Subhash Chandra Bose himself recommended the terms ‘Swaraj’ and ‘Shaheed’ replace ‘Andaman’ and ‘Nicobar’ to capture the importance of the islands for the freedom struggle. In 1969, this suggestion resurfaced in the Indian Parliament, to which the ANI’s Member of Parliament KR Ganesh is said to have responded – “we have a soul...and the name of the Andaman is in our soul...our name cannot be changed by you” (Murthy, 2005, p. 23).

In 2010, self-appointed yoga ‘guru’ Baba Ramdev visited the islands and suggested Havelock Island be named after Nana Sahib, and Sir Hugh Rose Island after Rani Lakshmibai, both of whom had led factions of the 1857 Indian mutiny (Sekhsaria, 2017). This was also widely challenged. Yet Modi’s renaming, in a similar manner as the ‘organic declaration’ has faced more backlash in a time of increasing tensions between the islanders and the government (see Figure 10.2). The token islander participation elicited in what turned out to be a deceptive move with no democratic vote, the outdated nature of the terms Swaraj and Shaheed and their incongruence for two islands which played no part in the Indian freedom movement, a tiring invocation of an Indian nationalist rhetoric over indigenous or settler history, and most importantly, the de-



Figure 10.2: A board in Havelock reacting to the renaming of the island to ‘Swaraj Dweep’. Image by author, 2019.

struction of tourism ‘brand-names’ cultivated since the 1990s⁶, angered almost every islander I interacted with. The situation even elicited sympathy and anger in Port Blair and the wider Andamans, where it was viewed as the proverbial ‘fall of the first domino’.

The government’s push for tourism has resulted in Havelock’s overt development and its settlers, as well as Neil’s, are now becoming cautious. Despite skyrocketing land prices, the sale of land, especially to mainlanders and outsiders, has stagnated as islanders express new appreciation for the non-economic value of the commodity. Both older and younger islanders expressed a reluctance to sell their land despite an opportunity to make more money than most have ever seen. Protests have even led to the halt of commercialisation of villages, citing erosion of society and the preservation of inter-generational justice (see Chapter 9 for details).

In the absence of a management plan for the Rani Jhansi MNP, ad hoc rules and restrictions of traditional fishing grounds are also being challenged. One Havelock fisher association threatened legal action over what it claimed was a trigger-happy Forest Department’s arbitrary demarcation of no-take zones (Bijoor et al., 2018). Ad hoc and reactionary MNP restrictions also affect tourism operators, dive shops, and tourists (Bijoor et al., 2018), causing tensions

⁶The possibility that especially Havelock would be renamed had been completely ruled out, even by journalists (Z. Ahmed, 2018, November 15)

between tourism developers and the administration. A cautious private sector means Public Private Partnership models to high-end tourism in Havelock and Neil or even in newly opened islands have met with few bids and extended deadlines. Women have also organised protests against administration, mostly on the existence and location of alcohol shops which further addiction and domestic violence. As of this research, Neil had no ANIIDCO wine shop, while Havelock's wine shop at the jetty had been shut down for a few months but later reopened in a less public location. Perhaps the greatest show of discontent with the present government came with the 2019 island-wide elections, fresh on the heels of the renaming exercise. Here, the long-incumbent BJP Member of Parliament, a Bengali gentleman who had served two consecutive five-year terms (and three in total), was ousted by a new, younger (non-Bengali) candidate from the opposing Indian National Congress (INC), albeit with a narrow margin.

10.2.3 Productive bricolage

Islander livelihood strategies are both constrained and facilitated by the island's resources and their embeddedness in the wider society and economy. Further, access to resources and strategies is dictated by power, institutions, inequality, and other social factors ((Adger, Arnell, & Tompkins, 2005). For instance, the focus of ANI's administration on tourism has led to its apathy towards other livelihoods. Of two agricultural depots in Havelock, one was shut down in 2010 and the inferior quality of inputs provided is a common refrain. The development of high-value agriculture, such as coconut planting, has also seen setbacks due to the lack of training and extension services. With poor yields of oil from copra, farmers sell the bulk of their coconuts to middlemen for export to the mainland, or in the case of tender coconuts, to vendors for sale to tourists (JS, 08.02.2016). Some have stopped attending the scant meetings that do occur with officials from the agricultural department, claiming a series of false promises or outdated information, , while others claim that getting a meeting is impossible, as depot officials are always in Port Blair on "business" (TM, 07.10.2015; KM, 04.10.2015; FGDs 4, 10).

