

Undoing Conservation: India's National Parks Giving Way for Infra Projects

A Compendium of 3 Case Studies on National Parks

Edited by
Nishank



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Table of Contents

Introduction	01
Legal Framework for Wildlife Protection.....	03
Hydel vs. Heritage: Understanding the Social and Environmental Costs of Hydropower Development in The Great Himalayan National Park.....	07
People and National Parks on the Precipice of Disaster: Plans for Mega Infrastructure Project in Great Nicobar (Galathea National Park).....	18
Fragmented by the Developmental State: An Ecosystem Struggles to Survive in Mumbai (Sanjay Gandhi National Park).....	29
Way Forward.....	47
Annexure	49

Abbreviations

Additional Principal Chief Conservator of Forests	APPCF
Andaman & Nicobar	A&N
Andaman and Nicobar Protection of Aboriginal Tribes Regulation 1956	ANPATR
Asian Development Bank	ADB
Brihanmumbai Municipal Corporation	BMC
Central Empowered Committee	CEC
Coastal Regulation Zone	CRZ
Convention on Biological Diversity, 1992	CBD
Comptroller and Auditor General of India	CAG
Conservator of Forest	CF
Dedicated Freight Corridor Corporation of India	DFCCIL
Delhi-Mumbai Industrial Corridor	DMIC
Department of Economic Affairs	DEA
Detailed Project Report	DPR
Eco Sensitive Zone	ESZ
Ecologically Sensitive Area	ESA
Environment Impact Assessment	EIA
Environment Impact Assessment Notification, 2006	EIA 2006
Environment (Protection) Act, 1986	EPA
Environment (Protection) Rules, 1986	EP Rules
Expert Appraisal Committee	EAC
Forest Advisory Committee	FAC
Forest (Conservation) Act, 1980	FCA
Gigawatt hour	GWh
Goregaon - Mulund Tunnel Link Road	GMLR
Great Himalayan National Park	GHNP
Great Himalayan National Park Conservation Area	GHNPCHA
Great Nicobar Biosphere Reserve	GNBR
hectares	Ha
Himachal Pradesh Power Corporation Limited	HPPCL
Intergovernmental Panel on Climate Change	IPCC
International Container Transshipment Terminal	ICTT
Japan International Cooperation Agency	JICA
Maharashtra Coastal Zone Management Authority	MCZMA
Maharashtra State Road Development Corporation	MSRDC
megawatt	MW
million units	MU
Ministry of Environment, Forest and Climate Change	MOEFCC
Ministry of Road, Transport & Highways	MORTH
Multimodal Corridor	MMC

Mumbai-Ahmedabad High Speed Railway	MAHSR
Mumbai Metropolitan Region	MMR
Mumbai Metropolitan Regional Development Authority	MMRDA
National Hydroelectric Power Corporation	NHPC
National Board for Wild Life	NBWL
National Board for Wild Life- Standing Committee	NBWL-SC
National High Speed Rail Corporation Ltd	NHSRCL
No Development Zone	NDZ
No Objection Certificate	NOC
Particularly Vulnerable Tribal Group	PVTG
Panchayats (Extension to Scheduled Areas) Act, 1996	PESA
Pre-Feasibility Report	PFR
Protected Area	PA
Right to Information	RTI
Sanjay Gandhi National Park	SGNP
Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	FRA
Square kilometre	sq km
Terms of Reference	ToR
Tungareshwar Wildlife Sanctuary	TWLS
Western Dedicated Freight Corridor	WDFC
Western Express Highway	WEH
Wild Life (Protection) Act, 1972	WLPA
Wildlife Conservation Society	WCS
Wildlife Conservation Trust	WCT
Wildlife Institute of India	WII
World Resources Institute	WRI

Introduction

India's burgeoning economic growth in the last two decades, especially in the infrastructure sector, has heavily impacted its forests and protected areas. Not only has there been a diversion of large tracts of forest land for non-forest purposes, but various infrastructure projects such as roadways, railways, transmission lines, irrigation projects, etc. have also been allowed near or within protected areas, jeopardizing their flora and fauna in the process and negating efforts towards the conservation of important species. On paper, there are various checks and balances to ensure that projects having adverse impacts are not allowed near or within protected areas, with additional layers of clearances such as forest and wildlife clearances, along with the presence of bodies such as the National Board for Wildlife. In reality, many such projects are given a go ahead in the name of bringing benefits for the larger good.

In order to grasp the extent of infrastructure projects coming up within and near protected areas, the Centre for Financial Accountability had earlier published a Mapping Report titled "Rise in Infrastructure Projects in Protected Areas: A Self-Defeating Goal for Development". This report carried extensive data on projects near and within protected areas, which had either been given or had applied for clearances in the past few years. In order to build a deeper understanding of the impacts of infrastructure projects on protected areas, a Compendium of 10 case studies titled "Undoing Conservation: India's Tiger Reserves Giving Way for Infra Projects - A Compendium of 10 Case Studies on Tiger Reserves" was commissioned, which focused on tiger reserves spread across the length and breadth of India. It provided key insights into the range of controversial projects which have either come up in these reserves or were planned but have been stalled. In order to further build knowledge in this domain, another compendium of case studies has been envisaged, which focuses on national parks. This brief compendium covers three national parks, the Great Himalayan National Park, Himachal Pradesh; Galathea National Park, Andaman & Nicobar Islands; and Sanjay Gandhi National Park, Maharashtra.

The compendium covers a wide spectrum of infrastructure projects affecting the above mentioned protected areas including hydroelectric projects, a proposed mega-transshipment port, industrial corridors, multimodal corridors, a high speed railway project, and tunneling projects. The individual case studies are preceded by an introductory chapter setting out the legal framework within which efforts towards wild life protection are taking place.

The case studies in this compendium have primarily been written based on secondary research, and telephonic interviews in a few instances. The secondary research included referring to various news sources, primarily leading English dailies, magazines and news websites. Additionally, government websites have been referred to, along with reports published on various portals. Though the data provided here is not exhaustive in nature, best efforts were made and meticulous care taken to include as much data as possible and provide the latest updates (the latest research referred to here is from June 2022).

Rather than analyzing the detrimental effects of a single project in the context of any particular national park, juxtaposing the impacts of multiple projects in various national parks gives a better insight into threats looming over these protected areas on a cumulative basis. The aim of these case studies is not only to analyze how the existing national parks may be impacted due to various projects, but also to help see these national parks as rich but fragile biodiversity hotspots home to several species of plants and animals, including several endangered species.

These case studies aim to provide a rich source of information for the reader, along with putting forward a reality check of the conservation efforts geared towards these protected areas.

These case studies also throw light on how human settlements around these national parks would be impacted due to existing and upcoming infrastructure projects. The case studies also make an effort to delve into the larger question of choosing between the anthropocentric approach and the eco-centric approach as the way forward in protecting our protected areas. Clearances for infrastructure projects are often allowed by authorities in the name of public interest or the larger good, which overlooks the corresponding irreversible damages brought by such projects. Protected areas such as national parks are natural habitats that are a culmination of evolutionary processes spanning millions of years. The unique biodiversity of protected areas cannot be sacrificed unquestioningly at the altar of ‘development’, and decisions taken by authorities need to undergo larger public scrutiny. Ongoing discussions on factoring in the ‘ecological costs’ involved in the implementation of infrastructure and developmental projects, therefore, are in urgent need of greater attention.

Often, the justification of ‘unavoidability’ or ‘inevitability’ is used in allowing projects in protected areas. Closer scrutiny reveals that such projects are eventually allowed for higher economic gains or enabling a consumerist energy-intensive lifestyle fueled by prevalent economic models, which are often at loggerheads with the goals of nature conservation. In the end, the onus is on us as a society to decide what we prioritize and how to ensure the sustainable co-existence of all species.

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International Framework

India's goals for conserving forests and protected areas are intrinsically tied to its commitment to various international frameworks for preserving biodiversity and combating climate change, such as the Convention on Biological Diversity, 1992 (CBD), the World Heritage Convention, 1975 and the 2015 Paris Agreement on climate change. The larger policies around protecting forest cover, especially wildlife sanctuaries and national parks (sometimes collectively referred to in this volume to as Protected Areas or PAs), are intended to reflect such commitments.

National Laws

Laws like the Provisions of the Panchayats (Extension to Scheduled Areas) Act, 1996 (PESA) in states under the Fifth Schedule of the Indian constitution, and arrangements for Autonomous District Councils in certain north-eastern states under the Sixth Schedule, also provide a framework for greater control over natural resources for tribal populations and hence are also relevant to wildlife protection.

For present purposes, it will suffice to refer to the Environment (Protection) Act, 1986 (EPA), the Forest (Conservation) Act, 1980 (FCA), the Wild Life (Protection) Act, 1972 (WLPA), and the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (FRA). The first two laws contain important protections against forest and habitat destruction. The third, as the name suggests, is the primary Indian law that focuses on protecting wildlife. The last protects the rights of people from communities who have historically lived in close communion with forests.

FOREST CONSERVATION ACT, 1980

The FCA restricts the diversion of forest land. Section 2 lays down restrictions such as that state governments cannot divert forest land for non-forest purposes, de-notify a reserve forest, or assign forest land to a non-government user, without prior approval from the Central Government. As per Section 3, the Central Government may constitute an Advisory Committee to give advice on the grant or refusal of such approval, (grant of “forest clearance”). The Forest (Conservation) Rules, 2003 explain that applications are considered initially by either the Regionally Empowered Committees of the Ministry of Environment, Forest and Climate Change (MoEFCC) or the central Forest Advisory Committee (FAC), committees comprising specified bureaucrats and experts, depending on the nature and extent of the project and forest area to be diverted. Clearance is granted by the MoEFCC after stipulating measures for mitigation of damage. Thus, there are two stages of forest clearance, preliminary and final (sometimes referred to as Stage 1 and 2).

The term “forest” has not been defined in the FCA. Presently, the term is required to be interpreted according to its dictionary meaning, as per the 1996 directions of the Supreme Court in *TN Godavarman Thirumulpad v. Union of India*.² The Godavarman case has also become the site of judicial overtake of many aspects of forest governance in the country. It was as part of this case that key orders have been passed, such as the Supreme Court appointing a Central Empowered Committee (CEC) to handle matters related to forest governance and oversee the implementation of various directions passed by the Supreme Court from time to time.³

¹ Malvika Kaushik is an environmental lawyer and researcher based in Dehradun, Uttarakhand. A longer version of this chapter that additionally refers to the legal framework around tiger reserves appears in *Undoing Conservation: India's Tiger Reserves Giving Way for Infra Projects - A Compendium of 10 Case Studies on Tiger Reserves* (Centre for Financial Accountability, 2022).

² *TN Godavarman Thirumulpad v. Union of India*, (1997) 2 SCC 267.

³ Armin Rosencranz and Sharachchandra Lele, *Supreme Court and India's Forest*, *Economic and Political Weekly*, Vol. 43(5), 2 February 2008.

ENVIRONMENT (PROTECTION) ACT, 1986

The EPA is perhaps the most significant Indian legislation for environmental protection and pollution control. Sections 3 and 5 of this statute empower the Central Government to take any measure and give any direction necessary to meet these ends, such as making standards and safeguards, restricting the area in which any industry or other activity or class thereof can operate (Section 3(2)(v)), and ordering the closure, prohibition or regulation of any activity, industry or process (Explanation to Section 5). The EPA also empowers the Central Government to make necessary rules for environmental protection and pollution control.⁴ The Environment (Protection) Rules, 1986 (EP Rules), besides several others, were framed using this power.

ENVIRONMENT IMPACT ASSESSMENT

It is under the EP Rules that the Environment Impact Assessment Notification, 2006 (EIA 2006) was issued. The Schedule to EIA 2006 stipulates in great detail the nature of infrastructure, industrial and other projects which require environmental impact assessment (EIA), and accordingly, environmental clearance from the central or state governments.

The level of clearance (central or state, or Category A and B respectively) depends on the nature of the activity. State governments decide whether Category B projects require clearance or not (classifying them as Category B1 or B2), based on centrally issued guidelines.

The EIA 2006 provides the procedure to be followed when a project requires environmental clearance. Notably, the final EIA report (usually developed by consultants hired by the project proponent) must incorporate feedback received from public consultation. This report is scrutinised by a central or state-level Expert Appraisal Committee (EAC), which then recommends either the approval or rejection of the project to the MoEFCC or the state-level EIA Authority, as the case may be. An environmental clearance, if issued, stipulates necessary environmental and social safeguards.

ECOLOGICALLY SENSITIVE/FRAGILE AREAS AND ECO-SENSITIVE ZONES

On 21 January 2002, the Wildlife Conservation Strategy 2002 was adopted in a resolution passed by the Indian Board for Wildlife (the precursor to the National Board for Wild Life, or NBWL) specifically recommending that areas within 10 km of national parks and wildlife sanctuaries should be declared as “eco-fragile areas” by the Central Government under Section 3(2)(v), EPA and Rule 5(1)(viii) and (x) of the EP Rules.⁵ The government had used this power from time to time to restrict developmental activities in specific regions given their environmental fragility, sometimes terming them as ‘ecologically sensitive areas’ (ESA), ‘ecologically fragile areas’, or ‘no development zones’ (NDZ).⁶

In 2011, the MoEFCC also issued a set of guidelines to help state governments identify the Eco-Sensitive Zones (ESZ) of their PAs and activities to be regulated there, i.e. ‘Guidelines for Declaration of Eco-Sensitive Zones Around National Parks and Wildlife Sanctuaries’ (ESZ Guidelines). The guidelines suggest that an ESZ may go up to a 10 km radius around a PA, but the extent may be more or less than 10 km depending on the ecological needs of the region, and may vary in width and in the nature of activity regulated, not only from PA to PA, but around a specific PA as well.⁷

⁴ Section 6, EPA.

⁵ Section 9, Wildlife Conservation Strategy 2002.

⁶ Meenakshi Kapoor, Kanchi Kohli, and Manju Menon, India’s Notified Ecologically Sensitive Areas: The Story So Far, 4-5 (Kalpavriksh, 2009).

⁷ Section 4, ESZ Guidelines.

The Supreme Court intervened in this matter in *Goa Foundation v. Union of India*, Ministry of Environment and Forests, and ultimately began hearing the issue of ESZs with the ongoing proceedings in the *Godavarman* case. By 2018, the ESZ for most PAs in India had either been declared by the MoEFCC under Section 3 of the EPA, or a draft notification had been prepared. On 11.12.2018, the Supreme Court directed that a uniform 10 km ESZ be declared for all Protected Areas for which state governments had failed to submit ESZ plans, which were 21 in number.⁸ None of the PAs covered in the present volume were among the defaulters.

Recently, the top court passed a significant judgment fixing a minimum 1 km ESZ for all PAs where a wider ESZ has not yet been proposed or notified. However, it directed an interim 10 km ESZ to be maintained for PAs covered under the order of 11.12.2018. It also prohibited mining inside PAs and directed compliance with the list of prohibited activities in the 2011 ESZ Guidelines.⁹

The EIA 2006 also deals with the protection of ecologically sensitive areas. A general condition in the notification mentions that Category B projects shall be treated as Category A if they are wholly or partly located within 10 km from the boundary of Protected Areas under the WLPA or are “Eco-sensitive areas as notified under section 3 of the Environment (Protection) Act, 1986”. These would include all such areas notified so far, whether termed as ESAs, NDZs, ESZs or known by any other name.

WILD LIFE (PROTECTION) ACT, 1972

The WLPA aims to protect and conserve plant and animal species. It also focuses on the management of Protected Areas and zoos, the regulation of wildlife trade, and the protection of specific species like the tiger through bodies like the National Tiger Conservation Authority.¹⁰ Discussed below are key provisions of this statute relevant to the present compendium, contextualised alongside relevant policy measures.

PEOPLE’S RIGHTS IN PROTECTED AREAS

Wildlife sanctuaries and national parks both have restrictions on who can reside in the region, and on activities like tourism, photography and research.¹¹ There are also restrictions on using forest produce, but it is allowed for the “personal bona fide needs” of people living in and around the Protected Area.¹² These activities are subject to permits granted by the Chief Wildlife Warden. Grazing is not permitted in national parks.¹³

ROLE OF NATIONAL BOARD FOR WILD LIFE, ESPECIALLY IN WILDLIFE CLEARANCE

The NBWL is chaired by the Prime Minister and includes the Minister of Environment, Forest and Climate Change, three Members of Parliament, representatives from NGOs, environmentalists, ecologists and conservationists, various government secretaries and directors of research institutes like the Wildlife Institute of India, Dehradun (WII).¹⁴ Its functions are outlined in Section 5C of the WLPA. The Supreme Court has described it as the “top most scientific body established to frame policies and advise the Central and State Governments on the ways and means of promoting wild life conservation”.¹⁵

⁸ *TN Godavarman Thirumulpad v. Union of India*, WP (C) No. 202/1995, order dated 11.12.2018 (Supreme Court).

⁹ *TN Godavarman Thirumulpad v. Union of India*, WP (C) No. 202/1995, order dated 03.06.2022 (Supreme Court).

¹⁰ See for instance Sections 38O, V and W, WLPA.

¹¹ Sections 27, 28 and 35(8), WLPA.

¹² Sections 29 and 35(6), WLPA.

¹³ Section 35(7), WLPA.

¹⁴ Section 5, WLPA.

¹⁵ *Centre for Environmental Law, WWF-India v. Union of India*, Writ Petition (Civil) No. 337 of 1995, judgment

A State Government cannot alter the boundaries of a wildlife sanctuary or national park except on the recommendation of the NBWL.¹⁶ Thus, de-notification of a Protected Area too would require the recommendation of the NBWL.

In both wildlife sanctuaries and national parks, the diversion of habitat is restricted, and can occur with the permit of the Chief Wildlife Warden, but only with the authorisation of the state government, in consultation with the NBWL. The state government has to be satisfied that such diversion is for the “improvement and better management” of wildlife.¹⁷ The procedure and conditions under which wildlife “clearance” has to be obtained from the NBWL have been further fleshed out through judicial orders and government guidelines. In 2002, the Supreme Court directed that all activities diverting habitat within wildlife sanctuaries and national parks would require wildlife clearance from the Standing Committee of the NBWL envisaged under Section 5B.¹⁸

STATE BOARDS FOR WILD LIFE

The composition of the State Boards for Wild Life largely mirrors that of the NBWL, but at the state level. They are required to be constituted by State Governments.¹⁹ The state boards are supposed to advise states on matters related to wildlife conservation.²⁰ The state boards do not have any statutory role in the issue of wildlife clearances or in the declaration or de-notification of Protected Areas, such as the NBWL does.

SCHEDULED TRIBES AND OTHER TRADITIONAL FOREST DWELLERS (RECOGNITION OF FOREST RIGHTS) ACT, 2006

The FRA recognises and provides the manner of recording the rights in forests and forest land for Scheduled Tribes and traditional forest dwelling communities, whose rights were not recorded despite having lived in forests for generations. This statute seeks to enhance biodiversity conservation by recognising the rights and responsibilities of forest dwelling communities to the sustainable use of forests, while also ensuring their livelihood and food security.²¹

¹⁶ Sections 26A(3) and 35(5), WLPA.

¹⁷ Sections 29 and 35(6), WLPA.

¹⁸ Centre for Environmental Law, WWF-India v. Union of India, WP (C) No. 337/1995, order dated 09.05.2002,.

¹⁹ Section 6, WLPA.

²⁰ Section 8, WLPA.

²¹ Preamble, FRA.

Hydel vs. Heritage: Understanding the Social and Environmental Costs of Hydropower Development in The Great Himalayan National Park
A Case Study on The Great Himalayan National Park
By Shrestha Chowdhury²²

Introduction

The Great Himalayan National Park (GHNP) is located in Banjar Sub-Division of Kullu district, in the Indian state of Himachal Pradesh. The National Park lies between latitudes 31° 38' 28" to 31° 51' 58" North and longitude 77° 20' 11" to 77° 45' 52" East. Although the park was established in the year 1984, it took almost twenty years for GHNP to be formally recognised as part of the Indian national park system. The first preliminary survey of the park was conducted in 1980, following which a notification by the state of Himachal Pradesh was issued in the year 1984 showing the intention to create the GHNP. It received its first management plan in the year 1987 and rights of the local communities were taken up for settlement in 1988. A Supreme Court order was also issued in the year 1997, which was part of a petition filed by World Wildlife Fund for procuring loans for eco-development that forbade human interference and resource extraction from the protected area of GHNP.²³ After the completion of settlement proceedings, it was notified as a national park in 1999. Since 2001, GHNP has been included in the Global 200 analysis of critical ecosystems list of the World Wide Fund for Nature. GHNP received World Heritage Natural Site status in the proceedings of the 38th World Heritage Committee meeting in Doha, Qatar in the year 2014.