Even fishing is facing similar issues. Its popularity has soared, evidenced by an increase in fishing villages, fisherfolk, seasonal fishers, and fishing cooperatives in the ANI (Fisheries Survey of India, 2010). Fisher households generally agreed that the gear and nets supplied by the Department of Fisheries are of good quality but complain of the poor monitoring and regulation of schemes and fishing zones. Local fishermen cannot compete with trawlers from Port Blair or the mainland, nor defend their fishing grounds from by-catch from trawler nets or seine nets. Trawling for prawns requires fine nets which destroy bait and juvenile fish, and fishers report

that almost 100 kgs of dead fish are thrown back on every trawler trip, which typically lasts two days. Trawlers come out when they hear a certain type of fish (*chanda macchi*) is being caught and sold in local markets, which are said to feed on prawns (KMB, 20.02.2016). Trawlers also indulge in long line fishing with anywhere from 100 to 1200 hooks. Each month sees about six trawlers in the region from Port Blair, and though they avoid the shallow fringing reefs around Neil, they have been spotted in areas which are normally off-limits within the Rani Jhansi MNP. Subsidies to the tune of almost 50% for deep freezers and engines have helped fishermen, but many still need to borrow money from fish traders and middlemen at interest rates of 10% (or 5% in case of emergencies).

Tourism may offer more potential income than agriculture, and even public sector jobs, but brings environmental pressure, problems of seasonality, disruption of island lives and livelihoods, and little islander profit. The tourist season starts in October and can theoretically go till May, though visitor numbers start falling in March as the days become hot. This is referred to as the 'dry season', as it features a weaker northeast monsoon. With little rainwater harvesting and falling water tables, water supply becomes a problem at the end of the dry season⁷. The dry season is thus a crucial one for agriculture, and the peak of the tourist season (November-January) coincides with the harvest of the *Kharif* (winter) crop, which includes the culturally significant *dhaan*, and the sowing of the *Rabi* (monsoon) crop. Many cultivators lease agricultural land to seasonal migrants during this period, in order to concentrate on other ventures such as taxi services, restaurants, scooter rentals, and housekeeping services. Even fishing is affected as some *doongis* are diverted to ferry cargo in a time of high demand, and fishers choose to work on dive boats, or for water sports operators for the season.

In these two islands, livelihoods response to these stressors, and to weather variability and climate change, are a range of strategies, a 'productive bricolage' which is often in flux. Strategies identified include the extensification or intensification of agriculture, diversification of or within livelihoods, changing livelihoods practices, collectivisation, migration, and even illegal activities. The author has discussed some of these at length in the 'Livelihood Strategies (LHS) Component' in Chapter 9, but the responses elicited during this work far exceeded the survey questions. Agricultural extensification means farming new units of land, often with low-input crops. In both islands, this is made possible via encroachment. In Havelock, encroachment has shifted to the heart of the forest, which is less patrolled, and where farmers clear hillsides to plant Areca nut trees. This creates a portfolio of plots with varying risk profiles (Paavola, 2008).

⁷At least seven resorts in Havelock and a few in Neil today have swimming pools for their guests, an unheard-of prospect just a few years earlier.

Intensification, or more labour on a unit of land, has also resulted via land fragmentation and smaller units of land with more labour.

Diversification, however, remains the most important response strategy to combat multiple stressors impinging on livelihoods and their resources. It creates a 'portfolio of livelihoods with different risk attributes' and can also respond to 'decreasing or seasonally varying returns to labour or land; imperfect markets for assets, finance and commodities; and economies of scope and scale' (Ibid., p. 643). In Havelock, farmers are diversifying to non-farming activities, adding daily wage labour, fishing, and tourism to their portfolios, and within farming, to cash-crop cultivation. Neil's farmers are partial to daily wage labour, and have diversified more within farming, to animal husbandry and livestock/poultry rearing. Bee-keeping, spice production, and polyhouse cultivation are also new avenues under exploration. Settlers in both two islands were predominantly farmers, and the majority of their population was oriented toward the land rather than the sea. This is now changing as livelihoods shift to a seasonal agrarian-maritime structure. Seasons are especially important for livelihoods in the Andamans, which experience two monsoons and a relatively short dry season. The monsoons are hard for fishermen, as cyclonic weather often means fishing is restricted to off-shore areas, which can also be curtailed in the event of cyclone warnings. For farmers, the monsoon season is spent sowing Kharif crops of rice. The short tourist season coincides with the Kharif harvest of rice and the sowing of Rabi crops such as pulses, oilseeds, and grains. The harvest is an important cultural festival, following a religious 'festive season' of festivals like 'Durga Puja' and 'Diwali'.