The park lies in the Western Himalayas and covers an area of 754.4 square kilometre (sq km). The GHNP is surrounded by protected areas from all sides. The park is bounded by Kunawar Wildlife Sanctuary in the north, Pin Valley National Park in the north-east, Rupibhaba Wildlife Sanctuary in the south-east, Khir Ganga Protected Forest in the east, Sainj Wildlife Sanctuary (90 sq km) in the west and Thirthan Wildlife Sanctuary (61 sq km) in the south. Both the Sainj and Tirthan Wildlife Sanctuaries were added to the GHNP in the year 2010, however, the merger could not be formalised²⁴ as the process of settlement of rights of the villagers was not duly conducted. Human habitation exists only in the western and north-western portions of the national park and was categorized through an administrative decision of the state government as an "eco-development zone" in 1994, also known as the "ecozone" or "buffer" area of the park, up to 5 km from the park boundary, covering approximately 265.6 sq km. The areas inclusive of the national park, the wildlife sanctuaries and the ecozone area, together covering an area of 1,171 sq km, come under Park administration and are collectively referred to as the Great Himalayan National Park Conservation Area (GHNPCA).²⁵

The Great Himalayan National Park stretches across four valleys, namely, Parvati Valley, Sainj Valley, Tirthan Valley and Jiwa Nal Valley. Each of these valleys harbours a catchment/river by the same name and are tributaries to the Beas River which subsequently drains into the Indus River.

²² Shrestha Chowdhury has a Master's degree in Developmental Studies from Christ University, Bangalore and is associated with TISS as a Research Officer in Forest Rights & Governance Project. Her areas of interest include urban water governance, lake ecology, forest rights, environmental and social justice.

²³ Adam Payne, Rivers of power, forests of beauty: neo-liberalism, conservation and the governmental use of terror in struggles over natural resources, 2(1) Columbia Undergraduate Journal of South Asian Studies 2010, 61-92.

²⁴ Dipender Mehta, Tirthan, Sainj merger with GHNP in the air, The Tribune, 9 April, 2017, <https://www.tribuneindia.com/news/archive/features/tirthan-sainj-merger-with-ghnp-in-the-air-389483#:~:text=In%202010%2C%20both%20Sainj%20and,been%20initiated%20with%20the%20villagers.>

²⁵ Overview: Conservation, Friends of Great Himalayan National Park, <https://greathimalayannationalpark.com/overview-conservation/>; About the Park: Park Creation, Friends of Great Himalayan National Park, <https://greathimalayannationalpark.com/park-creation/>.

The terrain of the national park is characterized by hills with deep gorges, snow-covered mountains with steep slopes, rocky ridges and cliffs. The altitude within the park varies from 1,500m to over 6000m. GHNP experiences a typical temperate and alpine climate with the temperature ranging between -10°C in January to 40°C in the month of June. Rainfall is typically restricted to the monsoon season while snowfall is experienced during winter months. The vegetation²⁶ of this national park comprises of Chir pine forest, alpine scrub, alpine meadows, temperate broadleaved forest, temperate conifer forest, temperate broadleaved conifer mixed forest, sub-alpine forest, temperate grasslands, etc.

The Himalayas is well known for its rich biodiversity. GHNP is included as a part of the Himalaya Hotspot which is one of Conservation International's 34 biodiversity hotspots. GHNP being a part of the said region houses a diverse range of flora and fauna and represents a variety of endemic and endangered species. The official website of the GHNP²⁷ states that the national park has the presence of around 832

and 386 floral and faunal species, respectively. Around 209 bird species are found in the national park, making it a hotspot for birdwatchers across the globe. GHNP is also one of the two national parks in the world with the endangered western tragopan.²⁸ The national park is an extraordinary habitat of globally threatened mammals like the snow leopard, serow, Himalayan Tahr and musk deer. GHNP is known to house 10% of the world's known plant species and 34 out of 47 threatened medicinal plants of Himachal Pradesh are found within the national park. It is also home to a variety of oak trees which are considered crucial in maintaining the hydrologic cycle of the region. Several studies have shown a strong correlation between the presence of oak forests and water availability.

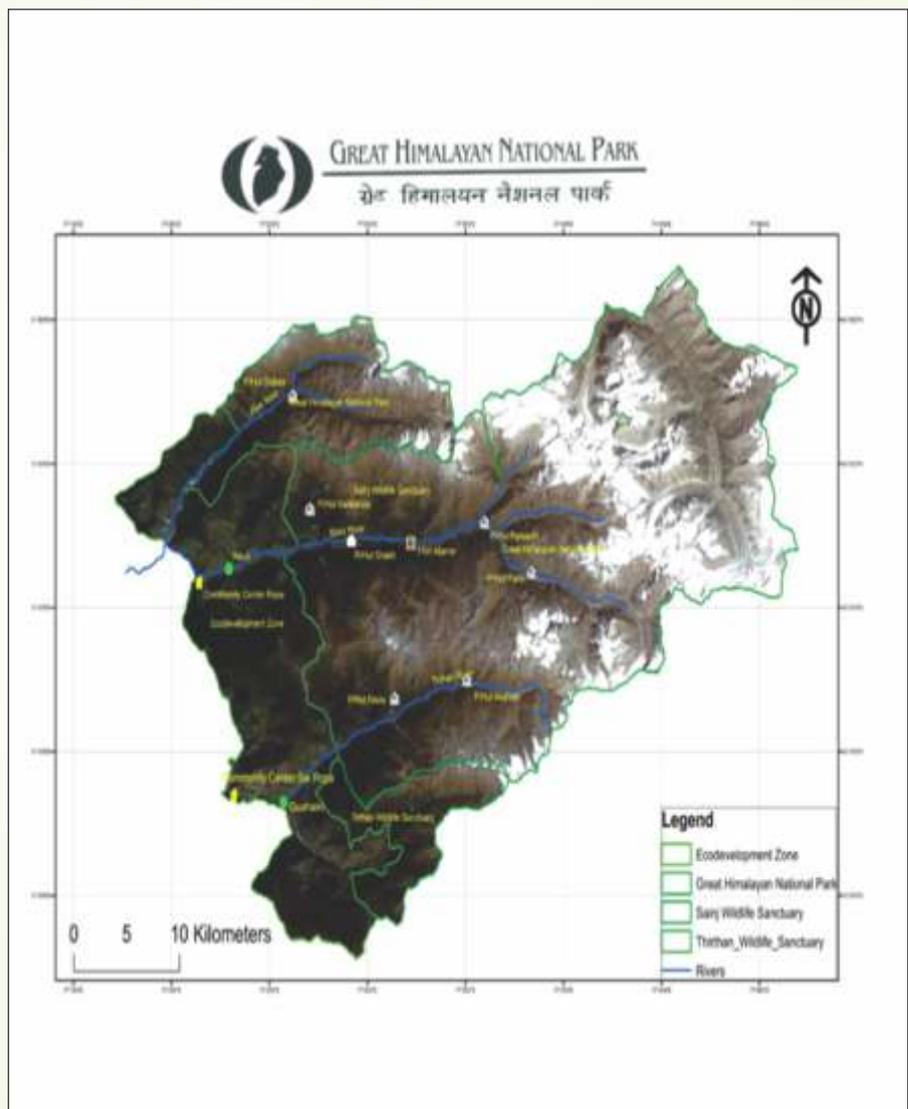


Fig 1. Map Depicting the Boundaries of GHNP

Source: <https://www.greathimalayannationalpark.org/map-depicting-the-boundaries-of-great-himalayan-national-park/>

²⁶ Tanveer Kaur and Rajeev Kumar, Impact of Parbati Hydroelectric Power Project Stage-II on the Interdependence of Ethno-Botanical Resources and the Inhabitants of the Parbati Valley in Kullu District of Himachal Pradesh, 7(4) Applied Ecology and Environmental Sciences 2019, 117-127.

²⁷ Official Website, Great Himalayan National Park, <https://www.greathimalayannationalpark.org/>

²⁸ Vasant K. Saberwal and Ashwini Chhatre, The Parvati and the Tragopan: conservation and development in the Great Himalayan National Park, 21(2) Himalaya, the Journal of the Association for Nepal and Himalayan Studies 2001, 13.

Human Settlement in the National Park and Social Profile

Around 160 hamlets inhabit the buffer zone in the western portion of the national park.²⁹ The villages come under sixty Panchayat-wards of twelve Panchayats and make up a population of roughly 15,000 residing in 2,400 households. The entire area of GHNP is habitation free except the three villages of Shagwar, Shakti and Marore in Sainj Wildlife Sanctuary³⁰ which divides the park into two equal parts. Out of the four valleys mentioned above, the Tirthan valley is the most populated area in the ecozone. These villages represent a class and caste divided society. Majority of the people belong to the Rajput and Brahmin clan while approximately 27.3% of the total population is made up of people belonging to Scheduled Castes. Although the inhabitants of these villages have traditionally been using the natural resources of the park for their sustenance, heavy reliance on the same has been found mostly amongst the poor and the scheduled castes. Overall, the Brahmin and the Rajput communities fare better than the Scheduled Castes in terms of land and access to resources.

Besides relying on the resources of the park, other major occupations of the inhabitants include agriculture, livestock rearing/pastoralism, and the collection and sale of medicinal plants and herbs. The communities have also been given alternative sources of generating income as part of several eco-development initiatives³¹ promoted by the World Bank to reduce their dependence on forests which include basket making, vermi-composting, organic farming, medicinal herb/plant cultivation, apricot oil production, hemp-based handicrafts, ecotourism, and cultivation of cash crops. However, locals have reported that the planning of such eco-development activities was never done in consultation with the local community and that they were only involved in the implementation phase.³² The World Bank's own report stated that the project was a failure³³ in the GHNP area. In the last decade, there has also been an expansion in the use of a herb known as morel mushroom found extensively in the area that had opened a new source of income for the local communities. In the year 1999 around 369 families were paid Rs. 1.8 crore as part of settlements of rights proceedings. For others who did not have traditional rights several other types of income generating programmes were initiated by the Forest Department which have been mentioned earlier.³⁴

Description of Infrastructure & Development Projects Around the National Park

1. Parvati Hydro-electric Project

The construction of Stage I of the Parvati/Parbati Hydroelectric project commenced in 1999.³⁵ Coinciding with the settlement of rights process was that of the denotification of 10 sq km from the GHNP to make way for a power station. A considerable portion of the Jeeva Nallah was carved out and was primarily allotted for the construction of a road that led to the site of the run of river project on

²⁹ Sanjeeva Pandey, Linking ecodevelopment and biodiversity conservation at the Great Himalayan National Park, India: lessons learned, 17(7) Biodiversity and Conservation 2008, 1543-1571.

³⁰ Akanksha Siwach, The Only Human Habitation In The Heart Of The Great Himalayan National Park: As Remote As It Can Get, Tripoto, <https://www.tripoto.com/kullu/trips/the-only-human-habitation-in-the-heart-of-the-great-himalayan-national-park-as-remote-as-it-can-get-5f625d83bcf19>.

³¹ Ruchi Badola et al, Ecodevelopment, gender, and empowerment: Perspectives from India's protected area communities, in Global Perspectives on Gender and Space: Engaging Feminism and Development, 2014, 200-223.

³² Alka Sabharwal, Strangers in their own land, Down to Earth, 15 November 1999, <https://www.downtoearth.org.in/coverage/strangers-in-their-own-land-20696>.

³³ Vikas Parashar, Eco-development takes a back seat, Rainwater Harvesting, http://www.rainwaterharvesting.org/cse/dte-supplement/himalayan20040731/great_himalayan.htm.

³⁴ Jay Mazoomdaar, Lessons from the success story of Great Himalayan National Park, Firstpost, 30 June 2014, <https://www.firstpost.com/living/lessons-success-story-great-himalayan-national-park-1595833.html>.

³⁵ Vasant K. Saberwal and Ashwini Chhatre, The Parvati and the Tragopan: conservation and development in the Great Himalayan National Park, 21(2) Himalaya, the Journal of the Association for Nepal and Himalayan Studies 2001, 13.

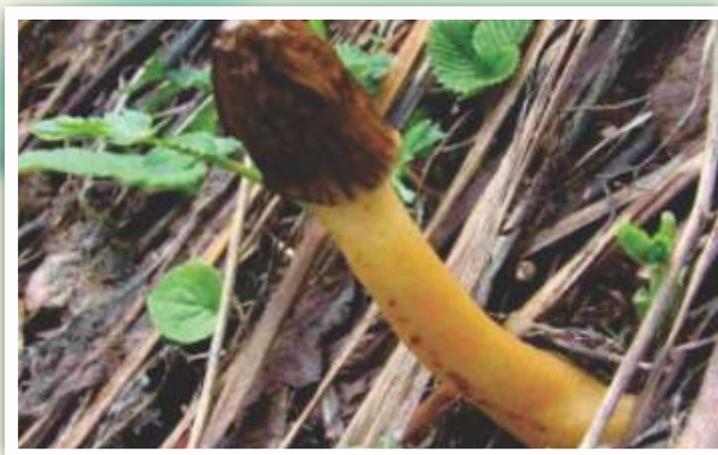


Fig 2. *Morchella esculenta* (Guchhi) found extensively in GHNP
Source: <https://www.greathimalayannationalpark.org/biodiveristy/flora/>

the river Parvati.³⁶ A series of three stages was planned to be constructed as part of a 2GW Parvati hydropower scheme. However, due to several environmental issues, Stage I of the scheme was shelved but construction work for Stages II and III was started thereafter. Stage II is an 'Inter Basin Transfer' type scheme built in Pulga and Suind villages for generating 800 megawatt (MW) power^{37 38}. To generate this power, the river running through Parvati valley is diverted and channelled across Garsa valley to Sainj valley via a tunnel to the powerhouse which is in Suind village. Around 217.75 hectares (ha) of land including 149.96 ha of forestland was acquired for the construction of Parvati Hydroelectric Power Project Stage II.³⁹ Although the project was to be functional by 2009, various delays and scams deferred its commissioning and now it is expected to be commercially operational by March 2023.⁴⁰



Fig 3. Parvati Hydroelectric Project Stage II
Source: This article was originally published on *The Third Pole* under the Creative Commons BY NC ND license. (Image Credit: Sumit Mahar)

Stage III of the project named Parvati-III was inaugurated in 2016 and is built downstream of Parvati-II. It is a 'pondage type scheme'⁴¹ and has a power generating capacity of 520 MW with four 130 MW generating units. This unit is near Behali village in the valley and utilizes water from both rivers Sainj and Parvati. 91.242 ha of forest land was diverted for this project.⁴² Annual energy generation from this power station stands at 1963.29 Million Units (MU).⁴³ The electricity generated is distributed to Rajasthan, Jammu &

Kashmir, Chandigarh, Delhi, Haryana and Punjab besides 12% of power being reserved for the Government of Himachal Pradesh.

³⁶ A run-of-river hydro project generates electricity by utilising the natural downward flow of a river to capture the kinetic energy of water. Run-of-river hydropower, UN Climate Technology Centre and Network, [https://www.ctc-n.org/technologies/run-river-hydropower#:~:text=Run%2Dof%2Driver%20hydro%20projects,pressurised%20pipeline%20\(or%20openstock\).](https://www.ctc-n.org/technologies/run-river-hydropower#:~:text=Run%2Dof%2Driver%20hydro%20projects,pressurised%20pipeline%20(or%20openstock).)

³⁷ Project Information, Parvati-II Hydroelectric Power Project, Himachal Pradesh, NS Energy Business, <https://www.nsenegybusiness.com/projects/parvati-ii-hydroelectric-power-project/>.

³⁸ "Inter-basin transfer" refers to the transfer of water from a watershed with a surplus to a watershed with a shortage. Inter-basin transfers, UN Climate Technology Centre and Network, <https://www.ctc-n.org/technologies/inter-basin-transfers>.

³⁹ Tanveer Kaur and Rajeev Kumar, Parvati Hydroelectric Project And Rural Sustenance: An Impact Analysis, in *Marginalisation and Deprivation: Studies in Multiple Vulnerabilities*, 2016, 189-202.

⁴⁰ Project Summary, Parvati HEP (4X200 MW) (NHPC) II, Ministry of Statistics and Programme Implementation, Government of India, http://www.cspm.gov.in/ocmstemp/PROJ_SUMMARY?prcd=180100210&stat=O.

⁴¹ Pondage means the storage of smaller amounts of water behind run-of-the-river systems in low energy demand periods, used later when energy demand is high. Pondage, Energy Education, <https://energyeducation.ca/encyclopedia/Pondage>.

⁴² Detailed Summary, Parvati Stage-III Hydro Electric Project by NHPC [29104], e-Green Watch, https://egreenwatch.nic.in/FCAProjects/Public/CompleteProject_Status.aspx?ID=29104.

⁴³ Project Information, Parvati III, NHPC India, <http://www.nhpcindia.com/projectdetail.htm?CatId=1&ProjectId=38>.

Violations and Procedural Gaps

As per the EIA Notification, 2006 and Guidelines for Environmental Impact Assessment of River Valley Projects issued by the MOEFCC, all hydroelectric projects need to obtain environmental clearance from the ministry before taking up any construction. Hydroelectric projects that involve diversion of forest are also required to obtain forest clearance as per the Forest Conservation Act of 1980. Environment clearance and forest clearance were granted to Parbati Stage II project on June 04, 2001 and August 11, 1999 respectively with a list of conditions. A case study⁴⁴ was conducted into the compliance and monitoring aspects of the Parbati Stage II project that outlines in detail the violations, procedural and monitoring lapses that occurred in the project in spite of obtaining required clearances. Some of them have been discussed below.

A site inspection by the regional office of the MOEFCC must be done once a year for projects that are granted environment clearance, according to the MOEFCC guidelines. However, a Right to Information (RTI) response revealed that this provision was barely fulfilled according to the procedures mentioned. The regional office also failed to conduct monitoring of the project for the first two years. Various inconsistencies were noted with respect to the height of the dam and the date on which the forest clearance was received. There was also a revised forest clearance document that led to an increase in the forest and overall area diverted for the project from 87.795 ha to 145.6207 ha and also changed the nature of the project. The project was not supposed to cause any displacement as per the environmental clearance letter; however, the first compliance report submitted by the project proponent did contain details of a resettlement and rehabilitation plan for families that would be affected by the project. Various activities like muck disposal among others were carried out in violation of the Air (Prevention and Control of Pollution) Act of 1981 and the Water (Prevention and Control of Pollution) Act, 1974 and the Forest Conservation Act, 1980, causing irreparable damage to the forest and rivers of the region, for which show cause notices were also issued and fines were levied, but the project proponent continued to flout these norms throughout.

The project lies very close to the GHNP and one of the conditions stated in the environment clearance was to practise 'care' while undertaking civil works related to the project. However, considerable damage was done to the fragile ecosystem of the region. Additionally, the constitution of the Parbati Valley Conservation Cell, whose main task would be to map, document, monitor and implement related rules and regulations by the Chief Wildlife Warden of GHNP, was also not complied with until 2007.

2. The Sainj Hydro Power Project

The 100 MW Sainj Hydro Power Project is also a run-of-river project built on Sainj River that has its origin from Rakte Sar glacier in GHNP. The Sainj is a tributary of Beas river. The project is being built by Himachal Pradesh Power Corporation Limited (HPPCL). While the powerhouse has been built on the bank of the Sainj at Siund village and lies upstream of the Parbati-II hydroelectric project, its 24.5-metre-high barrage has been constructed near village Niharini. After the commissioning of the project, energy generation of 399.57 Gigawatt hour (GWh) and 436.90 GWh at 90% and 50% dependable years is expected.⁴⁵

⁴⁴ Compliance and Monitoring of Environment Clearance Conditions of Parbati Stage II Hydro electric Project in Himachal Pradesh: A Case Study, Kalpavriksh Environmental Action Group, New Delhi and Lok Vigyan Kendra/Navrachna, Himachal Pradesh, 5 February 2008, <https://hillpost.in/2008/02/environmental-and-forest-violations-in-the-parbati-hydro-project-in-himachal/4467/>.

⁴⁵ Dependability criteria are essential to hydropower planning. The Central Electricity Authority explains the concept thus: "For determination of 90% dependable year, the total energy generation in all the years for which hydrological data is available (say N year) is arranged in descending order and the (N+1) x 0.9 th year would represent the 90 per cent dependable year. The 90 per cent dependable year is thus, termed as the year in which the annual generation has the probability of being equal to or exceed 90 per cent of the time on annual basis during the expected period of operation of the scheme." Best Practices in Planning & Appraisal of Hydro Electric Projects, Central Electricity Authority, <https://cea.nic.in/wp-content/uploads/2020/04/chapter-2.pdf>.

Around 56.763 ha of land which included almost 47.993 ha of forestland was acquired for the Sainj Hydro Power Project.⁴⁶ Although the project was initially set to be commissioned by 2015, it got delayed with the first unit (50 MW) being commissioned in April 2017 and the other unit (50 MW) being commissioned in September 2017.

Violations and Procedural Gaps

According to a Comptroller and Auditor General (CAG) report⁴⁷ various non-compliances were found in the Sainj Hydroelectric Project with regards to conditions laid out in the environmental clearance, which include lack of implementation of conservation of fishery and relief and rehabilitation plan, no reports being prepared and disbursed on catchment area treatment or on muck disposal, and lack of actions initiated for conservation of biodiversity and the physical environment. One of the greatest lapses found in most hydroelectric projects is surrounding muck that is often dumped unscientifically, polluting rivers and streams. Besides the above-mentioned projects there are numerous hydropower projects (both built and proposed) in the adjoining areas of GHNP. Some of them are briefly discussed below.



Fig 4. Muck overflowing into nearby stream due at Sainj Hydroelectric Project
Source: CAG (Report No. 39 of 2016)

3. Larji Hydro Electric Project

Larji Hydroelectric Project is also a run-of-river project built on the Beas river and has an installed capacity of generating 126 MW (3 units x 42 MW) of electricity. The project was supposed to be completed in year 2003, however, it could not be completed and commissioned until the year 2007. The dam for the project has been built downstream at the convergence point of the rivers Sainj and Tirthan. This dam has led to the submergence of roads to upper Kullu and Lahul valley, dismantling access to many villages located upstream.⁴⁸ The construction of the power project also led to the readjustment of a traffic tunnel built on National Highway 21.⁴⁹

⁴⁶ Environmental Impact Assessment Report, India: Himachal Pradesh Clean Energy Development Investment Program (Sainj Hydroelectric Project (100 MW) and Kashang Integrated Stage II and III Hydroelectric Project), prepared by Himachal Pradesh Power Corporation Limited (HPPCL), Government of Himachal Pradesh for the Asian Development Bank (ADB) (August 2009), http://www.hppcl.in/WriteReadData/userfiles/file/environment-policy/2009_12_Summary_EIA.pdf.

⁴⁷ Report of the Comptroller and Auditor General of India on Environmental Clearance and Post Clearance Monitoring (Report No. 39 of 2016), Ministry of Environment, Forest and Climate Change, Government of India, https://cag.gov.in/uploads/download_audit_report/2016/Union_Government_Report_39_of_2016_PA.pdf.

⁴⁸ Emmanuel Theophilus, Larji Dam Fishladder: An Unlovely Trinket, A Deceptive Ornament, South Asia Network on Dams, Rivers and People, 17 December 2014, <https://sandrp.in/2014/12/17/larji-dam-fishladder-an-unlovely-trinket-a-deceptive-ornament/>.

⁴⁹ Himachal finishes Larji hydel power project, Economic Times, 23 September 2007, <https://economictimes.indiatimes.com/industry/energy/power/himachal-finishes-larji-hydel-power-project/articleshow/2395734.cms?from=mdr>.

4. Nakthan Hydropower Project

Nakthan Hydro-electric Project is a run-of-river scheme proposed to be built across Parbati River and its tributary Tosh nalla and will be located in Manikaran valley in Kullu just upstream of the 800 MW Parbati-II project. Two diversion barrages, one on Tosh Nalla and one on Parbati 12m and 13.5m high will be built respectively to generate 1605.07 MU of power with 90% dependable year. The project is being developed by HPPCL and was allotted by the Government of Himachal Pradesh in the year 2009. The project has met with massive resistance as one of tunnels of the proposed project runs beneath the source of the Rudranag waterfall that is considered sacred by the local villagers.⁵⁰

5. Malana I and Malana II Hydropower Project

Malana I is an 86MW hydroelectric power project located on the tributary of the Parbati river named Malana nallah in Kullu. The hydropower project was awarded to Bhilwara Energy Limited in 1993 by the state government and was credited to be the first merchant power project in India, which basically refers to the ability to sell the generated power in the open market. The project was built in a record time of 30 months and was commissioned in 2001⁵¹.

Malana II is a 100MW run-of-river hydro power project developed by Everest Power Private Ltd. in a single phase on Malana Nalah, a tributary of Parbati River, upstream of Malana I project. The energy generation capacity of the project stands at 428 GWh of electricity at 90% dependable year. The project was commissioned in 2012⁵² with total land diverted for the project being 58.092 ha.⁵³

Impacts of Hydro-Electric Projects on the Ecologically Sensitive Western Himalayas

Hydropower or hydroelectricity is generally hailed as a 'clean' source of energy with claims made that it is more sustainable, efficient, and cost-effective compared to other forms of renewable energy like solar and wind. Hydropower is also touted to be climate friendly as its generation does not contribute to emission of greenhouse gasses or air pollution. However, there are various environmental and socio-economic

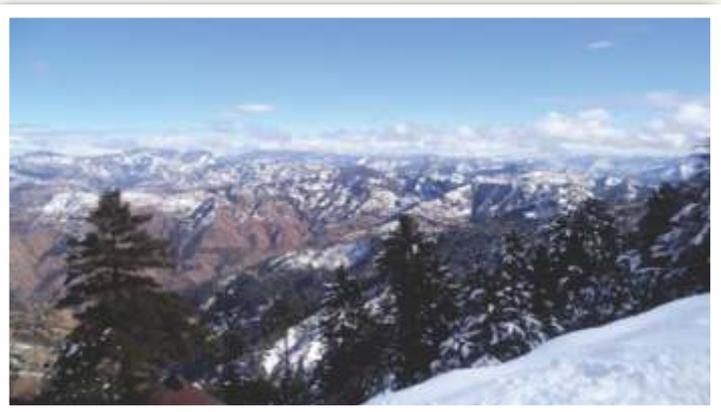


Fig. 5. Great Himalayan National Park Mountain View

(Source: https://commons.wikimedia.org/wiki/File:Great_Himalayan_National_Park_Mountain_View.jpg

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<<https://creativecommons.org/licenses/by-sa/4.0/>>, via Wikimedia Commons)

ramifications associated with the development of hydropower, especially in ecologically sensitive areas. Hydropower projects cause multiple effects on water resources of the region. The most noticeable impact is observed on the water quality due to the cleaning of desilting tanks wherein the silt is directly disposed into the river. This activity impacts the downstream water quality and the aquatic animals found in the particular stretch of water. There are also incidences of less water being available for consumption and irrigation due to the operation of hydropower.⁵⁴

⁵⁰ Local deities opposes Nakthan hydropower project, The News Himachal, 20 December, 2011, <https://thenewshimachal.com/2011/12/local-deities-opposing-nakthan-hydropower-project/>.

⁵¹ Utpal Bhaskar, Hydropower Generation: Malana project is a story of many firsts, Livemint, 9 August 2009, <https://www.livemint.com/Politics/Mdr1oxldxourw5tizelmBJ/Hydropower-Generation--Malana-project-is-a-story-of-many-fi.html>.

⁵² Carmen, Market Data, Malana-II, India, Power Technology, 5 January 2022, <https://www.power-technology.com/marketdata/malana-ii-india/>

⁵³ Detailed Summary, Construction of 100 MW Malana II Hydro Electric Project, e-Green Watch, https://egreenwatch.nic.in/FCAProjects/Public/ComplateProject_Status.aspx?ID=28964

⁵⁴ Virat Jolli, Hydro power projects-boon or bane for the rural communities of Western Himalayas, 11(1) Present Environment and Sustainable Development 2017, 55-64.

Construction waste, sewage generated from labour influx etc. get dumped in the river directly, which results in severe water pollution affecting both the quality of water and the aquatic life. The diversion of water undertaken in run-of-river projects also impacts river ecology and aquatic life in the long run.⁵⁵ Activities like dynamite blasting have altered the course of water in rock crevices leading to the drying up of water springs that are found naturally in such terrain.

2. Impact on Flora & Fauna

A plethora of hydropower projects lie within the 50 km radius of the GHNP causing severe stress on the biodiversity of the region. Civil works like construction of roads, tunnels, diversion channels, power houses, transmission lines, labour colonies etc. cause disturbance to the endemic flora and fauna found in the region. Some of the most critically endangered birds are found in the national park and the adjacent corridors with various studies⁵⁶ pointing out how hydroelectric project development have adversely impacted the avifaunal population of the region. Change in land use and loss of forest cover also amount to fragmentation of habitat leading to loss of species in the long run.⁵⁷ A run-of-river project system typically diverts water from the river into a pipeline and such diversion has a major effect on the aquatic life⁵⁸ present in the river, especially on migratory species. Studies⁵⁹ have also pointed out declines in fish populations owing to diversion of water in such projects leading to obstruction in their movement and isolation in the breeding season.

3. Impact on Land Cover and Forest

Himachal Pradesh has a potential of generating over 27,000 MW due to the presence of five perennial river basins. The state has one of the highest paces when it comes to the development of hydropower and currently has over 800 hydropower projects that are in different phases of development.⁶⁰ A very direct outcome of development and construction of such projects in hilly terrain is the diversion of forest area, deforestation⁶¹ and loss of green cover due to civil work associated with hydropower development. The diversion and conversion of forest for non-forest purposes have resulted in fragmentation of habitat mentioned earlier. Construction (both above the surface and underground) amounts to altering the natural landscape which has its own set of ramifications. Such massive deforestation in hilly terrain subsequently amounts to soil erosion increasing the frequency of landslides. Additionally, large amounts of muck and other construction debris are dumped unscientifically, further impacting the topography of the area. Several villages have also reported a decline in the quality of the soil after the coming up of hydropower in the area.⁶²

4. Increasing Incidences of Natural and Man-made Disasters

The GHNP is located in the ecologically sensitive Western Himalayas with evidence of seismicity.

⁵⁵ J. Mark Baker, Small hydropower development in Himachal Pradesh: an analysis of socioecological effects, 49(21) *Economic and Political Weekly* 2014, 77-86.

⁵⁶ Virat Jolli, Hydro power development and its impacts on the habitats and diversity of montane birds of western Himalayas, 51(4) *Vestnik zoologii* 2017, 311.

⁵⁷ Manshi Asher & Prakash Bhandari, Mitigation or myth? Impacts of hydropower development and compensatory afforestation on forest ecosystems in the high Himalayas, 100 *Land use policy* 2021, 105041.

⁵⁸ Deepak Kumar and S.S. Katoch, Environmental sustainability of run of the river hydropower projects: A study from western Himalayan region of India, 93 *Renewable Energy* 2016, 599-607.

⁵⁹ Emmanuel Theophilus, Headwater Extinctions, *South Asia Network on Dams, Rivers and People* (2014).

⁶⁰ Deepak Kumar and S.S. Katoch, Dams turning devils: An insight into the public safety aspects in operational run of the river hydropower projects in western Himalayas, 67 *Renewable and Sustainable Energy Reviews* 2017, 173-183.

⁶¹ Maharaj K. Pandit and R. Edward Grumbine, Potential effects of ongoing and proposed hydropower development on terrestrial biological diversity in the Indian Himalaya, 26(6) *Conservation Biology* 2012, 1061-1071.

⁶² Deepak Kumar and S.S. Katoch, Dams turning devils: An insight into the public safety aspects in operational run of the river hydropower projects in western Himalayas, 67 *Renewable and Sustainable Energy Reviews* 2017, 173-183.

A large number of both major and minor earthquakes have occurred in the entire Himalayas as the region was formed after the Indian plate collided with the Eurasian plate and is a centre of numerous active faults and tectonic movements.⁶³ A typical run-of-river project involves the civil construction of tunnels to transport the diverted water to the powerhouse. Such construction is mainly done by blasting the mountain. This activity disturbs and fragments the layers of rocks in the mountain and ultimately leads to loosening of the rock's strata⁶⁴ making it the epicentre of catastrophic accidents like landslides besides increasing the intensity of earthquakes. Several studies have highlighted the vulnerability of the Himalayas due to climate change. One such consequence is glacial thinning leading to emergence of lakes in higher altitudes also known as supraglacial lakes. Formation of such lakes gives way to catastrophic glacial lake outburst floods endangering loss of human life, livelihood and biodiversity. This process gets highly aggravated due to hydropower development⁶⁵ in such a fragile ecosystem, as witnessed through the flash floods that occurred in Uttarakhand last year. Besides aggravating natural hazards,⁶⁶ hydroelectric development also accounts for many construction related deaths,⁶⁷ which mostly go unreported and uncompensated.

5. Socio-economic Impacts

Apart from providing life's basic needs, changes in river flow influence livelihood, income and local migration. Fish farming especially the trout is one of the livelihood options that seems promising and has seen exponential growth in the last decade. However, the deterioration of water quality due to hydropower development has emerged as a concern for locals as well as the fisheries department. This threat to livelihood generation has met with massive local resistance towards hydropower development in Kullu district. Lack of water availability as explained above also impacted irrigation facilities for agriculture besides causing disruptions to local irrigation systems.⁶⁸ During the construction phase of hydropower the area also witnesses huge influx of migrant labours, increasing stress on local resources. Altogether, it is undeniable that the entire process of hydropower construction and commissioning, severely impacts the social life of the people belonging to the region.

6. Impact on Biodiversity Conservation

GHNP and its surrounding area is ecologically indispensable for the global community. Some of the most exotic and endemic flora and fauna thrive here which have a high ecological value. The World Heritage Natural Site status conferred on the national park alone signifies its importance, and as the State Party to the World Heritage Convention, India is expected to conserve, protect and preserve the natural environment found here. However, the proliferation of hydropower in and around this sensitive area defeats the purpose of conservation. The construction and operation of hydropower project and other ancillary civil works cause irreparable damage to the riverine, avifaunal, and terrestrial habitats. Such habitat disturbance at the cost of generating cheap and clean electricity seems unviable from the point of view of biodiversity conservation.

⁶³ Vishwa B.S. Chandel and Karanjot Kaur Brar, Seismicity and vulnerability in Himalayas: the case of Himachal Pradesh, India, 1(1) Geomatics, Natural Hazards and Risk 2010, 69-84.

⁶⁴ Deepak Kumar and S.S. Katoch, Dams turning devils: An insight into the public safety aspects in operational run of the river hydropower projects in western Himalayas, 67 Renewable and Sustainable Energy Reviews 2017, 173-183.

⁶⁵ Prakash Kashwan and Neelima Vallangi, Hydropower projects are wreaking havoc in the Himalayas, Al Jazeera, 9 March 2021, <https://www.aljazeera.com/opinions/2021/3/19/hydropower-projects-are-wrecking-havoc-in-the-himalayas>.

⁶⁶ NHPC negligence leads to man-made disaster in Parbati Valley in Himachal Pradesh, South Asia Network on Dams, Rivers and People, 19 April 2017, <https://sandrp.in/2017/04/19/nhpc-negligence-leads-to-man-made-disaster-in-parbati-valley-in-himachal-pradesh/>.

⁶⁷ Deaths and disaster at NHPC's Parbati-II Hydro project, South Asia Network on Dams, Rivers and People, 22 May 2021, <https://sandrp.in/2021/05/22/deaths-and-disaster-at-nhpcs-parbati-ii-hydro-project/>.

⁶⁸ J. Mark Baker, Small hydropower development in Himachal Pradesh: an analysis of socioecological effects, 49(21) Economic and Political Weekly 2014, 77-86.

Financiers of the Infrastructure and Developmental Projects

- i. **Parbati Hydro-electric Project:** The developer of this project is India's state-run National Hydroelectric Power Corporation (NHPC). The stage II of the project was initially approved at the cost of Rs 3919.59 crore however, due to delay in commissioning, the anticipated cost of the project now stands at Rs 9897.59 crore.⁶⁹ Parbati Hydro-Electric Project Stage-III was started in 2005 with an estimated cost of Rs 2,304.56 crore⁷⁰ and was scheduled to be completed by 2010. However, the commissioning got delayed by four years increasing the project cost.
- ii. **The Sainj Hydro Power Project:** The project was developed by HPPCL and was funded by the Asian Development Bank (ADB).⁷¹ According to a CAG report, initially the project was to be completed by March 2015 at an estimated cost of Rs 676.29 crore, however, due to a delay in its commissioning the project was finally closed at a cost of Rs 1,319.33 crore.⁷²
- iii. **Larji Hydro Electric Project:** The project was developed at the cost of Rs 1,027 crore, double the initial cost estimated by the Himachal Pradesh State Electricity Board. The developer was found to be associated with financial irregularities by the Vigilance Department that not only delayed the project timeline but infamously made the hydro-power project's energy generation one of the costliest of those times.⁷³
- iv. **Malana I and Malana II Hydropower Projects:** These two projects are owned by different companies:
 - a. **Malana I Hydropower Project:** The project was built at a cost of \$70 million and is owned by Bhilwara Group and SN Power with 51% and 49% stakes respectively.⁷⁴
 - b. **Malana II Hydropower Project:** The project was built at a cost of \$127.039 million by Everest Power and is presently owned by Greenko Energies that has a 100% stake in it.⁷⁵

Outline of a Successful Protest and Campaign against Hydropower in Tirthan Valley of GHNP Hydropower Project on Tirthan River

In the year 2000, under the aegis of the Himachal Pradesh Government's policy of 'build-operate-transfer' program, a series of privately owned hydroelectric dams were proposed to be built on the Tirthan river.⁷⁶ As the river flows through the GHNP, these proposed projects lay in close proximity to the park. The companies were to receive subsidies for construction and generation of power that was to be exported to industries for private use, for instance, the proposed supply of electricity to a cigarette

⁶⁹ Project Summary, Parbati HEP (4X200 MW) (NHPC) II, Ministry of Statistics and Programme Implementation, Government of India, http://www.cspm.gov.in/ocmstemp/PROJ_SUMMARY?prcd=180100210&stat=O.

⁷⁰ In the matter of Approval of tariff of Parbati Hydroelectric Project, Stage-III (520 MW) for the period from 24.3.2014 to 31.3.2014, Petition No. 7/GT/2017, Central Electricity Regulatory Commission New Delhi, order dated 5 April 2019, <https://cercind.gov.in/2019/orders/7-GT-2017.pdf>.

⁷¹ Environmental Monitoring Report, IND: MFF - Himachal Pradesh Clean Energy Development Investment Program - Tranche 3, Project Number: 41627-043, 2018, submitted by Himachal Pradesh Power Corporation Limited, Shimla to the Asian Development Bank, https://www.adb.org/sites/default/files/project-documents/41627/41627-043-emr-en_4.pdf.

⁷² Anand Bodh, Delay in 100MW hydro project led to cost overrun of Rs 643 cr: CAG, The Times of India, 18 December 2019, <https://timesofindia.indiatimes.com/city/shimla/delay-in-100mw-hydro-project-led-to-cost-overrun-of-rs-643cr-cag/articleshow/72861058.cms>.

⁷³ Emmanuel Theophilus, Larji Dam Fishladder: An Unlovely Trinket, A Deceptive Ornament, South Asia Network on Dams, Rivers and People, 17 December 2014, <https://sandrp.in/2014/12/17/larji-dam-fishladder-an-unlovely-trinket-a-deceptive-ornament/>.

⁷⁴ Carmen, Market Data, Malana, India, Power Technology, 11 January 2022, <https://www.power-technology.com/marketdata/malana-india/> - :~:text=The penstock diameter is 2.2,project cost is %2470m.

⁷⁵ Carmen, Market Data, Malana-II, India, Power Technology, 5 January 2022, <https://www.power-technology.com/marketdata/malana-ii-india/>.

⁷⁶ Adam Payne, Rivers of power, forests of beauty: neo-liberalism, conservation and the governmental use of terror in struggles over natural resources, 2(1) Columbia Undergraduate Journal of South Asian Studies 2010, 61-92.

factory and clothing manufacturing plant in the state of Haryana. While the contract (valid for forty years) would ensure rights to use the river water to the company, the Himachal Pradesh government was to ensure removal of machinery and equipment besides arranging for methods to reverse the damage done by the project to the local ecology. Additionally, permission to construct nine dams was also given by the panchayats (local councils) in 2002. However, this proposed privatization of river Tirthan was opposed and challenged in the High Court of Shimla (Civil Writ Petition 1038/2006) by local activists headed by retired MLA of the region, Mr. Dilaram Shabab.⁷⁷ After four years of court battle, the High Court took cognisance of the devastating impacts of small hydropower projects in ecologically sensitive regions and declared the Tirthan river watershed out of bounds for all forms of hydro projects, besides cancelling the nine projects that had been given approval earlier.