Figure 10.3 reveals a seasonal calendar of lucrative economic activities which incorporate opportunities for diversification within the agrarian-maritime structure. Farmers can switch to fishing and tourism in case harvests are late (or early). Fishers cannot generally diversify to rice farming, but coconut grows well in the sandy areas around their homestead, and areca nut can be grown in parcels of hilly land or encroachments. In times of monsoon, cyclones, or overcrowding of fishing grounds, fishers can turn to the high-value low-input farming of coconut and areca nut, which provide near-perennial income. Vegetables and pulses can also be grown on hilly land. If all else fails, islanders can also rely on daily wage labour on agricultural land, development works, resort construction, or transportation. These tactics of diversification help livelihoods communities cope with economic uncertainty and climate variability.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Climate	Season												
	Dry season						SW Monsoon			NE Monsoon			
Weather													
Farming	Rabi	Rabi Harvest											
	Kharif	Kharif Sown											
	Paddy/Rice												
	Coconut and Arecanut												
	Banana												
	Pulses, oilseeds, grains												
	Vegetables												
	Spices												
	Fishing												
	Tourism												

Figure 10.3: A seasonal calendar depicting farming, fishing, and tourism livelihoods. Compiled from various FGDs.

Another strategy that is gaining popularity is collectivisation. The number and membership of SHG groups, fishing cooperatives, and farmer's organisations have increased considerably in the past decade and are even challenging some administrative decisions. In Havelock, there are at least two Fishermen's Associations (Bengali and Telugu factions), one of which threatened to write to the Supreme Court on the issue of arbitrary weekly rules and demarcation of no-take zones. After the 'organic mandate', farmers in Neil collectivised to take their stories to the media, leading to quick redressal of their concerns. Cooperative societies are also popular, to coordinate the sale and collection of produce, milk, and eggs. The collectivisation of women and youth SHGs, facilitated by a few NGOs, has produced an extensive knowledge and skill sharing network across the ANI. Some have collectivised in protest, such as women's agitations against the alcohol shop in Havelock, while others may collectivise to encroach, maintaining anonymity through bribes or 'islander clout'.

Conducting illicit activities is another form of response. These include encroachment, poaching, growing or selling marijuana, or drug-smuggling, and black markets exist for venison, turtle meat, even agricultural inputs. After the halt on chemical fertilisers and pesticides, a black market has emerged, especially for Urea. To avoid detection, Urea is reportedly sold in rice bags, and one 50-kg bag, which was 250 rupees before the organic declaration, now fetches upwards of 2000 rupees. Poaching here is mainly for pig, deer, and turtles, all of which are protected by the Indian Wildlife (Protection) Act of 1972⁸. Understandably, the markets for venison and pig meat are less clandestine than those for turtle meat, which is sold for 700 rupees per kilogram. This author was offered venison, considered a delicacy, on more than one occasion during research. Many admit to buying and eating it but claim deer-hunting is carried out by others. The appropriation of the conservation discourse is visible here, as proponents cite the invasive status of the species and their destructive impact on island biodiversity. Anthropologist Itty Abraham sees poaching in the Islands as a multi-faceted 'portmanteau' of practices which incorporate settler/indigene, insider/outsider, state/citizen and human/nature dualities and tensions. A performance which 'speaks back to the mainland', it reveals myriad spatial and cultural interlinkages between the ANI with neighbouring Southeast Asian littorals, which make the Indian state increasingly nervous (Abraham, 2018, p. 6). Bootlegging of illicit liquor and the smuggling of recreational drugs, such as marijuana and methamphetamine, presumably for tourists, are both on the rise and speak to the larger problem of addiction in the ANI.

⁸The four species of marine turtles found here are also on the IUCN's endangered list. The meat and eggs of the saltwater crocodile, another protected animal, are eaten in parts of the Great Andaman landmass, though increasing crocodile-human conflict has prompted the ANI administration to appeal for de-listing the animal from the Act to control its numbers (Down to Earth, 2018, July 16).



Figure 10.4: Fruits and vegetable processed into preserves, oil, and pickles. Image by author, 2016.

Corruption has emerged time and again as the source of much islander strife, and anthropologist Philipp Zehmisch (2014) writes of the systemic institutionalisation of the corruption discourse in the islands. A few officials and bureaucrats are singled out as corrupt and greedy, but are often ‘scapegoats’, and this elides islander complicity in corruption. With the boom in construction, the illegal extraction of beach sand, Non-Timber Forest Produce, and even timber has increased. One forest official called underground timber extraction a well-oiled industry with a mafia which provides quotas and licenses (NM, 07.10.2015).

Yet, many islanders now understand their own impacts on island ecology, and are changing their erstwhile livelihoods practices’, and moving towards a ‘greener’ future. Farmers in this research reported combining modern techniques with traditional knowledge for effective pest management. For instance, marigolds, said to increase nutrient uptake and deter insects, are grown as companion plants for vegetables or grain is stored with neem leaves and twigs to prevent infestation. The practice of summer or post-harvest ploughing has become increasingly popular as it exposes insects and pupae in the soil, and even pheromone traps are being used. Soil conservation, minor irrigation, vermiculture, mulching, and rainwater harvesting are all on the rise (FGD 4, 5, 8). Catch-and-release game fishing has become popular, and islander tourist guides now provide information on island ecology. Other practices include communal beach clean-ups, waste segregation, recycling/upcycling of coir or coconut products as tourist souvenirs, and fruit/vegetable processing to avoid food waste (Figure 10.4).