Conclusion

India is being hailed globally for leading the way towards an energy transition. In a bid to achieve its renewable energy targets, the country saw an extensive expansion in solar and hydel projects across the nation. A plethora of hydel projects were sanctioned by the current government in Himalayan states like Kashmir, Sikkim, Uttarakhand, Himachal Pradesh and Arunachal Pradesh as they are blessed with cascading rivers and are lucrative sites for hydropower development. Hydroelectric projects especially run-of-the-river schemes have been promoted as they are more viable in topography with tough terrain. Hydropower is claimed to be a cleaner, more reliable and sustainable form of energy; however, one cannot ignore the social and environmental implications that are associated with developing hydro projects. The Beas River and its tributaries are a critical source of lifeline for the biodiverse GHNP and communities that reside in its ecozone. The river has been dammed extensively at all possible points altering its natural landscape. GHNP is a World Heritage Site with immense environmental, social and cultural value and must be conserved for the rich biodiversity it houses and the global importance it holds in the face of a rapidly changing climate.

⁷⁷ J. Mark Baker, The Socio-Ecological Effects of Small Hydropower Development in Himachal Pradesh, South Asia Network on Dams, Rivers and People, 8 June 2014, <https://sandrp.in/2014/06/08/the-socio-ecological-effects-of-small-hydropower-development-in-himachal-pradesh/>.

People and National Parks on the Precipice of Disaster: Plans for Mega Infrastructure Project in Great Nicobar

A Case Study on Galathea National Park

*By Savita Vijayakumar*⁷⁸

Introduction

Great Nicobar is the southernmost island in the Andaman & Nicobar (A&N) archipelago and the territorial frontier of the Indian State. Measuring about 951 sq km, the island is located just 1,292 km north of Sumatra and is often cited by the Indian state as being positioned in a geopolitically and economically strategic latitude, with Sri Lanka on the west and at the entrance to the Malacca Straits (one of the busiest shipping routes in the world) on the east. The island is recognised globally for its ecological importance due to the presence of endemic flora and fauna and was designated as the Great Nicobar Biosphere Reserve (GNBR) in 1989, which was recognised as a World Heritage Site by UNESCO in 2013.⁷⁹

Owing to the importance of the unique socio-ecological life in Great Nicobar, the island harbours multiple Protected Areas. Campbell Bay National Park, spanning over 425 sq km, is separated by a buffer zone comprising protected forest (falling within the GNBR) from the adjacent Galathea National Park, which spans 110 sq km.⁸⁰ They were both gazetted as national parks in 1992. Both these fall within the GNBR. In addition, on the southern coast is the Galathea Bay Wildlife Sanctuary (for protecting the Leatherback Turtle), and the Megapode Wildlife Sanctuary, submerged after the 2004 tsunami. The National Board for Wild Life recommended both of these to be de-notified in 2021.⁸¹

Much of Great Nicobar has also been notified as a Tribal Reserve under the Andaman & Nicobar (Protection of Aboriginal Tribes) Regulation, 1956. This is for the benefit of the Shompen Tribe, a forest dwelling community who are recognised as a 'Particularly Vulnerable Tribal Group' (PVTG) as well as the Nicobarese, recognised as a Schedule Tribe.⁸²

Against this backdrop, this case study examines the socio-ecological and financial implications of the Pre-feasibility Report (PFR) titled 'Holistic Development of Great Nicobar Island in Andaman and Nicobar Islands' commissioned by the NITI Aayog, which envisages a whopping Rs 72,000-crore investment plan for the island.⁸³ This consists of four components: a Township and Area Development plan, an International Container Transshipment Terminal (ICTT), a Greenfield International Airport, and a Power Plant. This study will trace the various measures taken to pave way for this mega infrastructure project, from dilution of environmental laws to the delisting of National Parks from its protected area status to a faulty Environmental Impact Assessment process.

⁷⁸ Savita is an independent researcher whose practice is curious about how ideas of 'nature' and 'society' are produced and connected to one another. By drawing tools from the field of political ecology, she examines the relationship between knowledge and power in the process of place-making that depicts the oceans as a frontier(s). For many years she has worked on public policies which affect livelihoods across fisheries, agrarian, and forest ecologies. <https://www.savitaseas.com/>

⁷⁹ S.O. 1194(E) for notification of Eco-Sensitive Zone of Galathea National Park, MOEFCC, 12 March 2021, <https://egazette.nic.in/WriteReadData/2021/225902.pdf>; S.O. 1193(E) for notification of Eco-Sensitive Zone of Campbell Bay National Park, MOEFCC, 12 March 2021, <https://egazette.nic.in/WriteReadData/2021/225901.pdf>; Great Nicobar Biosphere Reserve, India, UNESCO, <https://en.unesco.org/biosphere/aspac/great-nicobar>.

⁸⁰ See above.

⁸¹ Bahar Dutt, An ode to the Megapode sanctuary, Hindustan Times, 4 June 2021,

<https://www.hindustantimes.com/opinion/an-ode-to-the-megapode-sanctuary-101622812037157.html>

⁸² Name of the Particularly Vulnerable Tribal Groups (PTGs) (Earlier Called as Primitive Tribal Groups) - State / UT Wise, Ministry of Tribal Affairs, <https://tribal.nic.in/ST/StatewisePvTGsList.pdf>.

⁸³ Pre-Feasibility Report, Holistic Development of Great Nicobar Island at Andaman & Nicobar Islands, AECOM India Pvt. Ltd. for the NITI Aayog, March 2021,

The goal is to understand the unique ecological system and precious cultural heritage of Great Nicobar that is at stake if this mega infrastructure project comes to pass. Moreover, the volume of financial capital through Public Private Partnership that is required to be raised in the construction phase will be scrutinised in terms of costs and benefits as well as the free-trade zone model in its operational phase. This is to anticipate the scale of dispossession that will be borne by the people, degradation of nature of Great Nicobar against the capital accumulation for the industries that plan to set up and run this project.

General Overview

I. Geography

The Great Nicobar Island covers 951 sq km, making it the largest island in the Nicobar group of Islands, and is also the southernmost region of India. It lies between 6°45' & 7°15' North latitudes and 93°37' & 93°56' East longitudes. The island has a tropical monsoon climate with an annual rainfall of 372 cm. Mount Thulliar is the highest point on the island at 2,106 feet and is the source for several rivers such as Alexandra, Amrit Kaur, Dogmar and Galathea. The vegetation of the island is broadly divided into evergreen hill forest, tropical rainforest, littoral forest, and mangrove vegetation. It is also located in the Alpine-Himalayan seismic belt, considered to be one of the most highly seismically active belts of the world, categorised as V, which makes it 'very severe intensity zone'.⁸⁴

II. Ecological Importance of Great Nicobar

The island comprises of unique and threatened tropical evergreen forest ecosystems. It is home to 650 species of angiosperms, ferns, gymnosperms, bryophytes, among others. In terms of fauna, there are over 1,800 species, some of which are endemic to this area. The region is noted for its rich biodiversity and fosters several rare and endemic species. The endemic species comprise of 11 species of mammals, 32 species of birds, 7 species of reptiles and 4 species of amphibians. Of these, the well-known Crab-eating Macaque, Nicobar Tree Shrew, Nicobar Megapode, are endemic and/or endangered. One of the most unique aspects of Great Nicobar is the southernmost point, the Galathea Bay, a nesting ground for the Leatherback Turtle.

III. Human Settlements of Great Nicobar

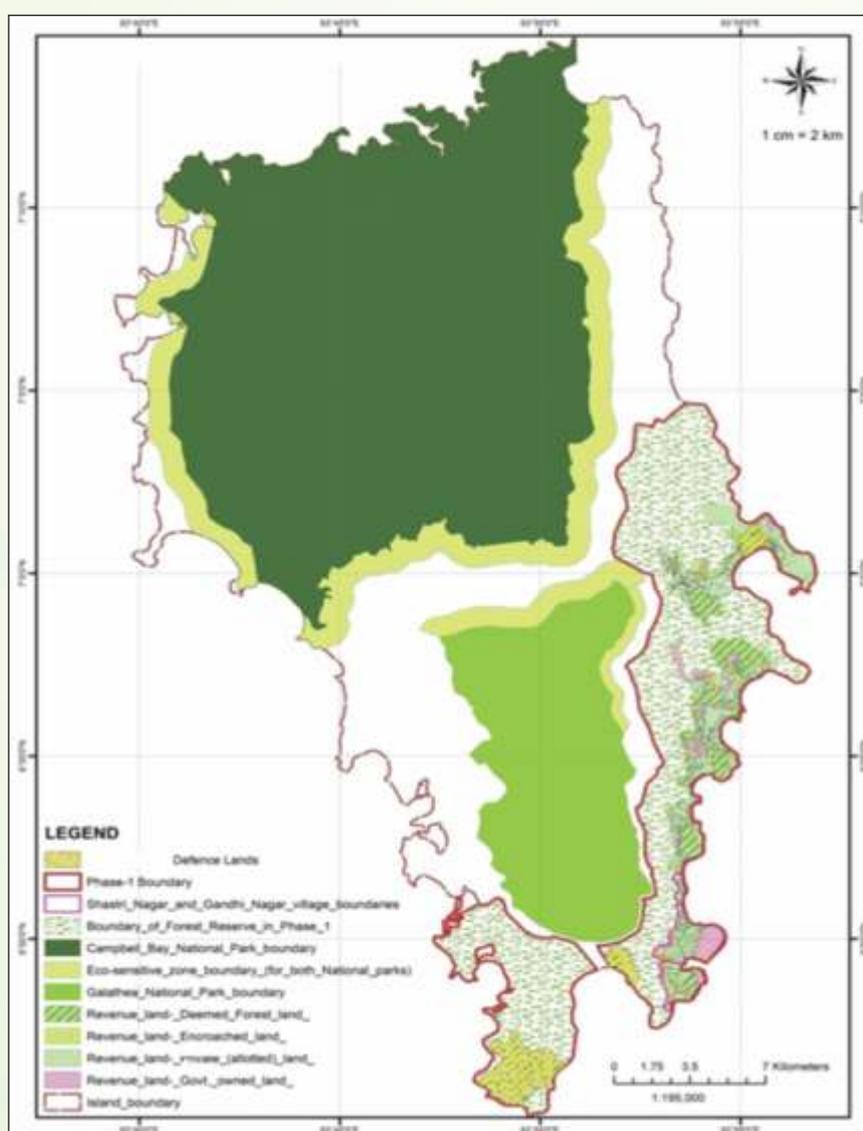
The primary human inhabitants of the island are the Shompen and Nicobarese tribes who have been living on the island for countless generations. More recently, post Indian independence, several waves of migration from mainland India since the 1970s have brought families of ex-servicemen to settle on the island. Today the mainland settler population numbers around 8,000 individuals who are housed in the more urbanised parts of the eastern coast of the island.

The Shompen tribe are an aboriginal people of about 200 to 300 members who inhabit the interiors of Great Nicobar. They are traditionally a semi-nomadic hunter-gatherer community, practicing basic horticulture and pig rearing, who probably migrated around 10,000 years ago. They are a unique group, anthropologically completely distinct from the other PVTGs of the Andaman Island as well as from the Nicobarese. Their language, Shompanese, unrelated to any other existing language, seems to have adopted a few words from Nicobarese in the context of an existing, even if very limited, barter system between the two communities. Recent studies have found that, despite their small number, it is a heterogenous group within which different dialects are spoken in various sub-groups. Only three villages are referenced in the 2011 census – Shompen A (10 people),

⁸⁴ Seismic Zones in the Country, Press Information Bureau, Ministry of Earth Science, 15 December 2011, <https://pib.gov.in/newsite/PrintRelease.aspx?relid=78794>.

Shompen B (44 people) and Shompen Hut (62 people) with the rest of the community scattered in small groups all over much of the 920 sq km hilly rain forest, of which 85% is part of the GNBR.

The Nicobarese are recognised as a scheduled tribe and comprise 1,000 individuals on the island. As opposed to the Shompens, who live in the interiors of the rainforest, the Nicobarese live closer to the coast and are in contact with the settler population from mainland India. The Nicobarese have a socio-cultural way of life where the forest and the sea is central to their traditional economy, which is broadly divided between horticulture, herding, coconut plantation, hunting and fishing. Fishing is strictly subsistence-based and depends on traditional dugout canoes and harpoons. Nicobarese houses are built on stilts that are between 2 to 2.5 meters long. A local variety of grass is used to thatch the house. They live in large joint families called a tuhet, the fundamental social unit. As a tuhet grows, some members separate to form a new tuhet, referred to as a mirooto or kinem of the same tuhet.



Map 1: Location of National Parks, Forest Reserves and Revenue Land in Great Nicobar

Source: Pre-Feasibility Report, Holistic Development of Great Nicobar Island at Andaman & Nicobar Islands, Niti Aayog, March 2021

IV. Tsunami and Seismic Vulnerability

The tsunami of 2004 had a cataclysmic impact on the entire socio-ecological system of Great Nicobar and any study that looks at the prospects of industrial development on the island must acknowledge this. The A&N Islands in general and Great Nicobar specifically is located in Seismic Zone V outside the Himalayan belt. Many earthquakes of moderate-to-large magnitude have occurred in this region in the distant and recent past. This region is an ideal tectonic setting for mega-thrust earthquakes. It is also very vulnerable to consequent tsunami waves, triggered by earthquakes not only from nearby sources along the Andaman arc, but also from surrounding regions such as Indonesia, as happened after the 2004 Great Sumatra earthquake.⁸⁵

⁸⁵ Javed N. Malik et al, Landscape Changes in the Andaman and Nicobar Islands (India) after the December 2004 Great Sumatra Earthquake and Indian Ocean Tsunami, 22(63) Earthquake Spectra 2006, S43-S66.

The Mega Infrastructure Project at Great Nicobar

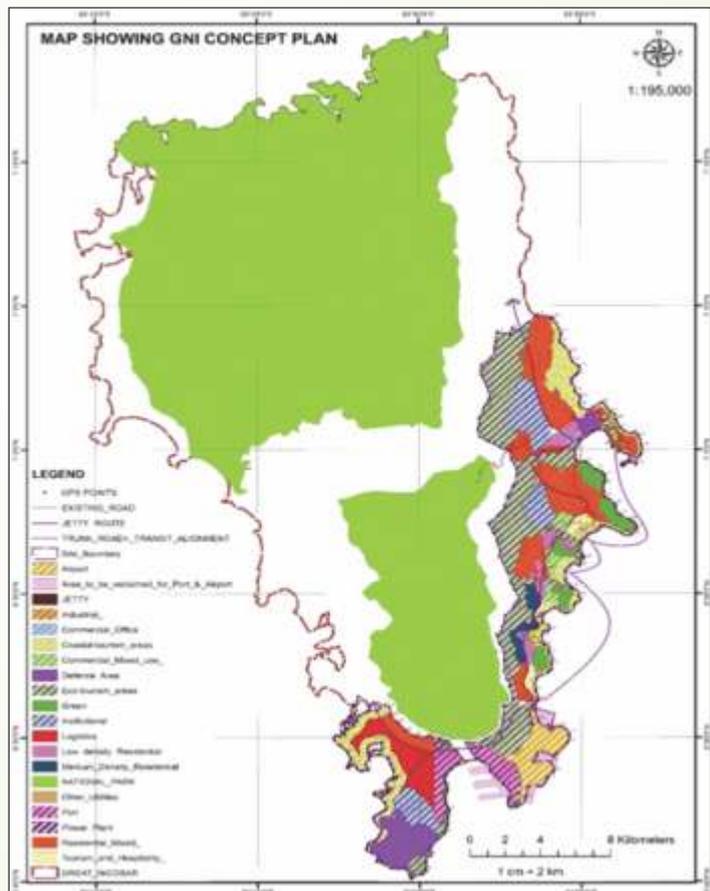
I. Background

Attempts to realise the potential of the Union Territory of the A&N Islands as an international maritime hub were initiated as early as 2015. This led to the announcement of a Rs 10,000 crore plan which included a 15-year perspective plan for the development of shipping and port infrastructure on the islands, which includes 23 sites identified for development into ports, with seven of these being small facilities. It is in tune with these ambitions that in 2020 the NITI Aayog commissioned the 'holistic development' PFR for Great Nicobar, with plans to construct an international container transshipment terminal, a greenfield international airport, a power plant and a township complex that will need an area of 166 sq km. Currently, 95.2 % of the Great Nicobar Island is under forest cover. The proposed project plan of slicing an area of 166 sq km from the total 910 sq km amounts to 18.25 % of the Island's total land mass being diverted for the project, which includes nearly a quarter of its coastline. According to the PFR, the project is budgeted to cost Rs 75,000 crore.⁸⁶

II. Scope of the project

The stated goal of preparing the PFR was as follows:

“Preparation of Master Plan for Holistic Development of Great Nicobar Island in Andaman & Nicobar Islands’ is to provide a framework for development of a new ‘greenfield city’ with a diverse and robust economy based on maritime services and tourism, amongst other drivers. The development of the new economic base will depend heavily on investment in catalytic infrastructure facilities, including an International Container Transshipment Terminal (ICTT), Greenfield International Airport, and Power Plant. A new Township will link the infrastructure facilities into completing the physical framework of the new city. These four interlinked projects (Port, Airport, Power Plant, and Township) form the core of the new city and the main components of the holistic master plan. From an environmental assessment perspective, the ICTT is considered the primary project.”



Map 2: Concept Land Use Plan
Source: Pre-Feasibility Report, Holistic Development of Great Nicobar Island at Andaman & Nicobar Islands, Niti Aayog, March 2021

⁸⁶ SO 1242(E), Island Coastal Regulation Zone Notification, MOEFCC, 8 March 2019,

http://environmentclearance.nic.in/writereaddata/SCZMADocument/ICRZ_Notification2019.pdf

⁸⁷ Pre-Feasibility Report, Holistic Development of Great Nicobar Island at Andaman & Nicobar Islands, AECOM India Pvt. Ltd. for the NITI Aayog, March 2021,

<http://environmentclearance.nic.in/DownloadPfdFile.aspx?FileName=mfeaYaYbdxRbeR8PGLUycwXyG0OWE2QWwm72WxjOAxHQbrEhaMSFRfBrbP1c1ckmdhZ1B7qes6LgOQOuwF2N5mJ2kxDbKrCShi1WB4/MMxE=&FilePath=93ZZBm8LWEXfg+HAIQix2fE2t8z/pgnoBhDIYdZCzxXmG8GlihX6H9UP1HygCn3pCkAF2zPFXFQnqA4krKa1Aw==>

III. Key Components of the Mega Infrastructure Project

Given below are the details of the key components of the Mega Infrastructure Project:

a. International Container Transshipment Terminal

The main idea is to leverage Great Nicobar's geostrategic location for maritime trade, as it lies between South Asia and Southeast Asia on the shipping corridor. This is also based on the logic that India is losing revenue to Sri Lanka and Singapore which provide deep water ports, with the additional rationale that the location offers overall cost savings for shipping companies. Its utility is being seen as a site for the transshipment of containers for feeder ports in the region, and for the development of storage and re-processing zones. It must be also noted that the plan is to declare the entire project a 'free-trade zone' to attract investment through minimal tax implications, provision of "low-cost manpower" and "availability of large parcel of lands at economical rates". The land required is 766 hectares, plus 227 hectares of reclamation of land from the sea.



1. international Container Transshipment Terminal
2. International Airport
3. Township and Area Development
4. Power Plant

Map 3: Location of Four Interlinked Projects in Great Nicobar

Source: Source: Pre-Feasibility Report, Holistic Development of Great Nicobar Island at Andaman & Nicobar Islands, Niti Aayog, March 2021

b. Greenfield International Airport

Once again citing the geographic location as a strategic advantage, the airport is primarily meant to attract tourists and to create links with other recreational hotspots like Senang City, the Phuket Island and Langkawi Island. Thus, the islands present a great opportunity for a tourism-oriented island development that would put A&N on the global tourist destinations map. The land required is 845 hectares, plus 194 hectares of reclamation of land from the sea.

c. Township and Area Development

This is primarily seen as necessary to support the shipping and tourism sectors with manpower. In addition, the town is also seen as a site for hotels, casinos and other tourist recreations centres. The land required is 14,960 hectares.

d. Power Plant

In the form of mixed sources, the power plant is envisioned to be comprised of diesel and natural gas generators and solar plants to supply the port, tourist hubs, township with power supply. The land required is 39 hectares.

The PFR states that for the project, “84.10 sq km falling under tribal reserve, is proposed to be de-notified. A&N Administration proposes to re-notify 45.23 sq km of land in Campbell Bay and Galathea National Parks and 31.73 sq km land outside the National parks. Therefore effectively 7.11 sq.km will be required for de-notification for the project.” There are several laws and policies in the way of diverting this land from the national parks as well as to clearances to be sought to begin the project.

I. Relevant laws and policies

Some of the laws and policies particularly relevant to the A&N islands are the Coastal Regulation Zone Notifications 2011 and 2019, the Policy of Shompen Tribe of Greater Nicobar of Great Nicobar Island, 2015, the Andaman and Nicobar Protection of Aboriginal Tribes Regulation (ANPATR 1956), and the National Marine Turtle Action Plan 2021-2026. Particular heed must be paid to the Island Protection Zone (IPZ) Notification, 2011 under the Environment (Protection) Act, 1986, which protected certain coastal stretches of the A&N and Lakshadweep, and the superseding Island Coastal Regulation Zone (ICRZ) Notification, 2019.⁸⁷

II. Timeline of law and public policy changes and developmental projects in the Andaman and Nicobar Region

Over the years, several legislative and policy changes have been introduced at the national level that have facilitated the large-scale developmental projects. For instance, in May 2019, in a first, the Compensatory Afforestation Fund Act, 2016 was amended to allow the afforestation compensation for forest diverted for industrial projects to be planted in another state.⁸⁸ Given below are changes introduced with particular reference to the A&N region, and how they relate with the commencement of developmental works:

- August 2018: The Government of India removed the Restricted Area Permit from 29 islands to foster tourism in the A&N archipelago.
- March 2019: The ICRZ Notification 2019 diluted the 2011 IPZ notification allowing an extensive list of exemptions under various CRZ categories which includes port development.

⁸⁷ SO 1242(E), Island Coastal Regulation Zone Notification, MOEFCC, 8 March 2019,

http://environmentclearance.nic.in/writereaddata/SCZMADocument/ICRZ_Notification2019.pdf

⁸⁸ Proposal seeking diversion of forest land for non-forestry purposes under the Forest (Conservation) Act, 190 - Special consideration of compensatory afforestation in forest rich States, Letter F. No. 11-423/2011-FC, MOEFCC (Forest Conservation Division), 22 May 2019, [http://forestsclearance.nic.in/writereaddata/public_display/schemes/252036798\\$11%20423%202011%20.pdf](http://forestsclearance.nic.in/writereaddata/public_display/schemes/252036798$11%20423%202011%20.pdf)

- 2019: A call for ‘Expression of Interest’ was floated by the A&N Port Management Board for a container transshipment terminal and free trade warehousing zone at Galathea Bay.
- 28 October 2020: The MoEFCC issued a draft notification mentioning changes to the eco-sensitive zone around the Galathea National park to 0-1 kms.
- 2 September 2020: The NITI Aayog invited a Request for Proposal for “Preparation of Master Plan for the Holistic Development of Great Nicobar in Andaman and Nicobar Islands”.
- 1 January 2021: The Central Government amended the ICRZ Notification 2019, to move Great Nicobar from Group I of islands with a 200 metre buffer from the high-tide line, to Group II with a 100 metre buffer.⁸⁹
- 5 January 2021: The Standing Committee of the National Board for Wildlife (NBWL) recommended the denotification of the entire Galathea Bay Wildlife Sanctuary to allow for the port construction.⁹⁰
- 18 January 2021: The expert committee of the MoEFCC for the declaration of eco-sensitive zones recommended the finalisation of ESZs of 0-1 km width around the Campbell Bay and Galathea National Parks in Great Nicobar.⁹¹
- 25 January 2021: The UT government of A&N de-notified 11.44 sq km of the Galathea Bay Sanctuary.⁹²
- February 2021: The MoEFCC released the National Marine Turtle Action Plan which includes the bay as an important turtle nesting site.⁹³
- 12 March 2021: ESZs of 0-1 km were notified around Campbell Bay and Galathea National Parks.⁹⁴
- March 2021: The PFR commissioned by NITI Aayog was released by the Haryana-based infrastructure consultancy firm AECOM, entitled ‘Holistic Development of Great Nicobar Island in Andaman & Nicobar Islands’, detailing the location of the physical infrastructure proposed.
- 25 May 2021: The Central Government-appointed Expert Appraisal Committee (EAC) for Infrastructure, CRZ and other miscellaneous projects issued the Terms of Reference for the preparation of an EIA report for the “integrated development” of the ICTT, airport, township and power plant. The EAC noted that the proposed sites had been selected with “primarily the technical and financial viability”, of the project in mind, while “the environmental aspects were not given much weightage”.⁹⁵

⁸⁹ SO 2(E), Amendment of the ICRZ Notification 2019, MOEFCC, January 2021,

<http://www.indiaenvironmentportal.org.in/files/file/island%20coastal%20regulation%20zone.pdf>

⁹⁰ Jayashree Nandi, Denotify turtle nesting site in Andaman for shipment project: Wildlife board, Hindustan Times, 28 January 2021, <https://www.hindustantimes.com/environment/denotify-turtle-nesting-site-in-andaman-for-shipment-project-wildlife-board-101611807608329.html>.

⁹¹ Minutes of 44th Meeting of the Expert Committee for the Declaration of Eco-Sensitive Zone (ESZ) Around Protected Areas (Wildlife Sanctuaries/National Parks/Tiger Reserves) Through Video Conferencing (VC) Held on 18th January, 2021, MOEFCC, <https://moef.gov.in/wp-content/uploads/2021/02/Minutes-44th-ECM.pdf>.

⁹² SC asks petitioner challenging de-notification of Galathea Bay Wildlife Sanctuary to approach HC, The Print, 4 March 2022, <https://theprint.in/india/sc-asks-petitioner-challenging-de-notification-of-galathea-bay-wildlife-sanctuary-to-approach-hc/858754/>.

⁹³ Pankaj Sekhsaria, After Approving Nicobar Sanctuary Denotification, WII Says No Expertise, Science The Wire, 16 July 2021, <https://science.thewire.in/politics/government/wildlife-institute-feeds-doubt-about-fate-of-leatherback-turtles-on-an-islands/>.

⁹⁴ S.O. 1194(E) for notification of Eco-Sensitive Zone of Galathea National Park, MOEFCC, 12 March 2021, <https://egazette.nic.in/WriteReadData/2021/225902.pdf>; S.O. 1193(E) for notification of Eco-Sensitive Zone of Campbell Bay National Park, MOEFCC, 12 March 2021, <https://egazette.nic.in/WriteReadData/2021/225901.pdf>.

⁹⁵ Grant of Terms of Reference to, Integrated development of International Container Transshipment Terminal (ICTT)-14.2 Million TEU along with Greenfield International Airport (4000 Peak Hour Passengers-PHP), Township & Area development and 450 MVA Gas and Solar based power plant in 16610 ha. Great Nicobar Islands, Nicobar District by M/s Andaman and Nicobar Islands Integrated Development Corporation Ltd, File No. 10/17/2021-IA.III [Proposal No. IA/AN/NCP/201159/2021], MOEFCC (Impact Assessment Division), 5 May 2021, p. 6,

<http://environmentclearance.nic.in/DownloadPdfFile.aspx?FileName=7VY2fatKxyjBxrPQplfZ+mvUjT3nWgI+7TIqImAPsXXBy9nUr4vIdfHun73Yb5IqDIYKRauJ3y2zyKjbVU2WsIFOK4wF/WMAS1vTPOqB0s8Vut9/FpvP4LsHzpMOU8aF&FilePath=93ZZBm8LWEXfg+HAIQix2fE2t8z/pgnoBhDIYdZCzUI4D0y0DyH4SbeEYqvvEmbW63j4fms9Murl/YnHqFqoQ=>.

It further recommended that the ‘Terms of Reference’ be made for the project for an Environmental Impact Assessment.

- 27 December 2021: A 1200-page EIA report was submitted and uploaded on the MoEFCC website.⁹⁶
- 27 January 2022: A public hearing was held to discuss the EIA for the ‘Holistic Development of Great Nicobar Island in Andaman & Nicobar Islands’ project.

III. Major procedural gaps, oversights and limitations

It has been observed that the National Board for Wildlife’s recommendation to de-notify the Galathea Sanctuary was taken under extraneous considerations and not in the interest of wildlife. Besides, several gaps and flaws in the EIA process have been noted, including the following:

- The entire EIA team of 16 had only one ecologist, the rest being engineers and geologists, who experts believe were not qualified to conduct a thorough assessment of environmental impacts.
- There was no study in the EIA on the fact that Great Nicobar is on a dangerous faultline and therefore prone to earthquakes making this coastal infrastructure extremely vulnerable and prone to disaster. There is no risk assessment that accounts for the fact that Great Nicobar is located on a highly seismic zone.
- It was also noted by activists that the draft EIA Report has been submitted without complying with several Terms of Reference. The report does not include a Coastal Zone Management Plan, while the report on the island’s megapodes is incomplete.
- The recommendation to relocate coral reefs is controversial, as this practice is extremely prone to failure.
- Claims of adequate measures and provisions for the protection of turtle nesting sites are unscientific. The location of the port will evidently cause great disturbance to existing turtle nesting sites. This is in terms of erosion of the beach, light pollution, water pollution and maritime traffic, which together make the site extremely unconducive for leatherback turtles to nest.
- The report ignores the potential impact that the project has on tribal populations.
- The impact of de-notifying the Galathea Bay Wildlife Sanctuary is not mentioned in the report.
- The report did not include legible maps about the projects for the public hearing.
- This project estimates the diversion of 130 sq km of the finest tropical forests in the world. However, the EAC of the MoEFCC noted that no details of the trees to be felled had been given, which could run into lakhs.
- The EIA report failed to report on the impact of the 2004 tsunami on the island and the risk involved in the case of future disasters.
- The risk analysis also misses the impact of handling different types of cargo on the fragile ecosystems.
- Extremely cursory and casual statements have been made on impacts. This is especially clear in the case of possibilities of erosion due to port and other coastal construction. Any EIA must have a mathematical model to report the changes that will occur due to construction and operations.
- The EIA report mentions that Great Nicobar is not on the pathway for migratory birds located along two globally significant bird flyways – the Central Asian Flyway and the East Asia/Australasia flyway. There is recorded evidence of more than 40 species of migratory birds from Great Nicobar.

⁹⁶ Notice for Public Hearing for Environmental Clearance for “Holistic Development of Great Nicobar Island in Andaman & Nicobar Islands”, Pollution Control Committee, Department of Science and Technology, Andaman and Nicobar Administration, 26 December 2021, <https://www.andaman.gov.in/admin-pannel/whatsnew/1-1519-Combined%20EIA.pdf>.

Potential Impacts

As seen above, the proposed mega infrastructure project aims to occupy the majority of the coastline of Great Nicobar. Additionally, the PFR has indicated that will require the destruction of 84.6 sq km of land that falls within the Tribal Reserve as well as fill parts of the coastline for reclamation for the ICCT Port. The scale of impact this will have on the people, landscape, and endangered species is tremendous, but is currently underestimated and overlooked by a faulty EIA process. Some of these impacts are:

I. Ecological Threats

- a. **Nicobar Megapode:** This is an endemic, largely ground dwelling species recognised as highly endangered, and therefore granted protection under Schedule I of the Wild Life (Protection) Act 1972. According to a recent study by K Sivaraman, 90% of this ground-nesting bird's nests are within a 30 metre distance from the shore.⁹⁷ This study also states that the existing protected area network in Great Nicobar is not designed to protect the megapodes, and recommends the protection of the entire west and southern coast of Great Nicobar. Pankaj Sekhsaria, who has reported extensively on the problems of the project, points out that "...precisely the area sought for the NITI Aayog proposals – be protected for the megapode and other wildlife like nesting marine turtles. This is also in stark contrast to the current move to create a zero extent ESZ for the Galathea National Park."⁹⁸
- b. **Leatherback Turtle:** Great Nicobar offers its largest nesting ground in the Indian Ocean for this unique species, the only turtle without a hard shell. The beaches of Galathea Bay, Indira Point, Hingloi, Alexandria, Dagmar, and Renhong offer the optimum habitat for females, who grow up to six feet long and weigh as much as 900 kg, to come up to nest. They prefer beaches that have soft sand (to protect their delicate shells from damage by hard rocks), have shallower approach angles from the sea (which is also a vulnerability for turtles due to easier erosion), and are free of debris. Female leatherbacks usually lay their eggs at night, and may decide not to nest if there are too many lights onshore. They also prefer nesting environments with a forested area next to the beach, as the contrast between the dark forest and the moonlit ocean provides orientation for nesting.

These factors taken together show how any port construction is doomed to fail, no matter what mitigation plan is proposed. Researchers have observed that the port location and design will create significant obstructions in the 3 km-wide Galathea Bay, where the new indication for their access once the port comes up is shown to be only 300 metre wide. The dredging for the port for this successful operation, and the structure itself will cause significant erosion, added to which are issues of light and water pollution, and shipping traffic.⁹⁹

Threat to the overall ecological system: Impacts can be divided into those that will take place during the construction phase and those that can be anticipated during the operations phase. During the construction phase, apart from species-specific impacts, there is an overarching cascading effect on the entire ecology that an industrial development of such a

⁹⁷ K Sivakumar, The Nicobar Megapode, Status, Ecology and Conservation: Aftermath Tsunami, Wildlife Institute of India, February 2007,

https://web.archive.org/web/20111009113608/http://oldwww.wii.gov.in/publications/researchreports/2007/the_nicobar_megapode.pdf.

⁹⁸ Pankaj Sekhsaria, NITI Aayog vision for Great Nicobar ignores tribal, ecological concerns, The Hindu, 20 March 2021,

<https://www.thehindu.com/sci-tech/energy-and-environment/niti-aayog-vision-for-great-nicobar-ignores-tribal-ecological-concerns/article34120093.ece>.

⁹⁹ Pankaj Sekhsaria, Location, Port Design could spell disaster for Turtles at Galathea Bay, Science The Wire, 4 June 2021,

<https://science.thewire.in/environment/location-port-design-leatherback-turtles-nesting-site-galathea-bay/#:~:text=The%20Galathea%20Bay%20wildlife%20sanctuary,nesting%20site%20for%20leatherback%20turtles.>

scale will cause. The deforestation that is expected will cause setbacks to the island in terms of countless trees, the habitat for countless species. In addition is soil erosion, especially during the monsoon season, which causes high levels of sedimentation which will affect the coral reefs that fringe the island (sedimentation is known to kill coral). The project also envisages breakwater construction, dredging and reclamation, which will cause irreparable damage to the coastline of Great Nicobar, making an island already vulnerable to earthquakes and tsunami even more prone to natural disasters.

II. Socio-cultural threats

- a. **Carrying Capacity:** The PFR predicts the current population size to grow from 8,500 to 6.5 lakhs over the next three decades. This seriously calls into question the carrying capacity of the island in terms of its human population, i.e. the maximum number of people it can support, given its resources. There has been no assessment of this for Great Nicobar.
- b. **Tsunami (a natural disaster) and Post-Tsunami Reconstruction (a man-made catastrophe):** In 2004, hundreds of people lost their lives to the waves, which also destroyed their fertile fields, livestock, and villages. The earthquake permanently altered the topography of many of the islands, submerging large tracts of land. The state response along with development aid that followed, however, fractured the Nicobarese socio-cultural way of life. For example, Nicobarese people live in large joint families and follow a matrilineal system, which was completely disregarded by the system of availing benefits set by the government in the form of cash transfers as well as housing schemes that were launched as part of the disaster reconstruction programmes. As a result, the Nicobarese society has lost its self-sustaining features. This has been attributed to the post-tsunami development processes, which has affected their kinship and family structures, traditional livelihood practices, and cultural norms and traditions.¹⁰⁰ Even with the best of intentions, if a rehabilitation programme brings such extensive damage, then any future plans of development intervention must reflect on the impact a full-blown industrial hub will have on the first inhabitants and their way of life on the island. One of the most glaring oversights in the PFR is regarding the Nicobarese tribe, as it states that they have ‘assimilated themselves’. However, they are still waiting to be resettled in their coastal villages that were destroyed by the 2004 tsunami.
- c. **Financial Risk and Viability factors of ICTT during the operations phase:** One of the glaring oversights as part of planning this mega infrastructure project, especially the idea of a transshipment terminal, is the lack of rigorous assessment of financial viability and associated risks. Great Nicobar is located on the East-West truck sea route, one of the busiest shipping routes in the world. Currently, this route already has established transshipment/hub ports, namely Colombo in South Asia and Singapore, Kelang, and Tanjung Pelepas in South-east Asia. It is well known that these four hub ports compete to be the transshipment hub for relay networks.

A recent study has classified consideration for port selection by companies that require transshipment services on this route among five categories: monetary, time, port traffic, location and operation. Examples of relevant factors are the deviation cost and time incurred when a ship deviates from the main sea route to access hub ports, the availability of captive cargo

¹⁰⁰ Ajay Saini, Post-tsunami Socio-cultural Changes among the Nicobarese: An Ethnography of the Nicobarese of the Southern Nicobar Islands, Tata Institute of Social Sciences Working Paper No. 1, January 2013, http://rnd.tiss.edu/wp-content/uploads/2015/03/TISS_Working_Paper-1-online.pdf.

from the hub port's hinterland, and the location of the hub port relative to other competitive hub ports.¹⁰¹

There is a requirement of an in-depth analysis to assess the viability of the proposed port on the East-West truck route based on these factors. This must be done very much in relation to the exiting ports in the region and the competitiveness of the market and its current and future dynamics. Without this critical understanding, going forward with an investment of Rs 72,000 crore presents a tenacious and risk-prone undertaking from a purely financial point of view.

Conclusion

The scale of construction and operations proposed through the four-pronged “holistic development” scheme will be capable of wreaking irreversible damage to the biological and cultural heritage of the island. What is striking about the project is the enthusiasm for multi-crore investment despite the following serious deterrent factors: the fact that Great Nicobar rests on a major faultline; the impact the project will have on the Shompens, a PVTG, and the Nicobarese, a Scheduled Tribe; and the complete destruction of habitat for the Leatherback Turtle. Moreover, planners need to consider the financial viability and profitability of such a project in a region that already has many trans-shipment ports. In this light, a detailed financial assessment needs to be made to weigh the costs (social, ecological, economic) against the gains the project hopes to give to a few private industries, revenue to the government and jobs it claims to generate for the local people. Apart from this, the case study notes many procedural lapses, apart from the systematic dilution of legal protections to facilitate the implementation of this project. Lapses are of note also in the rapid assessments undertaken and the mitigation measures mentioned, which in many instances point to tokenism. The Great Nicobar Island is surely poised at the precipice of tremendous disaster if the plans for the Trans-shipment Port and associated projects come to pass.

¹⁰¹ Chathumi Kavirathna et al, Transshipment hub port selection criteria by shipping lines: the case of hub ports around the bay of Bengal, 3(4) Journal of Shipping and Trade 2018, <https://jshippingandtrade.springeropen.com/articles/10.1186/s41072-018-0030-5>.

Fragmented by the Developmental State: An Ecosystem Struggles to Survive in Mumbai

A Case Study on Sanjay Gandhi National Park

By Aditi Vajpeyi¹⁰²

Introduction

Sanjay Gandhi National Park (SGNP) is unlike any other Protected Area in the country, it enjoys fame and the spotlight owing to its location. It is located inside the “City of Dreams”, the financial and urban capital of India- Mumbai (Bombay). Hailed as the only protected forest area within the limits of a metropolitan city, the name of SGNP pops up as a laudable example every time the prevalent discourse talks about urban ecology, urban forests and urban wildlife conservation. However, the forests, wildlife and the entire SGNP ecosystem have constantly been subjected to gigantic pressures from the expanding urbanization and industrialization of the Mumbai Metropolitan Region (MMR). The study attempts to highlight how the entire ecosystem of SGNP and its neighboring Aarey landscape is under threat from developmental projects. The study also brings to notice how the popular image of SGNP as a pristine leopard forest is not true, instead the ecosystem over the years has emerged as a space with multiple stakeholders, rights holders and dependents. SGNP is thus the site of understanding the history and politics of conservation and questions the developmental state that continues to play with the narrative of conservation as per their convenience.