10.2.4 Islander recommendations for future cooperation

“What good is all this money? It takes away our purpose for life - one can't eat money. The lure of fast money has divided our society, leaving people without kin or a home. Greed for money will kill our culture and our children – it must be resisted at every turn... but we can only do this if we come together.”

– RS, 29.09.2015

Preserving ecosystems and the resources of food and water require integrative and participatory solutions. Islanders are aware of their reliance on the state and stressed the need for certain policy measure that could be implemented to decrease pressure on resources, preserve island culture, conserve the ecology, and lead to some semblance of ‘sustainability’. Most islanders recommended that both fishing and diving be halted in certain areas every year to allow for regeneration. For ecosystems, the shift to organic farming was hailed as a step in the right direction, but one which required a much higher level of engagement, training, and agricultural extension services. Along with island ecosystem education in schools, a need for adult awareness and training on ecosystems, especially for newer arrivals, and even tourists, was expressed. For water, the next most vulnerable component, conservation through rainwater harvesting and drip irrigation seems to be gaining ground, and the need for desalination plants or better wastewater usage came from the tourism industry in particular. Pond-based integrated farming systems would help with water conservation as well as the next most vulnerable component, food. Training on how to add value to horticultural products, such as making jams and juices, or using locally available material such as bamboo and cane to build structures and artisanal products was also mentioned. Better disposal of waste was a common suggestion, and the current cost and effort to transport recyclables or dry waste to the mainland could be offset by machines which produce plastic pellets. These could be used in local road construction and maintenance, a recurring annual need especially after the monsoons.

Most excitement revolved around the development of agrotourism, as a way to preserve and highlight island culture, elicit tourist involvement and understanding of island environments, increase income while preserving livelihoods or land, and revive agricultural will, a sense of purpose, and an erstwhile ‘sense of place’. Agrotourism has the potential for tourists to interact with the culture and ecology of the islands, incentivise better conservation and waste management practices, and create markets for high-value products, such as vanilla, or value-added products, such as cane and bamboo furniture, or fruit preserves. The practice of WOOF-ing (Working On Organic Farms), popular in European countries, was also suggested, help

farmers invest further in organic farming, provide knowledge exchange, and help in the upkeep of land. Rather than positioning them as passive consumers, eliciting the active participation of tourists in island conservation, or immersing them in settler culture could go a long way. A compendium of activities revolving around island ecology, culture, food, livelihoods, and lifestyles would create better engagement, leading to preservation of culture as well as less reliance on the tropes of tribal exoticism or tropical beauty. Wider participation through the creation of pan-Andaman or ANI-mainland knowledge exchange networks was also highlighted. Moving islands towards a tourist economy without concomitant investment in other livelihoods is dangerous, and the method of diversifying livelihoods may derive lessons for areas of investment as well. Sustainable development according to islanders pivots on the preservation of resources and culture in a time of change.

The one need articulated the most during this research was for increased participation of islanders in decision-making and their own futures. While most acknowledge that statehood is impossible and perhaps not even desirable, given the benefits which accrue to the ANI in the face of economic or environmental crisis though the central government, the increasing centralisation of power to a growing exclusion of islanders in decision-making and economic growth is worrying. Battling the rising impacts of global change and increasing vulnerabilities it produces is deeply linked with issues of social justice and participation and would ideally involve the participation of all the affected communities, including indigenous populations. The deep segregation which exists within their populations, between indigenous and settler, within settler societies, and between islanders and non-islanders, is not wholly insurmountable, but requires a reformulation of the focus of 'settler humanitarianism' from lobbying for the preservation of a pristine tribal or reserve to fighting for these groups to have a voice in issues which affect them. This is becoming even more urgent in the face of increased development plans and the further separation, displacement, and 'management' of dwindling PVTG populations by the state. It is also through effective governance and the safeguarding of key natural resources, promoting market access, and augmenting human capital that the vulnerability of the most vulnerable factions can be reduced (Paavola, 2008). Women's entrepreneurship needs to move beyond 'SHG-based' models towards their active participation in agricultural and business skill or tourism entrepreneurship training, and the inclusion of migrants in the conservation of resources or clean-up drives could ease social tensions considerably.