Geographical Overview

Spread over 103 sq km, SGNP forms 20 percent of Mumbai's geographical area. Towards the west the SGNP opens into the suburbs of Goregaon, Malad, Kandivali, Borivali and Dahisar while on the eastern side lie the suburbs of Bhandup and Mulund. The Aarey Milk Colony, Goregaon Film City and the university campus of IIT Bombay-Powai cover the southern side while the northern reaches of the forest stretch to Thane city. Except for the northern stretch covering Thane city, all other areas in and around SGNP are part of Mumbai. With elevations ranging between 98 to 1,575 feet, SGNP mostly has a hilly terrain. The park also houses two villages inside: Chenna in the north and Yeoor in the northeast. Two of Mumbai's largest lakes, Vihar Lake and Tulsi Lake, are also located inside the park. To its north is the Tungreshwar Wildlife Sanctuary (TWLS) with an area of 95.25 sq km. SGNP has within it a public recreational area allotted in 5.75 sq km. In 2016, the MOEFCC notified an Eco Sensitive Zone (ESZ) of 59.46 sq km around the park.¹⁰³ The Aarey Milk Colony, a thick and dense landscape of forests, situated adjacent to SGNP, stretches across 3,166 acres and houses an approximate population of 50,000 people with 28 tribal hamlets and slum pockets, along with 36 cattle farms.

Ecological Overview

SGNP is a part of the Western Ghats biodiversity and attributable to its typical location of being placed in the midst of a concrete landscape, the park is of critical ecological significance. It is the only national park on the Malabar Coast of the Western Ghats, one of the least represented biogeographic zones. The area is located in a mountainous range and has the Sahyadri hills on the east. The changes brought about by human intervention over the years have shaped and influenced the biodiversity of SGNP, making it both a unique and at the same time fragile ecosystem.

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¹⁰³ Press Release on Notification of Eco-Sensitive Zone Around Sanjay Gandhi National Park, Mumbai, MOEFCC, 6 December 2016, <https://moef.gov.in/wp-content/uploads/2018/08/PRESS1-NOTE-ON-SGNP06-12-2016abhishek-.pdf>



Fig. 1: An open tiger roaming in Sanjay Gandhi National Park, Mumbai (June 2016)
 (Title: Tiger in Sanjay Gandhi National Park
 Source: https://commons.wikimedia.org/wiki/File:Tiger_in_Sanjay_Gandhi_National_Park.jpg
 Creator: Benhur Benjamin
 License: Licensed under the Creative Commons Attribution-Share Alike 4.0 International license)

The forest habitat of SGNP mainly comprises¹⁰⁴ of southern mixed-deciduous forest dominant in the lowlands and along the hill slopes. On the upper slopes and in the narrow valleys and stream-beds, there are semi evergreen types of forest. While the deciduous trees mainly shed their leaves during winters, the evergreen trees bear leaves all around the year. An estimated 1,300 species of flowering plants also form part of the forest ecosystem here. The park is famously known for flamboyant flowering blooms of Karvi or *Strobilanthes callosus*. Karvi is a shrub that grows in abundance

constituting the undergrowth of vast stretches of the forest and is visible all year round but is known more for its once in 7 year blooming cycle. Bamboo is quite widespread in the region and some marshy patches on the Vasai side also house Mangroves.

The most talked-about animal of the park is undoubtedly the leopard and SGNP prides itself in being the only urban protected area housing 47 leopards at present. The park has a diverse faunal habitat with an estimated 280 species of birds, about 40 species of mammals, 61 species of reptiles, around 14 species of amphibians, 150 species of butterflies and a wide unestimated range of other invertebrates.¹⁰⁵ The ones with popularity are the atlas and moon moths, known both for their spectacular beauty and size. The wingspan of the atlas moth is an impressive 30 cm. The leaf litter is loaded with the who's who of the invertebrate world – from giant tarantulas to several species of trapdoor spiders and detritivores such as cockroaches, bugs, beetles, earthworms, millipedes – to termites and ant species such as Pagoda ants, weaver ants, etc. As per ecologists in a tropical moist semi-evergreen forest such as SGNP, the invertebrates are so numerous and in abundance that together, they weigh more than all the vertebrate species found here.

Migratory birds also flock to the park during the season. Traditionally, tribes such as the Warlis and Mahadeo Kolis have inhabited the landscape and continue to live inside SGNP.

Archaeological Significance

SGNP is home to the Kanheri caves dating back from 1st century B.C. to 9th century A.D., signifying the presence, passage and ancient habitation of a well-organized Buddhist establishment in the area. Most of these 109 Buddhist caves have been chiseled out of the volcanic rock. In 2015-16, 7 more caves cum viharas (monk residences) were discovered by a team including the Center for Archaeology. These caves are reported to be older than Kanheri.¹⁰⁶

¹⁰⁴ Consisting of the Tectona, Albizzia, Terminalia, Holarrhena, Firmiana, Dalbergia, Garuga, Grewia, Adina, Ficus, Madhuca, Caraya, Butea and bamboo compositions.

¹⁰⁵ Anish Andheria, The Sanjay Gandhi National Park, Wildlife Conservation Trust, 16 November 2021, <https://www.wildlifeconservationtrust.org/the-sanjay-gandhi-national-park/>

¹⁰⁶ Seven more caves discovered in Mumbai's Sanjay Gandhi National Park, DNA, 17 January 2016, <https://www.dnaindia.com/india/report-seven-more-caves-discovered-in-mumbai-s-sanjay-gandhi-national-park-2166881>



Fig 2: Kanheri Caves located inside Sanjay Gandhi National Park (January 2012)
(Title: KANHERI CAVE AT NATIONAL PARK, BORIVALI EAST, MUMBAI, INDIA

Source: https://commons.wikimedia.org/wiki/File:KANHERI_CAVE_AT_NATIONAL_PARK,_BORIVALI_EAST,_MUMBAI,_INDIA..jpg

Creator: Milind13

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Management and Jurisdiction over SGNP

The park area stretches across two municipal territories: Mumbai Corporation and Thane Corporation; located in two districts: Mumbai Suburban and Thane. In 1952 20.26 sq km of area under Vihar & Tulsi lake was declared as 'Krishnagiri National Park' under the Bombay National Park Act. In 1969, the park boundaries were expanded by adjoining adjacent areas and 6.27 sq km was officially notified as the Borivali National Park. By 1996, more area and forests from Thane region were also added, and a total of 103.84 sq km was

named Sanjay Gandhi National park.¹⁰⁷ Today the park falls under the Borivali Wildlife division and with three forest ranges, Yeoor, Tulsi and Krishnagiri Upvan, the Park is divided into 9 rounds and 25 forest beats. The Maharashtra State Department of Forests is the overarching institution for the management and protection of the area with the Chief Conservator of Forests holding the highest authority.

The Maharashtra (Urban Areas) Protection and Preservation of Trees Act, 1975 is a state act of Maharashtra concerned with the regulation of tree felling and plantations in the context of expanding urbanization and industrialization in urban Maharashtra.

The forest lands within SGNP have been notified under different status on paper as shown in the official map from 2011 with 71% of them being Reserved Forests, 28% Unclassified Forests, and a small patch in north-west Kashemira as a Protected Forest. Alongside, Yeoor and Chenna village enjoy the status of revenue lands within the SGNP and are subjected to different laws. The Brihanmumbai Municipal Corporation (BMC) also owns some patches of land near Vihar Lake while the air force has ownership of the most elevated point of the park.¹⁰⁸

The Archeological Survey of India is also involved within SGNP, owing to the presence of the Kanheri archeological sites.

Trapped in the Web of Development - Looking at Projects, Violations and Impacts

Acknowledged by the State and people as the lungs of Mumbai, and protected by law for being a unique and fragile ecological landscape, the future of SGNP's ecosystem is suffocating on the developmental air that the State is pumping into it. One of the last remaining natural green areas in the midst of an expanding and violently urbanizing concrete metro landscape of exploding human population, this ecosystem is being attacked with developmental projects and activities from all sides and cornered in the never ending developmental aspirations. CFA, in a November 2021 report¹⁰⁹

¹⁰⁷ Metro-3 row: 1,501 hectares of Aarey Milk Colony is part of Borivli national park in Mumbai, say experts, Hindustan Times, 20 February 2017, <https://www.hindustantimes.com/mumbai-news/metro-3-row-1-501-hectares-of-aarey-milk-colony-is-part-of-borivli-national-park-in-mumbai-say-experts/story-8v7IzKFYfmKLUijPypm8TI.html>

¹⁰⁸ Émilie Edelblutte and Yanni Gunell, The tribal populations of Sanjay Gandhi National Park, Mumbai (India): A brief political ecology, 43(1) L'Espace Géographique 2014, 1-17, <https://www.cairn-int.info/journal-espace-geographique-2014-1-page-1.htm>

¹⁰⁹ Nishank, Rise In Infrastructure Projects In Protected Areas: A Self-Defeating Goal For Development, Centre for Financial Accountability, November 2021,

https://www.cenfa.org/wp-content/uploads/2022/04/Mapping-Report-Infra-Projects-in-Protected-Areas_Final1.pdf

titled “Rise In Infrastructure Projects In Protected Areas: A Self-Defeating Goal For Development” evidently brings to light that between 2015 and 2019, SGNP got the environmental clearances for 43 projects in total, with this figure being the highest among the protected areas in the country.

In this section we will elaborate upon the major developmental projects that impact SGNP: Multimodal Corridor, Goregaon-Mulund Twin Tunnel Link Road, Western Dedicated Freight Corridor, Mumbai-Ahmedabad High Speed Railway Project, Borivali-Thane Twin Tunnel Project and elevated flyover road. The following section provides a detailed insight into these projects and maps what is happening in and around SGNP.

I. Western Dedicated Freight Corridor - The Mumbai- Delhi Freight Corridor

The Western Dedicated Freight Corridor (WDFC) is a 1,500 km long railway project planned to run from Dadri near Delhi to JNPT in Mumbai. WDFC is actually being constructed as Phase-1 of India’s first mega railway project and is being executed by the Dedicated Freight Corridor Corporation of India (DFCCIL)¹¹⁰ which is a special purpose vehicle of the Indian Railways, created to build dedicated freight corridors. The WDFC project is planned to aid in the development of the Delhi-Mumbai Industrial Corridor (DMIC) initiative, which is part of the larger Japanese-Indian collaborative project aimed at expanding industrial development by linking the industrial parks and harbors of the states between Delhi and Mumbai with the purpose of raising and inviting foreign export and direct investment.¹¹¹ The Japan International Cooperation Agency (JICA) is funding this project. The construction of the western corridor is being fully funded by JICA¹¹², which as reported provided Rs 8,553 crore for Phase-I.¹¹³ In this Phase-I WDFC project, the double line railway tracks alignment in Maharashtra will be passing through Raigad, Thane and Palghar Districts.

The project passes through SGNP and its ESZ and a total of 71.0119 hectare of forest land will be diverted. It is noteworthy that the project has been exempted from environmental clearance and EIA study and the MOEFCC gave forest clearance approval on December 16, 2015 for diversion of 58.1498 hectare of forest land. Adding to it, a supplementary proposal for diversion of 12.8621 hectare of forest land which includes mainly mangroves has again been submitted for approval. The project has also been awarded wildlife clearance by the NBWL-SC in 2012. In 2013, the Supreme Court allowed the diversion of 8.050 hectare of forest land inside SGNP based on the CEC’s recommendation that the project is in public interest. The Court mentioned the following conditions while giving approval: 4 underpasses and chain-linked fencing parallel to the railway line and Rs 15 crore to be deposited with SGNP authorities for conservation and protection measures.¹¹⁴

¹¹⁰ DFCCIL plans to create multiple such corridors to expand the national transporter freight carrying capacity, through these corridors, from existing 1200 million tonnes to over 2,000 million tonnes. An eastern corridor along the eastern coast will also be constructed, proposing that just like the western corridor will reduce the time of travel between Delhi and Mumbai, the eastern corridor is planned to decongest the time & traffic between Delhi & Howrah.

¹¹¹ JICA, Central govt ink Rs 15,295 cr loan pacts for rail infra projects, 1 April 2020, Construction Week,

<https://www.constructionweekonline.in/projects-tenders/12909-jica-central-govt-ink-rs-15295-cr-loan-pacts-for-rail-infra-projects>

¹¹² JICA has inked agreements totalling Rs 15,295 crore with the Central government for three mega rail infrastructure projects.

Other than WDFC JICA has granted Rs 4,262 crore for Mumbai Trans Harbor Link Project and Rs 2,480 crore for the Mumbai

Metro Line-3 Project. JICA, Central govt ink Rs 15,295 cr loan pacts for rail infra projects, 1 April 2020, Construction Week,

<https://www.constructionweekonline.in/projects-tenders/12909-jica-central-govt-ink-rs-15295-cr-loan-pacts-for-rail-infra-projects>

¹¹³ The 1,800km eastern corridor from Ludhiana to Dankuni, is reported to be partially funded by the World Bank. Rs 44,000 cr freight corridor in the works, Construction Week, 14 September 2018,

<https://www.constructionweekonline.in/business/rs-44000-cr-freight-corridor-in-the-works>

¹¹⁴ TN Godavarman Thirumulpad v. Union of India, WP (C) No. 202 of 1995, order dated 26 August 2013.

II) Mumbai-Ahmedabad High Speed Railway Project

Aiming to modernize the existing, old conventional railway lines, to enhance railway traffic capacity and hoping to introduce high speed railway lines in December 2009, “Indian Railway Vision 2020” was formulated. A total of seven routes were targeted as potential sites for the High Speed Railway System of Running Trains at Speeds in excess of 250 kmph. Out of these, the Mumbai-Ahmedabad route was prioritized by the Experts Committee and gained momentum in 2015, when the Prime Minister of India and Japan in a joint statement agreed to introduce the Shinkansen High Speed Railway System on the Mumbai-Ahmedabad route.

Aided by Japanese funding and technology, the Mumbai-Ahmedabad High Speed Railway (MAHSR) Project will cost Rs 1.08 lakh crore.¹¹⁵ As per MOEFCC documents, the project being executed by the National High Speed Rail Corporation Ltd (NHSRCL) would acquire land from 65 villages and a total 131.3018 hectare of forest land will be diverted for this.¹¹⁶ But being one of the most ambitious and gigantic projects, the project is being exempted from environmental clearance and EIA study as well as being awarded Feasibility studies and Detailed Project Report (DPR) quickly. The project has already been awarded wildlife clearance by the NBWL-SC on January 10, 2019 and the approval from the Supreme Court is under process.¹¹⁷ The document also suggests that forest rights settlement needs to be done and a No Objection Certificate (NOC) under the FRA from the District Commissioner is awaited, but no law and procedure can be prioritized in front of a project of such scale and aspiration. As reported, the railway project will also include a 7 km underground corridor under the Thane creek. Of this, a 1.8 km long section will be developed under the sea bed,¹¹⁸ while the remaining part of the stretch is to be built under the mangroves marshland on either side of the creek. The project will not only cause bifurcation of the TWLS and SGNP ecosystems and fragment connectivity but also cause tremendous impact to wildlife, Coastal Regulation Zone (CRZ) area and mangroves. But in the name of economic development of the region, all impacts have been cornered.

III) Virar Alibaug Multimodal Corridor

A Multimodal Corridor (MMC) is a single corridor in which multiple modes, such as, buses, bus rapid transit, metro rail and cars, along with utilities such as water, sewage and gas lines are present along the same Right of Way.¹¹⁹ Proposed for a length of 126 km from Navghar (Virar) to Chirle (JNPT) in the MMRDA region the corridor will connect 7 centers (Virar, Bhiwandi, Dombivali, Panvel, Taloja and Uran) and will consist of a road, a bus rapid transit system and a future metro.¹²⁰ The Multimodal Corridor for which 14.8 hectares of SGNP land will be taken by the agency in-charge Mumbai Metropolitan Regional Development Authority (MMRDA), is also said to pass through the buffer zone of Tungareshwar Sanctuary, Karnala bird sanctuary and Matheran Eco-Sensitive Zone.

¹¹⁵ The Creed of Speed, Construction Week, 2 February 2021, <https://www.constructionweekonline.in/people/16556-the-creed-of-speed>

¹¹⁶ Mumbai-Ahmedabad High Speed Railway Project, Proposal No.: FP/MH/RAIL/31785/2018 – Supporting Documents for Forest Clearance http://forestsclearance.nic.in/DownloadPdfFile.aspx?FileName=0_0_2117124212231Additionalannex.pdf&FilePath=../writereaddata/Addinfo/

¹¹⁷ Minutes of 52nd Meeting of the Standing Committee of National Board for Wildlife Held on 10 January 2019, Letter F.No.6-181/2018 WL, MOEFCC (Wildlife Division), 22 January 2019, <http://forestsclearance.nic.in/DownloadPdfFile.aspx?FileName=211712351223WNHR6Minutesof52ndMeetingoftheStandingCommitteeofNationalBoardforWildlifeheldon10thDecember2018.pdf&FilePath=../writereaddata/FormA/Wildlife/>

¹¹⁸ The geotechnical survey for the undersea section has already been conducted jointly by NHSRCL, RITES and Japan’s Kawasaki Geological Engineering firm.

¹¹⁹ Brief Summary of Project, Development of Multi Modal Corridor from Navghar to Chirner (near JNPT) in the state of Maharashtra (Consultancy services for obtaining MoEF&CC and CRZ Clearances), MMRDA, http://environmentclearance.nic.in/writereaddata/Online/TOR/15_May_2019_092733763CJC7N5S8AnnexureBriefSummaryofproject.pdf

¹²⁰ MMRDA, MSRDC swap two projects, Construction Week, 18 September 2020, <https://www.constructionweekonline.in/projects-tenders/15092-mmrda-msrdc-swap-two-projects>

Project development is planned in two phases with first being an 80 km patch from Navghar (in north MMR near Vasai-Virar) to Balavali (near NH17), while Phase 2 will be a 20 km patch from Balavali Jite to Alibaug with a 1.5 km detour at Balavali Jite bridging connectivity to Goa. A sum of Rs 2,250 crore has been allocated by MMRDA for the Virar-Alibaug multimodal corridor. As reported in a meeting of the State Board for Wildlife in 2018, the project corridor crosses over 5 rivers namely Kamvadi River, Ulhas River, Kasadi River, Lendi River and Gadhe River and an estimated 110.4038 hectare (including Reserve, Protected Forest and Mangrove areas) forest land is to be diverted for the proposed project. Approximately 3,200 families are going to be affected because of land acquisition and resettlement.¹²¹

The State Board for Wildlife in its meeting in February 2018¹²² while discussing the Virar-Alibaug MMC project proposal had deferred its decision for the next meeting citing the seriousness of the project and environmental concerns. On March 24, 2019,¹²³ seeking to acquire wildlife clearance in regard to the Virar-Alibaug Multimodal Corridor road alignment project, the MMRDA submitted a proposal for acquiring 424.68 hectare of forest cover that includes patches from the Tungareshwar Wildlife Sanctuary, ESZ of Sanjay Gandhi National Park, deemed ESZ of Tungareshwar Wildlife sanctuary, and the Thane creek flamingo sanctuary. MMRDA also submitted a study conducted by an appointed agency that itself reported movement of wildlife on the proposed road including leopards, Rusty Spotted Cat, Sambar, birds like the Brown Fish Owl, Mottled Wood Owl and butterflies and moths like the Blue Mormon (the largest butterfly), and the Atlas Moth, one of the largest moths. However, MMRDA also legitimized the need for the project, stating to Mid-day "...that project will help in solving the commuting woes between Virar and Alibaug and will also cut down the travel time reducing air pollution."

In February 2019, the NITI Aayog along with the screening committee formed under the Department of Economic Affairs (DEA)¹²⁴ did the first scrutiny of the project in their meeting and demanded from the State government details on how they planned the protection of a 14 hectare forest patch inside SGNP that was to be impacted because of the proposed MMC project.

In July 2019,¹²⁵ the DEA recommended that for securing movement of wildlife between the forests, "multiple crossing points for wildlife be constructed". Post reviewing the project DPR, the DEA mandated the construction of a wildlife corridor and conditioned clearance to the project only upon the fulfillment of the conditions. The DEA including their objections and the views of the Ministry of Road, Transport & Highways (MORTH), the Ministry of Railways and the Ministry of Housing and Urban Affairs had forwarded the report to the State government.

On July 4, 2020, in a meeting of the Board of Directors of the Maharashtra State Road Development Corporation (MSRDC) on the responsibilities of the development, coordination and implementation of the MMC, the project authority was transferred from MMRDA to MSRDC.¹²⁶

¹²¹ Brief Summary of Project, Development of Multi Modal Corridor from Navghar to Chirner (near JNPT) in the state of Maharashtra (Consultancy services for obtaining MoEF&CC and CRZ Clearances), MMRDA, http://environmentclearance.nic.in/writereaddata/Online/TOR/15_May_2019_092733763JC7N5S8AnnexureBriefSummaryofproject.pdf

¹²² Sonali Telang, Wildlife Board defers decision on new Virar-Alibaug route, The Asian Age, 1 February 2018, <https://www.asianage.com/metros/mumbai/010218/wildlife-board-defers-decision-on-new-virar-alibaug-route.html>

¹²³ Mumbai: Construction of Virar-Alibaug Multimodal Corridor to eat up forest cover of 424 hectares, The Free Press Journal, 26 June 2019, <https://www.freepressjournal.in/mumbai/mumbai-construction-of-virar-alibaug-multimodal-corridor-to-eat-up-forest-cover-of-424-hectares>

¹²⁴ The DEA works under the Ministry of Finance.

¹²⁵ Sharad Vyas, 22,300 cr. multimodal corridor runs into environmental hurdle, The Hindu, 19 July 2019, <https://www.thehindu.com/news/cities/mumbai/22300-cr-multimodal-corridor-runs-into-environmental-hurdle/article28566695.ece>

¹²⁶ Extract of the Resolution passed by the Board of Directors of MSRDC in their 177th Meeting held on 4 July 2020, MSRDC, http://forestclearance.nic.in/DownloadPdfFile.aspx?FileName=0_0_111122612111scan231-12-2020.pdf&FilePath=../writereaddata/Addinfo/

The submitted proposal documents show a lot of information discrepancies. For example, a 2020 letter from the MMRDA says that the online application for forest clearance was submitted to the Forest Department in 2018 and the FRA process is underway. It also states that the DPR for the new alignment of the MMC has been submitted,¹²⁷ but it is unavailable on the site. The proposal (FP/MH/ROAD/118138/2020) is stated to be in draft stage. Recently in 2021, the Maharashtra Coastal Zone Management Authority (MCZMA) recommended to the MOEFCC for CRZ clearance an 18-km stretch of the MMC, from Chirner village in Uran to Balavali on National Highway (NH)-17. The MOEFCC's Expert Appraisal Committee (EAC) has not yet approved the project. The State government has already exempted the project from environmental clearance but the MCZMA while providing approval, mandated conditions of obtaining forest clearance under the FCA, 1980, doing compensatory afforestation in consultation with the Mangrove Cell and to seek the Bombay High Court's permission in the matter.¹²⁸ But as per the official data, the process of clearance remains incomplete and unknown.¹²⁹

In all these road and highway projects, the State apparatus has constantly argued in favor by citing it as a public need, emphasizing how these will help in decongestion of traffic and reduce travel time. These arguments are prioritized over any environmental concerns and ecological needs.

Turning the Law in the Name of Tunnels

SGNP is being bombarded with development projects not only on the ground but also from underneath. Mumbai is seeing the construction of two aspirational tunnel projects, the very first of their kind wherein tunnels have been proposed to pass underneath a protected area. These projects include:

D) Borivali - Thane Twin Tunnel Project

Executed by the MMRDA and costing Rs 3,000 crore, the project consists of construction of Twin tube, 3 Lanes (each side) highway tunnel of about 10.8 km, passing below the SGNP, connecting the Western Express Highway (WEH) near Borivali and Ghodbunder road (of Thane) near Tikujiniwadi. The entire stretch of this 10 km long tunnel will pass underground and only the portals at both the ends will be built above ground.¹³⁰

The application to seek terms of reference (ToR) and environmental clearance (EC) was submitted by the then executing agency¹³¹ MSRDC on November 02, 2017.¹³²

¹²⁷ Handover letter dated 19 August 2020 from the MMRDA to the MSRDC, <http://forestsclearance.nic.in/DownloadPdfFile.aspx?FileName=12113112271216RWR8Qscan131-12-2020.pdf&FilePath=../writereaddata/FormA/UserAgencydoc/>

¹²⁸ Maharashtra sends JNPT-Balavali multi-modal corridor project for CRZ clearance, Hindustan Times, 19 June 2021, <https://www.hindustantimes.com/cities/mumbai-news/maharashtra-sends-jnpt-balavali-multi-modal-corridor-project-for-crz-clearance-101624125509877.html>

¹²⁹ Form A Part 1 filed by MSRDC under the Forest Conservation Act, 1980 seeking forest clearance for the Proposed Multi-modal Corridor Phase I: Section II from Chirner (JNPT) to Balavali (NH17) for length 18.00 km, <http://forestsclearance.nic.in/viewreport.aspx?pid=FP/MH/ROAD/118138/2020>

¹³⁰ Appendix I Form 1 filed by MSRDC under the EIA Notification 2006 seeking environmental clearance for the Construction of twin tube road tunnel connecting Borivali in Mumbai and Tiku-ji-niwadi in Thane, Maharashtra http://environmentclearance.nic.in/auth/Form_A_PDF.aspx?cat_id=IA/MH/MIS/70715/2017

¹³¹ In September 2018, MSRDC swapped the tunnel project with MMRDA and instead took over the construction of the Virar-Alibaug multimodal corridor.

¹³² See letter of authorization regarding environmental clearance application, Construction of Twin Tube, 3 Lanes each Highway Tunnel between Tikujiniwadi in Thane City and Borivali in Mumbai for connecting Thane-Ghodbunder Road to Western Express Highway in the State of Maharashtra, MSRDC, 2 November 2017, <http://environmentclearance.nic.in/DownloadPdfFile.aspx?FileName=xk/iK2Bn9DdAJ59IOLAGMV/TDNbXeQPQsie05bndOCSM9T7kcWCZenfEVi17N02ILqejnco1R+vjdLeTo4gFnierspOpv65vI3tnWJbKJJC1IuZ/sgezqWzkPx/TiJwBmuqqBCyUsJnZZQIPRhHBg==&FilePath=93ZZBm8LWEXfg+HA1Qix2fe2t8z/pgnoBhDIYdZCzXmG8GlihX6H9UP1HygCn3pCkAF2zPFXFQNqA4krKa1Aw==>

The proposal¹³³ justified applicability of EC saying, “The applicability of environmental clearance is justified as the project alignment is passing through SGNP and traverses 153m away from Tungreshwar Wildlife Sanctuary and 900m away from the boundary of Karnala bird sanctuary and also falls within the protected radius of Matheran eco-sensitive zone.” It was the MOEFCC that declined the justification and never granted the ToR saying that the proposed project is not a national highway / expressway or state highway and thus non-admissible under the EIA Notification, 2006.



Map 1: Google earth Mapping of Thane-Borivali Tunnel
Source: <https://www.skyscrapercity.com/threads/thane-borivali-link-road.2211624/>

ii) Goregaon - Mulund Tunnel Link Road

Executed by MMRDA and costing Rs.2,000 crore, the Goregaon - Mulund Tunnel Link Road (GMLR) is the other project and consists of a twin Tunnel road designed for 3+3 lanes, passing below SGNP which will start at Goregaon Film City and end at Mulund near Amar Nagar. It consists of a 5.96 km approach road including a length of 4.7 km tunnel that will occupy about 21.5 ha of subterranean area under the national park.¹³⁴

¹³³ MSRDC/02/JMD(Engg.1)/Tikujiniwadi Tunnel/File No. 1/3933 - Dated 17.05.2018 - Letter to Expert Advisory Committee – Infra & CRZ, MOEFCC - <http://environmentclearance.nic.in/DownloadPfdFile.aspx?FileName=/U7uL15yfO8g4jepJT+QT0Kfo3f6/ywLGgfvQeKN6BVrxpkYiypZoWnaVOooRrL9EWm2jPN9h/X9rFc4AkntrKQfb/gMU9EyXpWlZ3luxNk32a+sMpudi6W8111BD/t50e9DrfASn5A8SMTp20SNwNV9MG++3xt0mBTEyA9HKvo=&FilePath=93ZZBm8LWEXfg+HAIQix2fe2t8z/pgnoBhDIYdZCzXmG8GlihX6H9UP1HygCn3pv1ma6ukaaKwTEwue+Z8DhY0JVUyjJHD+10nj4NsGFZc=>

¹³⁴ Project Note, Proposed Construction of 3+3 lane twin tunnel below Sanjay Gandhi National Park from Goregaon film city to Khindipada, Mulund for Goregaon-Mulund Link Road, Civic Training Institute & Research Centre/Municipal Corporation of Greater Mumbai, <http://environmentclearance.nic.in/DownloadPfdFile.aspx?FileName=2khNaLuDEpLqCR9EYfy7VGXgpyWrTea/KkBW/lkck/fvdfptzrmi+Z1TfcYsBzwN0LjM0HFg7la1bz991pYJL+zi7dZFcswS0JZkdToF60xqjWOkO9kK2VT8LoYZ2ioJ&FilePath=93ZZBm8LWEXfg+HAIQix2fe2t8z/pgnoBhDIYdZCzXmG8GlihX6H9UP1HygCn3pCkAF2zPFXFQnQ44krKa1Aw==>

In this case, the application seeking EC approval was first submitted to the MOEFCC on June 29, 2017 by the BMC. Following up, in September 2017, complying with conditions charted by the EAC, BMC had even submitted additional required details. ToR was also granted in January 2018. But surprisingly, the MOEFCC in its 187th meeting on April 12, 2018 delisted the project and exempted it from both EC and EIA. The EAC commented in the meeting that the ministry was not provided adequate details by the proponent and thus ToR was earlier granted but that the said project being a road and not a highway does not require any EC.

The project proponents continue to project both these tunnel projects as a public necessity citing their role in decongesting traffic on existing roads, providing connectivity and ease in commute but environmentalists have opposed these claims and tried to raise severe issues of fragmentation of forests and SGNP landscape. The environmental concerns however have been cornered and the laws enacted to monitor the protection of ecosystems and protected forests are being bent, evident in the exemption provided to these projects by the MOEFCC and the delisting¹³⁵ of projects in regard to the applicability and significance of environmental and wildlife clearances. The projects are ready for construction to begin and the then Guardian Minister for the Mumbai Suburban District gave a green flag to GMLR through a foundation-laying ceremony in April 2022.¹³⁶

Elevated Flyover

SGNP will also see the construction of a 4.5 km elevated flyover road that will run from Fountain Hotel at Thane East to Gaimukh. The proposal intended to decongest Ghodbunder road is planned to be built upon the existing 4 lanes and raise another elevated road with four-lanes making it a total of an eight-lane stretch. In pursuit of this proposal, 3.75 metres of space will be required on either side of the elevated road to erect the pillars and a total of 8.75 hectares of SGNP land will be taken for this. It is critical to note that Mangrove forests present on either side of the existing road will be felled for this project. The project will cost Rs. 667 crore and has already received approval from the State government in 2018. The MSRDC is awaiting to acquire wildlife clearance from the Wildlife Board and the application is yet to be submitted to NBWL-SC. Meanwhile, on the condition that the Project Agency will implement all the 26 mitigation measures suggested by Conservator of Forest (CF) SGNP and Additional Principal Chief Conservator of Forests (APCCF) Wild Life Borivali, the project has been recommended for approval by the Divisional Forest Officer and CF, APCCF of Wildlife Borivali circle for forest clearance.¹³⁷ Suggesting 26 mitigation measures such as large box culverts, animal underpass and compensatory afforestation to clear the way for an elevated corridor, the Wildlife Board Maharashtra on October 12, 2021, set up a three-member committee to study the project, carry out site inspections and examine mitigation measures for the 4.5-km proposed elevated stretch. The committee consisted of representatives from the Wildlife Institute of India (WII) and the Wildlife Conservation Trust (WCT) and the APCCF Mangrove Cell. Interestingly, the forest department also invoked penal afforestation under the Forest Conservation Act after it came to their notice that three decades ago, Ghodbunder Road had been widened using land from SGNP without permission. In this regard, the department has sought a penalty of 1% of the project cost from the MSRDC.

¹³⁵ Prayag Arora-Desai, Tunnel projects near Mumbai's SGNP made U-turn on green nod?, Hindustan Times, 23 August 2021, <https://www.hindustantimes.com/cities/mumbai-news/tunnel-projects-near-mumbai-s-sgnp-made-u-turn-on-green-nod-101629658279201.html>

¹³⁶ Goregaon-Mulund Link Road: Twin Tunnel Work Will Start From February 2023, Mumbai Live, April 2022, <https://www.mumbailive.com/en/infrastructure/twin-tunnel-work-for-goregaon-mulund-link-road-will-start-from-february-2023-72741>

¹³⁷ Mumbai: Sanjay Gandhi National Park to lose land for new flyover, The Free Press Journal, 30 May 2019, <https://www.freepressjournal.in/cmcm/mumbai-sanjay-gandhi-national-park-to-lose-land-for-new-flyover>

The study itself shows that major leopard deaths have been reported from this road which is the link between the southern block of SGNP with its Nagla Block on the northern side that is further connected with TWLS. In this light, the committee's suggestions on regulating traffic through speed restrictions and constructing underpasses requires critical analysis as to how effective mitigation is when the reasons that endanger wildlife are allowed to continue. We also need to reflect upon the role of national level institutes that, though intended as conservationist and environmental forums, have now been pressured into the job of studying projects to facilitate approvals and clearances. In case of development projects that may result in ecological concerns or need large and critically valued forest, the State often contracts institutes like WII, WCT or pushes for committees that can cater to the State agendas of development and provide a management of the concerns for wildlife and forests in form of mitigations. The State's developmental control over research and environmental institutions has become alarmingly evident with the MOEFCC's letter to WII dated April 18, 2022¹³⁸, wherein the wildlife division of MoEFCC has ordered the autonomously operating institute to acquire approvals of the government before publishing its research and findings.¹³⁹

The concerned people of Mumbai and activists continue to oppose these tunnels and other developmental interventions through legal and other channels but the State's push for the development continues to ignore any pleas or protests. The lack of any study on the cumulative effect of all these proposed projects on the park is maintained intentionally and the blame for any forest destruction, wildlife threat is thus shifted and usually pointed towards the people and masked in the narrative of encroachers.

Development: An Ongoing List of Expansions

Though at the moment these big aspirational projects are the major threats and concerns for SGNP, there are a number of other projects¹⁴⁰ that continue to be proposed in and around SGNP. It is also important to understand that SGNP, the lakes of the region, the Thane creek and Aarey forest are some of the last remaining ecological spaces that are thriving in the urbanizing industrializing geography of Mumbai. These gigantic developments have threatened the survival and future of these ecosystems. As the developmental projects are interlinked and need a cumulative analysis, so are these ecosystems which are connected and supporting each other. The loss of one will not only pave way for others but also adversely add to it. The Inland Water Transport project from Vasai to Kalyan is another project coming up in the close vicinity of both SGNP and TWLS with many port terminals of the project falling within a 5 km distance from these PAs.¹⁴¹

Another very important proposed project that has raised controversy and environmental violations is the 39-km cycle track from Mulund to Wadala along the Tansa water pipeline. Amrita Bhattejii, an environmental activist had filed a PIL in the Bombay High Court opposing the cycle track as it is close to Vihar Lake, a major source of drinking water for the city, and will adversely affect it. The petition also details the ongoing construction work of cutting of the hills in the catchment area which is also part of the

¹³⁸ Publication of documents by Wildlife Institute of India- approvals-reg, Excerpt of letter from MOEFCC (Wildlife Division) to WII, 8 April 2022, shared on Twitter by Land Conflict Watch, <https://mobile.twitter.com/LandConflicts/status/1536189128508747776>

¹³⁹ Shahzada Iqbal, MoEFCC's direction to Wildlife Institute of India not to make its research results public without clearance may well mar its autonomy, The Leaflet, 20 June 2022, <https://theleaflet.in/moefccs-direction-to-wildlife-institute-of-india-not-to-make-its-research-results-public-without-clearance-may-well-mar-its-autonomy/>

¹⁴⁰ The Thane-Borivali ropeway proposed by MMRDA, which will provide tourists a 25-minute ride along 8 km over SGNP, is one such project. Gajanan Khergamker, Maharashtra govt's apathy derails Matheran's clean and green prospects, Down to Earth, 11 December 2018,

<https://www.downtoearth.org.in/news/governance/maharashtra-govt-s-apaty-derails-matheran-s-clean-and-green-prospects-62454>

¹⁴¹ Detailed Project Report, Inland Water Transport In Vasai Creek – Ulhas River NW-53 Vasai To Kalyan, submitted to Thane Municipal Corporation, May 2018,

<http://iwai.nic.in/sites/default/files/102378988DPR%20IWT%20Vasai%20Creek%20Final%20NW%2053.pdf>

SGNP area and how the resultant silt deposit would cause flooding in downstream areas. The project has been promoted even when it violates the Maharashtra (Urban Areas) Protection and Preservation of Trees Act, 1975, the Environment Protection Act, 1986, the Forest (Conservation) Act, 1980, the Wildlife Protection Act, 1972, and the Wetlands (Conservation and Management) Rules, 2017. Named Green Wheels along Blue Lines, this is a Rs 350 crore project and was first mentioned by the BMC in its Environment Status Report (2017-2018). The project work was directly started without a DPR being shared in the public domain, and without any EIA, or environmental or forest clearance or wildlife clearance being granted. The project is also being carried out in violation of the BMC's own Development Control and Promotion Regulations, which classifies the areas as a 'no development zone'. Amrita, in a conversation emphasized, "The project has been put on a legal stay at the moment by the HC. But it requires the common citizen's attention in whose name the cycle track is promoted and how aesthetic tracks are being promoted at the cost of cutting trees."¹⁴²

Metro Car Shed -3

The most controversial is the Metro Car shed-3 project by the Mumbai Metro Rail Corporation Limited who planned to construct the car shed for its SEEPZ-Colaba Metro 3 project in 33 ha in Aarey. The proposed area for Metro Car shed 3 in Aarey is also a wildlife corridor that connects to SGNP and is critical in facilitating the movement of wildlife on a larger ecological landscape, but with the project, the corridor and link between SGNP and Aarey will be severely impacted. In early 2019, the then ruling government had insisted that the project should continue. However, in November 2019 with change of government, a stay was ordered on the car shed construction in Aarey while the Supreme Court stayed the felling of trees.¹⁴³ Another site of 102 ha was proposed in Kanjurmarg but a litigation filed against the Kanjur site by an opposition party leader stalled the entire Metro 3 project for the next 2.5 years.¹⁴⁴ The project that threatens the ecology and people of Aarey was canceled after mass opposition from Mumbai residents, environmentalists and organizations. This marked a collective struggle to "Save Aarey", but with the political shift and change of government in June 2022, the Metro Car shed 3 threat looms again. The project is also funded by JICA and is again witnessing massive protests as it threatens the ecology and wildlife of Aarey-SGNP. The Supreme Court has again been approached to stop the project from proceeding in Aarey.¹⁴⁵ Aarey activist Amrita emphasizes, "If the Metro Car Shed 3 project is allowed even when it stands in violation of SC order and law, it will result in a flood of development projects to invade the ecology of Aarey in coming future without any fear of law and compliance and without concern for conservation."

Wildlife Corridor: Fancying Infrastructure for Mitigation

How can such large-scale construction be legitimized in the context of the major dislocation for wildlife that these projects will result in? What form of mitigation language will legitimize the violation and bending of laws that allow the fragmentation of the SGNP landscape?

Three of the above elaborate projects, the MHSR corridor, Multimodal Corridor and the Delhi Freight Corridor, will be running parallel and passing through the same area in SGNP. The executing agencies have already individually suggested that each project will affect the wildlife movement in the area and

¹⁴² Clara Lewis, Maharashtra: Forest officer files report against Vihar gabion walls, The Times of India, 4 May 2022, http://timesofindia.indiatimes.com/articleshow/91297703.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

¹⁴³ No stay on construction of Aarey metro shed: Supreme Court, The Indian Express, 22 October 2019, <https://indianexpress.com/article/india/no-stay-on-construction-of-aarey-metro-shed-supreme-court-6081047/>

¹⁴⁴ Maharashtra Government Paves Way For Metro Car At Mumbai's Aarey Colony, NDTV, 21 July 2022, <https://www.ndtv.com/india-news/maharashtra-government-paves-way-for-metro-car-at-mumbais-aarey-colony-3181560>

¹⁴⁵ SC to hear plea against construction of metro car shed in Aarey forest area, Business Standard, 28 July 2022, https://www.business-standard.com/article/current-affairs/sc-to-hear-plea-against-construction-of-metro-car-shed-in-aarey-forest-area-122072800804_1.html

the cumulative presence of these projects in one specific stretch will thus result in choking of wildlife movement. This is why an animal corridor has been proposed. The said corridor is designed to have an underpass and an overpass for building a smooth passage for movement of wildlife. The overpass is conceptualized to have a width of 30 meters and will be passing over the existing Diva – Vasai Rail Line, the proposed DFCCIL line and a Public Works Department road, while the corridor will pass underneath the MAHSR line and MMC viaduct. DFCCIL will be the executing authority for this wildlife corridor. The wildlife corridor is being suggested to be designed and built similar to the Singapore Animal Overpass.¹⁴⁶ As per their official details¹⁴⁷,

“The design of the corridor will resonate with the natural vegetation of the surrounding areas and elements like rocks, logs and water bodies will be added to make the animals feel at home.”