Chapter 11

Conclusion

Andaman histories and legacies have had considerable impact on its islandscape today. Perhaps the greatest cumulative impact is on its tropical forests and indigenous populations. Centuries of deforestation under different regimes of power have changed their coverage and composition and destroyed the fertility of the soil. The downstream effects of this deforestation, i.e., its impacts on littoral and marine systems, are now visible in deposition of topsoil, silt, plastic, and other detritus. Ideas of protection and conservation are second to geopolitical concerns of security and economic growth, and the de-notification of tracts of protected land in the ANI is now being offset by mainland afforestation. An initial *de facto terra nullius* has persisted, and the government is now in sole possession of what were indigenous lands, with no sign of reparations. Along with destruction of their forest homes, the Andamanese indigenous populations have dwindled to near-extinction and are kept legally separated from settled groups. Centuries of enslavement, restriction, and sedentarisation have rendered them 'Particularly Vulnerable Tribal Groups' today. The concomitant development of military and tourism projects (or militourism) is now changing the islandscape further. The Andamans are 'unsinkable aircraft carriers', the headquarters of the military Tri-command, and India's most strategic assets in its relations with China and South East Asia.

Some legacies have been overturned. For instance, once marginalised penal colonies, they are today military strongholds and idyllic destinations for India. From the first label of 'bad tropicality' upon colonisation, they are now good tropicality, as tourism milks the 'tropical paradise' trope. Some legacies are being resurrected and clash against others, as with the imaginaries of *kalapani* and *neelapani*. Ross Island, the seat of British power in the Andamans, was dubbed the 'Paris of the East' in its splendour before an earthquake destroyed parts of it and

depleted its water reserves. Today it is museumised by both nature and the state. The tropical jungle has reclaimed the buildings, and the remains of a church, bakery, dancehall, and graveyard are embraced by the tangled roots of mighty Ficus (peepul) trees. Visitors are welcomed by herds of deer and ostentations of peacocks, allegedly introduced by the British, now fitting symbols for Hinduised nationalism (both are sacred in Hindu mythology, and the peacock is India's official national bird; both are also invasive species). A ferry ride takes you to the island and its relatively new *son et lumière* show, designed to bring a few tears to every patriotic Indian, and perhaps in another fitting symbolic gesture, the Indian Navy is responsible for its upkeep. An average tourist itinerary would now involve a visit to the Cellular Jail to see its *son et lumière*, a stroll down the display of Indian military might that is the Port Blair marina, a day visit to 'Bose' Island, and a few days in Swaraj Dweep or Shaheed Dweep. The renaming of Havelock and Neil has subverted these paragons of the 'blue waters' narrative and brought them back into the 'dark waters' of Indian nationalism.

This 'inherited islandscape' has also been shaped by the trajectories and practice of livelihoods and labour. These have contributed to deforestation and cross-ecosystem impacts but created connections between islanders and their islands, spatialising them in ways which are constantly in flux. Livelihoods are influenced by external factors, such as globalisation and the mainland economy and polity, but also by climate change, disasters, loss of resources, and available opportunities, shaping the vulnerability of certain livelihoods over others. Change in ecosystems and climate are key drivers changing livelihoods and islander response strategies, as well as the 'sense of place' or quality of 'islandness'. In Havelock and Neil, mutual historical interactions between the island environments and the development of islander livelihoods have spatialised the islandscape in certain ways for the islanders. For instance, the choice of rice farming is a function of flat and fertile land and enough water, but also of the staple diets and knowledge that refugees maintained in their erstwhile homes. Growing rice also suited India's desire for self-sufficiency of food-grain and was buoyed by the myth of tropical fecundity. With a few decades of rice-growing, this myth is broken, and declining soil fertility meets the impacts of pests and insects, of extreme weather events such as cyclones, heat waves, of oceanic currents (El Niños/La Niñas). Socio-political processes such as rising populations, in-migration, inclusion into globalised trade networks, and the state's efforts to 'engineer the trajectory of livelihoods' towards tourism also affect islanders. Connections inherent in the islandscape are highlighted: human-environment, land-sea, and island-island/island-mainland. Both islands are experiencing rapid changes in both livelihoods and island ecology, visible through the loss of forests, mangroves, seagrass, and reef cover and biodiversity. These are recorded in scien-

tific studies and materially exposed in the practice of livelihoods, facets of which contribute to this change. The administration's push towards tourism development, couched in sustainable jargon, does not address this change or its causes, and mega-tourism proposals are sure to exacerbate it further.

In the meantime, islanders are forced to shift to organic cultivation, and blamed for their unsustainable livelihoods practices. The renaming of both islands in the nationalistic terms of a bygone era is an act of ideological appropriation and homogenisation, but also an indicator of the importance of this islandscape for mainland India. Numerous connections exist between the two islands, through livelihoods, culture, religion, and a recognition of their own distinct identity forged within the wider Andaman islandscape through different histories of settlement, societal and cultural development, and livelihoods. Islander appropriation, subversion, or rejection of aspects of top-down discourse 'speaks back to the mainland' in various ways, causing uncertainty in mainland political circles. Aspects of discursive notions used to produce the historical Andaman islandscape are also identified in the islander vision of these two islands. For instance, their initial projection as isolated and marginalised has transformed today to touristic islands which are in high demand. In the interim, they have been seen as bounteous tropical paradise which developed a thriving rural Arcadia, and as vulnerable places prone to declining fertility, disasters, and climate change.

11.1 Further research

The islandscape approach used in this work has illuminated metaphorical and material connections across space and time, and between islanders, environments, ecosystems, and geographies. However, it has its limitations. It is a complex and subjective assemblage, and the number of dizzying connections, subjectivities, movements, and flux means an islandscape can never be understood in its entirety. Its brand perspective means it requires intensive research, and its fluidity means that this work is one version of an islandscape which is essentially a snapshot in time. Further, it is impossible to capture all perspectives. Islandscape research in the ANI would benefit from how migrants, women or children, or indigenous groups perceive and navigate this islandscape. Islandsapes of the Nicobar Islands will also present a very different picture, as they are highly restricted areas with growing tensions between indigenous and settled populations.

Livelihoods approaches and indices also have their limitations, as they may obscure spatial and temporal scales, or limit connections rather than enhance them. Work on livelihoods in this

region, however, is very scarce, and sorely needed in the face of rapid change and development, and also *to complement* anthropological and historical research. The Livelihoods Vulnerability Index or similar vulnerability indices could be used to identify and compare changes in various islands and other geographies. Though only two islands have been compared in this research, the LVI functions as a simple tool to conduct research and comparisons in other Indian islands, whether between the Andamans and the Nicobar, or the ANI and the Lakshadweep Islands. Comparing the two might highlight different vulnerabilities and similarities in both, moving towards a sense of 'islandness'. Contrary to washing their hands off 'touristic islands', academic focus on them is much more pressing. In this research, it is evident that aggressive tourism development in Havelock and Neil has been a mixed bag for both island populations, which have suffered more than prospered. Barely able to cope with existing tourist levels, more master plans and carrying capacity assessments push for increasing tourist footfall (J. Sharma & Kar, 2013). The two islands offer valuable lessons for the pitfalls of the rhetoric surrounding 'sustainable development'. More research *by islanders* is sorely needed, and fostering exchange amongst academic communities, through regional networks across the Bay of Bengal and surrounding littorals, could prove more valuable than the current Indian-mainland-oriented bent of scholarship on the islands. Inter-/cross-disciplinary research is the need of the hour; natural science and conservation research needs to move beyond assessments to engage with social aspects and the populace, while social scientists and humanities scholars must attempt to incorporate a wider understanding of ecosystem dynamics. This is easier said than done but using the islandscape concept to approach the islands has certainly widened this researcher's horizons, and she hopes it may inspire other researchers and illuminate different avenues of research.

Appendix

Number	Nature of FGD	Place	No. of people	Date
FGD1	Scoping discussion - mixed	Havelock	8	03.10.2015
FGD2	Women's Self-Help Group	Havelock	5	10.10.2015
FGD3	Scoping discussion - mixed	Neil	10	19.12.2015
FGD4	Farmers - Shyamnagar, Govindnagar	Havelock	7	27.12.2015
FGD5	Fishers	Havelock	7	09.01.2016
FGD6	Women's Self-Help Group	Neil	11	10.02.2016
FGD7	Krishi Service Cooperative Society	Neil	7	11.02.2016
FGD8	Farmers	Neil	5	14.02.2016
FGD9	Fishers	Neil	6	15.02.2016
FGD10	Farmers - Kalapathar	Havelock	7	20.02.2016
FGD11	Scholars from JNRM and Pondicherry University	Port Blair	5	11.03.2016
FGD12	Tour Operators	Neil	4	20.12.2016
FGD13	Tour Operators	Havelock	5	13.01.2017
FGD14	Confirmation discussion - mixed	Neil	15	27.12.2018
FGD15	Confirmation discussion - mixed	Havelock	13	06.01.2019

Table 1: List of Focus Group Discussions

Table 2: List of Interviews

No.	Acronym	Place	Date	Description
1	NM	Havelock	07.10.2015	Forest Department
2	RD	Havelock	21.02.2016	Tour operator
3	NCR	Havelock	28.09.2015	Original Settler
4	NH	Havelock	30.09.2015	Original Settler
5	DV	Havelock	25.02.2016	Veterinarian
6	RS	Havelock	29.09.2015	Original Settler
7	MC	Havelock	02.10.2015	Police personnel
8	CB	Havelock	02.10.2015	Agriculture Department
9	KM	Havelock	04.10.2015	Agriculture Department
10	AB	Havelock	04.10.2015	Migrant Farmer
11	AM	Havelock	05.10.2015	Migrant Farmer
12	RH	Havelock	06.10.2015	Seed Seller
13	MP	Havelock	07.10.2015	Farmer
14	TM	Havelock	17.11..2015	Farmer
15	RB	Havelock	16.12.2015	Tourism industry
16	JD	Havelock	16.12.2015	Transport
17	NB	Havelock	16.12.2015	High Value Agriculture Agency
18	KM	Havelock	17.02.2016	Farmer
19	MS	Havelock	28.09.2017	Police personnel
20	FI	Havelock	01.03.2016	Fisheries Department
21	KMB	Havelock	20.02.2016	Fisher
22	SB	Havelock	20.02.2017	Migrant Farmer
23	MJ	Havelock	23.12.2016	Electrician
24	SD	Havelock	25.12.2016	Tourism industry
25	UD	Havelock	25.12.2016	Tourism industry
26	BJ	Havelock	03.01.2017	Tourism industry
27	LK	Havelock	03.01.2017	Tourism industry
28	VK	Havelock	10.01.2017	Tourism industry
29	VN	Havelock	10.01.2017	Tourism industry
30	TN	Havelock	10.01.2017	Tourism industry
31	SM	Havelock	29.09.2015	Village Council
32	CR	Havelock	30.09.2015	Revenue Department
33	RB	Neil	11.02.2016	Agriculture Department
34	AS	Neil	11.02.2016	Agriculture Department
35	SR	Neil	03.03.2016	Transport
36	RKB	Neil	18.12.2015	Village Council

continues on next page

No.	Acronym	Place	Date	Description
37	MB	Neil	18.12.2015	Emergency Operations Centre
38	MM	Neil	08.02.2016	Police personnel
39	CB	Neil	08.02.2016	Business
40	CH	Neil	08.02.2016	Farmer
41	JS	Neil	08.02.2016	Coconut vendor
42	LN	Neil	09.02.2016	Fisher
43	DK	Neil	09.02.2016	Village Council
44	BKR	Neil	09.02.2016	Shopkeeper
45	AB	Neil	11.02.2016	School teacher
46	AN	Neil	11.02.2016	Agriculture Department
47	SP	Neil	10.02.2016	Primary Health Centre
48	SM	Neil	10.02.2016	Game Fisher
49	ND	Neil	10.02.2016	Farmer's Cooperative
50	AR	Neil	11.02.2016	Farmer's Cooperative
51	KR	Neil	12.02.2016	Fisher
52	MS	Neil	08.02.2016	Fisheries Department
53	AD	Neil	03.03.2016	Fisher
54	MM	Neil	03.03.2016	Settler Farmer
55	SD	Neil	04.03.2016	Settler Farmer
56	RB	Neil	05.03.2016	Settler Farmer
57	PM	Neil	05.03.2016	Settler Farmer
58	MF	Neil	05.03.2016	Settler Farmer
59	OF	Neil	03.03.2016	Settler Farmer
60	AR	Neil	08.03.2016	Forest Department
61	MM	Neil	03.03.2016	Settler Farmer
62	NV	Neil	04.03.2016	Veterinary Department
63	MR	Neil	08.03.2016	Ferry staff
64	MA	Neil	08.02.2016	Agriculture Department
65	RYS	Port Blair	09.03.2016	Agriculture Department
66	CR	Port Blair	09.03.2016	School Principal
67	VV	Port Blair	09.03.2016	School teacher
68	SB	Port Blair	10.03.2016	University professor
69	GSP	Port Blair	09.03.2016	Agriculture Department

Date:
HH No:

Household Livelihood Asset Survey
Ruhi Deol, PhD candidate
LMU 2015-18

HH no.:
Primary occupation of HH:
When came to island?

Village, Island:
Settler/Migrant:
Community:

1. Household members, education, skills, and employment

- a. How many members in your household?
- b. Have any members migrated elsewhere? For what purpose?

S. No.	Relation to HH head	Age	Education	Occupation: Main	Occupation: Other/Seasonal
1)					
2)					
...					

2. Health facilities

- a. How far is the Primary Health Centre from your house (in minutes)?
- b. Are any members of the household suffering from chronic illness?
- c. Did any members miss school/work in the past month due to illness?
- d. Does the household have toilet facilities on the premises?

3. Land and crops

- a. Do you own any land? When did you obtain land, and how? (If no, go to Q 3. e.)
- b. What is this land used for – agriculture, fallow, leased, other?
- c. Land owned (in 'bigha' or acres):
 - i. Hilly land _____
 - ii. Paddy land _____
 - iii. House site _____
- d. Have you sold/leased any land or do you plan to do so? If yes, why?
- e. Do you lease land from others?
- f. Do you hire labour? If so, why?
- g. Do you work as labour for others? If yes, what kind?
- h. Do you grow crops on your land? (If no, go to Q. 4.)
 - i. Crops profile:

S. No.	Crop	Average yield/month or year	Average market price	For sale or household use	When started to grow
1)	Rice				
2)	Coconut				
3)	Areca Nut				
4)	Banana				

Date:
HH No:

Household Livelihood Asset Survey
Ruhi Deol, PhD candidate
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5)	Vegetables (specify)				
6)	Other Fruits (specify)				
7)	Pulses				
8)	Others				

4. Agricultural inputs

- a. Do you use fertilisers to grow crops? If yes, which ones?
- b. How much fertiliser do you use? Has it changed over the past 6 years?
- c. Do your crops have pests or disease? Which crops, and type?
- d. Do you use pesticides? If yes, which ones?
- e. Where do you obtain your fertilizer and pesticide from?
- f. Has the amount of pesticide changed over the past 6 years?
- g. Has the yield changed over the past 6 years?
- h. Do you use machinery for agriculture e.g. tractors/tillers?
- i. Which crop gets you the highest market price?
- j. Have there been any problem crops in the past 6 years?

5. Water and food

- a. Do you collect Non-Timber Forest Produce (NTFP)?
- b. Where does the household get water from? Well/Pond/Govt. supply/Stream
- c. How many water sources does the household use?

6. Fishing

- a. If you have a pond, does it have fish for consumption?
- b. Do you fish for household use elsewhere?
- c. Does any member of your household catch and sell fish for a living?
- d. If yes, do they own a boat or work on someone else's boat?
- e. Where do they normally fish?
- f. What species do you normally catch?
- g. Do you sell fish for export to other islands/mainland?
- h. What gear do you use? Hook and Line/Gill net/cast net/spears/long line/other
- i. Where do you like to fish? Open Sea/nearby Channels/Reefs/Mangroves/Ponds/ Inland
- j. Have your fishing grounds changed in the past 6 years?

7. Income and expenditure – FC

- a. What is the average annual household income?
- b. What is the major income source of the household?
- c. What is the major expenditure of the household?
- d. What expenditures have increased the most in the past 6 years?

8. Savings, Remittances, Credit, Loans – FC

- a. Do you give help to other households? In what form? e.g. daycare, food, etc.
- b. Has the household taken any loans? For what? From govt./bank or relative /friend?
- c. Has the household lent any money to other households?
- d. Do you have any investments or saving schemes, e.g. Provident Fund etc?
- e. Do you use any government livelihoods infrastructure e.g. godowns or ice plants?

Date:
HH No:

Household Livelihood Asset Survey
Ruhi Deol, PhD candidate
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- f. Do you or anyone in your HH have insurance? For health, accident, crops, life?
- g. Do you have crop insurance under the National Agricultural Insurance Scheme?
- h. Do you own a *Kisan* Credit Card?

9. Livestock owned: Yes/No- FC

- a. Does the household own any livestock or poultry?
- b. Do you earn income from the sale of eggs/milk/meat?

S. No.	Type	No.	Use (consumption, sale, other?)
1)	Chickens		
2)	Goats		
3)	Buffaloes/Cows		
4)	Pigs		
5)	Other (please specify)		

10. Location - PC

- a. Distance to market -
- b. Distance to jetty -
- c. Distance to road -
- d. What materials are used to build your house: Wood/cement/tin/mud?

11. Public Infrastructure - PC

- a. What public/govt. infrastructure do you use for your livelihood? e.g. ice plant, godown, fish landing sites?
- b. Have there been any tsunami warnings or drills in the last 5 years?
- c. Are you aware of all government schemes connected with your occupation?
- a. Did you get any compensation for natural disasters (tsunami, hurricane) from the government?

12. Membership of associations, political groups etc. - SC

- a. Is any household member a part of any commercial association / cooperative, or self-help group?
- b. Is any household member part of (or actively supports) a political party?
- c. Is any household member part of the Village Panchayat or Zilla Parishad?
- d. How many people from your household voted in the last election?
- e. How often do you attend Gram Sabhas or town hall meetings?
- f. Have you ever brought up anything at these meetings? What?
- g. Have you been to the panchayat for help in the past year?
- h. Have you taken part in any training programs? Which ones?
- i. Are any of your household members in government service?

13. Opinions and perceptions of change

- a. What changes have you noticed in the islands in the past 6 years?
- b. What is changing the most? How does it affect your household?
- c. What would you like to see improved on the island?
- d. What would you like to see improved for agricultural development?
- e. Anything else you want to add/say?

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