However, seeing the official design of the passage, the first impressions one gets is of an aspirational infrastructure that makes the wildlife look like an un-wild, monitored and controlled object.

As per DFCCIL, the entry and exits of the wildlife overpass will be completely within the boundaries of SGNP and TWLS and will have net connected CCTV surveillance provisions for its entire section that can be monitored through control rooms built in both SGNP and TWLS. The design will consist of adequate funneling and guided fencing of at least 3 m height with an additional top portion (0.5 m) bent inwards to ensure animals do not jump over it. Besides limits on lighting, high-quality noise barriers will be erected to keep sound levels within safe ambient limits for animals.

The Principal Chief Conservator of Forests, Maharashtra State granted approval for the wildlife corridor via letter dated 03/02/2021. DFCCI, the implementing agency, had initially suggested the overpass to be 30 meters long and 8 meters wide but later while reviewing the proposal, the wildlife authorities asked to increase the dimensions to their standards of 110-metre-long and 30-metres-wide. The DFCCI has submitted the drawing for approval to the Commissioner of Railway Safety. It was earlier reported that the execution of this corridor would begin in November 2021 and be completed around June 2022.¹⁴⁸

Developmental Politics of ESZ

While on one side, concerns for conservation are being mitigated by the state through the wildlife corridor, on the other side, the dilution of boundaries suggests that concerns are being governed by developmental requirements. The ministry in case of the Mumbai section of SGNP had proposed a buffer/ESZ zone ranging between 100 m to 4 km from the park’s boundaries. The proposal was to create a natural buffer area of 59.46 sq km (60% of the size of the 104 sq km park). In January 2016, after a case was filed by the NGO Vanshakti before the National Green Tribunal,¹⁴⁹ a final notification was issued on December 05, 2016 demarcating an eco-sensitive Zone area of 59.46 sq km¹⁵⁰ with a minimum extent of 100 m and maximum extent of up to 4 km from the Park boundary. The ban on construction in the 1-km radius, proposed in an earlier draft notification, was removed, and it opened up the ESZ for construction activities to be done¹⁵¹ according to the Bombay Municipal Bye-laws and Approved Development Plans and applicable laws and regulations under the Maharashtra Regional and Town Planning Act and the ESZ Notification.

¹⁴⁶ SGNP To Lose 14.8 Acres Of Land To MMRDA’s Multimodal Corridor Project, Mumbai Live,

<https://www.mumbailive.com/en/environment/sgnp-to-lose-148-acres-of-land-to-mmrdas-multimodal-corridor-project-18491>

¹⁴⁷ Animal Passage for Mumbai Ahmedabad High Speed Rail Corridor Project, National High Speed Rail Corporation Limited,

<https://www.nhsrcl.in/en/project/environment/Animal-Wildlife-Corridor-for-MAHSR>

¹⁴⁸ Vallabh Ozarkar, Work on animal passage corridor over SNGP and TWS to start in November, The Indian Express, 27 September 2021, <https://indianexpress.com/article/cities/mumbai/work-on-animal-passage-corridor-over-sngp-and-tws-to-start-in-november-7536240/>

¹⁴⁹ Landscape Conversation, Vanashakti, https://www.vanashakti.in/project_detail.php?id=44

¹⁵⁰ Out of total 59.4619.25 sq km is forestland and 40.21 sq km is non-forestland.

¹⁵¹ ESZ areas can carry restrictions on developmental activities such mining, industrial activities, and unregulated development while permitting agriculture, small-scale industries and minor infrastructure construction.

The notification also exempted 165 hectares of ESZ for construction of Metro Car Shed and Slum Rehabilitation Authority projects.¹⁵² Adding to this, in case of Tungareshwar, due to pressure from politicians and people with interest in mining in the area, the ESZ area of 280 sq km proposed in 2012 was reduced to less than a fourth of the original in the final notification.

Tourism: SGNP as a Brand

SGNP and Aarey Forest areas have together been articulated as the last green patch of Mumbai, an oasis in a concrete jungle; comparisons are drawn between SGNP and Masai Mara¹⁵³ and SGNP is branded into a space of significant recreational, archeological, environmental and educational value. These popular narratives also take support from the leopards in weaving a story of pride and



Fig. 3. Toy Train Track at Sanjay Gandhi National Park (September, 2020)

Photo Credits: Niteen

(Source: <https://pixahive.com/photo/toy-train-track-at-sanjay-gandhi-national-park-mumbai-india/>)

might of SGNP. The leopard is thus transformed from an animal of the wilderness to one of amusement, consumption and mystery. SGNP is branded into an invitation to witness the pristine and pure, like a savory. It is served in the plate of tourism to all those who can afford a class, caste and privilege of not being a tribal or a migrant or a slum dweller.

SGNP is cited as one of the best and must visit places in Mumbai with a range of activities to do from cycling to boating to treks and trails. In 2016, the park drew over 13.5 lakh visitors and generated Rs 9.63 crore in revenue through admissions fees and programming, up from 8.84 lakh visitors and Rs 6.42 crore in 2015. SGNP is one of the most visited PAs in the country.¹⁵⁴

The large-scale construction and expansion of roads and corridors aids these tourism aspirations by expanding the possibility of appeasing the eyes of people through offering a window view to wilderness, a route through green and peace. Tourism and development thus go hand in hand.

Who Has Stakes and Who Holds the Claim: Looking at SGNP as a Space

Covering 1/6th of the one of the world's largest megacities, SGNP and Aarey as an extended ecosystem is situated in a metropolitan region where a population of 20 million people breathe around it. Mumbai, as reported in 2019 was the most densely populated city with a population density of 76,790 per square mile.¹⁵⁵ Being the center of urbanization, industrial capital, development explosion, the city is plagued by a lack of space and is constantly in need and desire of more. With these expanding major urban infrastructure projects, political authorities are aspiring to turn Mumbai into the "Shanghai of India". All this is putting immense pressure on the natural landscapes of the city be it the sea, the Thane creeks, the Aarey Forest or the landscape of SGNP. In this context, SGNP and Aarey over the years have emerged as a battleground of contesting claims, rights and stakes. The developmental stakes are glued with power, political support and money.

¹⁵² Press Release on Notification of Eco-Sensitive Zone Around Sanjay Gandhi National Park, Mumbai, MOEFCC, 6 December 2016, <https://moef.gov.in/wp-content/uploads/2018/08/PRESS1-NOTE-ON-SGNP06-12-2016abhishek-.pdf>

¹⁵³ Masai Mara is a national park in Kenya and is an international forest tourism destination. For more details, please refer: <https://indianexpress.com/article/cities/mumbai/sanjay-gandhi-national-park-revamp-on-the-lines-of-masai-mara-reserve-ill-conceived-say-environmentalists/>

¹⁵⁴ M.S. Pradhan, Common Vertebrate Species of Sanjay Gandhi National Park, Borivali, Mumbai, (Zoological Survey of India, 2002).

¹⁵⁵ Elzy Kolb, 75,000 people per square mile? These are the most densely populated cities in the world, USA Today, 11 July 2019, <https://www.usatoday.com/story/news/world/2019/07/11/the-50-most-densely-populated-cities-in-the-world/39664259/>

These projects as elaborated in the above section already pose dangers to the habitants of landscape: the biodiversity of the area and the people. SGNP and Aarey together are home to 47 leopards, many endemic species, Schedule I species under the Wildlife (Protection) Act, large moths, and not least the Adivasis. This section looks at the various other claims and concerns that surround SGNP and the politics at play.

Leopards and Others

“Leopards in a city” is a phrase of pride for Mumbai citizens, for conservationists and for the Maharashtra State apparatus. The Wildlife Conservation Society-India (WCS) in collaboration with SGNP had conducted a census¹⁵⁶ in 2021 and counted a total of 47 leopards. The numbers were 41 in 2017, and 35 in 2015 thus showing a rise in population.¹⁵⁷ As per a study published in March 2022, SGNP has the highest documented leopard density in the world which is 26/100 sq km. As per a 2016 paper, 83% of leopards in India live outside Protected Areas. This study thus is critical as it argues about the possibility of coexistence of leopards in human dominated areas thus countering the whole conservationist model of inviolateness.¹⁵⁸ It also traces their presence in SGNP and its extended Aarey corridor to the high stray dog population as a readily available food on the park fringes where humans live.¹⁵⁹

The question however is not about co-existence of humans and leopards but the co-existence of leopards alongside an exploding development, urbanization and industrialization. The wide range and scale of developmental and infrastructure projects across and in SGNP are fragmenting the forests and fracturing the connected corridors of SGNP, Aarey and TWLS. The leopards have been constantly in movement along these three green landscapes but the space available to move freely and flexibly continues to shrink and be threatened by rising infrastructure. These concerns also resonate in the mentioned report which suggests the need for more research on the subject. Anwar Ahmed, SGNP director and chief conservator of forest commented in an interview:

“Despite just a 90-meter gap between SGNP and TWLS, leopards are unable to cross. We are developing a mitigation plan for the corridor. Each leopard should have at least 6 sq km area as its natural habitat. With several infrastructure projects such as the bullet train, multi-modal corridor and Panvel-Virar railway line, intersecting with sections of SGNP, the habitat is likely to get squeezed further.”¹⁶⁰

Furthermore, since 2016, 10 leopard deaths directly linked to road accidents have been reported. Data from SGNP, the NGO Wildlife Protection Society of India and Mumbaikars for SGNP revealed that from 2008 to 2018, 19 leopards were killed around SGNP, most of them on the Western Express Highway (WEH) and TWLS.

¹⁵⁶ The study, titled Monitoring Density & Movement of leopards in and around the Sanjay Gandhi National Park 2018, was carried out by a team comprising SGNP Director Anwar Ahmed and Nikit Surve from the Wildlife Conservation Society-India (WCS-India).

¹⁵⁷ Rajat Ghai, In 2018, Mumbai’s Sanjay Gandhi National Park had 47 leopards, 8 cubs: study, Down to Earth, 6 February 2019, <https://www.downtoearth.org.in/news/wildlife-biodiversity/in-2018-mumbai-s-sanjay-gandhi-national-park-had-47-leopards-8-cubs-study-63737>. But this report does not elaborate upon why the 21 leopards recorded in the last camera trap study in 2015 were missing this time.

¹⁵⁸ Tracking Urban Leopards, Waghoba Publications, YouTube, 4 May 2022, <https://www.youtube.com/watch?v=HeVpjiili3g&t=3s>

¹⁵⁹ Nikit Sanjay Surve et al, Leopards in the City: The Tale of Sanjay Gandhi National Park and Tungareshwar Wildlife Sanctuary, Two Protected Areas in and Adjacent to Mumbai, India, 3 Frontiers in Conservation Science 2022, 787031, <https://www.frontiersin.org/articles/10.3389/fcosc.2022.787031/full>

¹⁶⁰ Badri Chatterjee, Leopard numbers in SGNP increase, but infra projects shrink their habitat, Hindustan Times, 28 March 2019, <https://www.hindustantimes.com/mumbai-news/leopard-numbers-in-sgnp-increase-but-infra-projects-shrink-their-habitat/story-xJy3pFuetAt8t14KHoj10J.html>

There have already been reported accidents and deaths of leopards from the NH-8 (Mumbai-Ahmedabad highway); Mauje-Chena (West); Mumbai-Thane Ghodbunder highway; Bhandup-NITIE Road, adjacent to IIT Road; on the Thane-Ghodbunder Road, near Ghodbunder village; Vasai and TWLS, which is forested on either side, and even on arterial roads of Film City and Aarey Colony, Goregaon. Monkeys, wild boars, civet cats, mongoose, snakes and deer have also faced accidents as reported by forest officers.¹⁶¹

Human leopard-conflict is another narrative that dominates the media. In 2021, from September to November, 9 leopard attacks were reported;¹⁶² whereas in 2017 seven leopard attacks and one death were reported, which was disturbing for the residents as there had not been such a scale of attacks in 15 years, since 2002, when around 25 leopard attacks were being reported in a year. It is noteworthy that the tribal leaders have asserted that the rise of projects is eating into the forest and threatening leopard habitat, pushing them to the periphery. As tribal leader Prakash Bhoir from Kelti Pada mentioned, “We have been living alongside these animals for decades, we consider them as gods.”¹⁶³ It is critical to note that the state views the human leopard conflict through a lens of capture and relocate or “animal gone frenzy” and compensation, different from the tribal people who in spite of being the victims of attack continue to hold the leopard as a co-habitant and critically evaluate the threats that are common to both people and leopard - “the state’s frenzy of development”.

It is also important remember that while leopards may be the apple of conservationists’ eyes, they are not the only species to call SGNP-Aarey home. Though a key species in the ecosystem, their survival is linked to other species. The spotlight on leopards often disguises the fact that these developmental projects are more alarming and threatening to other flora and faunal species and their survival.

Contesting Claims, Graded Rights

A close study of the politics of development around SGNP reveals the hierarchies embedded in the relations of humans with SGNP and their claims. These relations of power show how rights are unequally distributed amongst the habitants of the city. As already seen, the State and bureaucracy in nexus with development agencies holds the biggest power and thus the violation of rule of law is not paid heed to in their case. Instead, the law is willfully bent and twisted to assist them in their developmental agendas. The other big stakeholders who exercise considerable power are “conservationists”, “environmentalists” and “citizens of Mumbai”, who often work alongside but also include a variety of differing relations with SGNP and bring different perspectives sometimes. While conservationists and environmentalists claim environmental protection and wildlife conservation as their key principles, often these organizations and institutes work alongside to aid bureaucracy in studying these projects, providing mitigation measures, all to sanction proposals. Even when they intervene against a project, the recognition of other essential claim holders remains dismissed by them. The big stakeholders enjoy the status of class, capital, access to media, legal services and thus often shape the dominant narratives of SGNP, whether when they counter each other's claims or when they support it.

¹⁶¹ Badri Chatterjee, 2 leopards killed every year on roads along Mumbai’s national park in past decade, Hindustan Times, 14 March 2018, <https://www.hindustantimes.com/mumbai-news/2-leopards-killed-every-year-on-roads-along-mumbai-s-national-park-in-past-decade/story-o7UvrEeyClvgutFw77zkjM.html>

¹⁶² Sanjana Bhalerao, Leopards attacks in Aarey Milk Colony have reignited debate on human-animal conflict, The Indian Express, 1 November 2021, <https://indianexpress.com/article/cities/mumbai/living-with-leopards-9-attacks-in-aarey-milk-colony-in-the-last-two-months-have-left-residents-fearful-and-reignited-a-debate-on-human-animal-conflict-7601117/>

¹⁶³ Badri Chatterjee, Sudden rise in leopard attacks in Mumbai’s Aarey Colony in 2017: What’s the reason?, Hindustan Times, 23 October 2017, <https://www.hindustantimes.com/mumbai-news/how-some-mumbai-hamlets-live-dangerously-close-to-leopards/story-Q2C4REMAF4fk4MXq93YrAI.html>.

Moving away from them and looking around and inside SGNP, one can easily locate the other claim holders, the ones most marginalized in this story of developmental conservation. The most marginalized are the people whose identity has been boxed as slum dwellers- the outsiders. Marginalized by socio-economic identities, coerced to migrate and work as laborers in the city of dreams: these people, in lack of space and housing, pushed by poverty and pushed by the city have settlements around SGNP and Aarey. The migrants have been constantly targeted as the encroachers on the land, the enemies of forest and wildlife and hammered with evictions. Ironically, the evictions hardly come along with any resettlement, rehabilitation or housing facilities. D Parthasarathy in his paper, “Hunters, Gatherers and Foragers in a Metropolis” elaborates,

“The forests, wetlands, mangroves and marshes are an important source of food, work and income for thousands of Mumbai’s original inhabitants and poor migrants. That such resource dependencies implicate themes of migration, equity, exclusion, access and marginalization of diverse kinds.”¹⁶⁴

Since most of these landscapes belong to private or government authorities, these activities in the eyes of the State are termed “illegal”. It is critical to note that a large population of migrants entails people who are engaged as laborers in the projects and developments that Mumbai aspires for but the city fails to provide them space and when they claim spaces, they are uprooted just like the highway uproots the trees.

The oldest claimants to inhabit this landscape much before it was even declared a PA are the people who live inside SGNP and Aarey. These include 47 tribal hamlets inside SGNP and 27 tribal hamlets in Aarey and consist of people from Warli and Mahadev Koli Tribes. For these people, the forest is not just an educational or recreational environmental space but their home and identity. The forest is also a resource, a religious affiliation for them and the beings of the forests are their neighbors.

Nikit, Athreya and others in their paper bring into focus about 2,000 households that reside within the SGNP and Aarey and who worship Waghoba/Waghdevi,¹⁶⁵ the tiger-god, which they believe is the elder brother of the leopard. Talking about the Wali residents, they emphasize, “Nature is a gift of God, it’s a whole: you must take the leopards too, without trying to separate species according to modern science”, explaining how their love of nature is not based on scientific ecology, but on a holistic perception.¹⁶⁶ Another paper suggests that records indicate that the Warli community have historically been inhabitants of the presently identified regions of Mumbai Suburban, Thane, and Palghar districts. Warli narratives¹⁶⁷ signify how the ideas of sharing space with wildlife to flourish and exist together in multi-use landscapes is embedded in the Warli community and their life.¹⁶⁸

There are two revenue villages located inside SGNP, Yeyoor and Chenna. While Aarey is home to 27 padas, SGNP has 47 tribal hamlets. These hamlets are located on land recorded as forest land.

¹⁶⁴ D Parthasarathy, Hunters, Gatherers and Foragers in a Metropolis: Commonising the Private and Public in Mumbai, 46(50) Economic and Political Weekly 2011,

<https://www.epw.in/journal/2011/50/review-urban-affairs-review-issues-specials/hunters-gatherers-and-foragers>

¹⁶⁵ The Mahadeo Kolis, Malhar Kolis, Thakkers, and Dublas are other smaller (population wise) indigenous groups in the vicinity that also worship some deities of the Warli pantheon, including Waghoba.

¹⁶⁶ Ramya Nair et al, Sharing spaces and entanglements with big cats: the Warli and their Waghoba in Maharashtra, India, 2 Frontiers in Conservation Science 2021, 683356, <https://www.frontiersin.org/articles/10.3389/fcosc.2021.683356/full>.

¹⁶⁷ The Warli community celebrates the leopard during their annual festival of Waghbaras, which goes on through the night, to pray to and appease the spirit of Waghdev. Other tribal communities also join in this festival.

¹⁶⁸ Ramya Nair et al, Sharing spaces and entanglements with big cats: the Warli and their Waghoba in Maharashtra, India, 2 Frontiers in Conservation Science 2021, 683356, <https://www.frontiersin.org/articles/10.3389/fcosc.2021.683356/full>.

The threat of eviction has constantly loomed over the tribal population of Aarey.¹⁶⁹ In this regard, Prakash Bhoir the tribal leader has emphasized how the State has not yet provided electricity in Aarey, and how, “The lack of support shows that authorities want people to shift to slum rehabilitation authority (SRA) buildings and free these areas for more infrastructure development. “ The apathy of the state apparatus is visible to the country in the present movement when the State government is using every possible means in the pursuit of the Metro 3 car shed construction in Aarey which is facing immense protest and resistance from people.¹⁷⁰

“The Forest Rights Act, 2006 provides protection to forest dependent communities against forceful evictions and lays down the process of recognition of their individual and forest rights and in case of Aarey around 12 hamlets have even filed their claims which are under process,” tells Amrita. But the Forest department bureaucracy has not supported the process of FRA implementation, instead constantly arguing that the tribes are the agents of degradation of the forest resources.

Conclusion

The story of SGNP is a story of multiple narratives negotiating their claim and relations to a landscape. The hierarchy and politics that exists in deciding which claims receive legitimization and which narratives become more visible provides us an insight into a historical set of practices that encompass colonialism and a feudal mindset. The fact is that all of Mumbai has been established by encroaching lands and islands where people from tribal communities co-existed with the forest, sea and other ecosystems. Aarey and SGNP are human-modified ruins of what the landscape would have been ages ago. The city does not house SGNP. The city has been built and SGNP, Aarey has always existed. The city is the encroacher. Behind the mask of conservation and love for SGNP is thus the intention and actions of colonization of resources for metropolitan growth. With such large-scale developmental projects, SGNP is reduced to a capital pool available for consumption, accumulation and control. So we see no efforts by environmentalists and state authorities to demand or study the cumulative effects of these projects but rather we see the bypassing of compliance, bending of laws and procedures, use of coercion and state power all favoring the development agenda over ecological and human rights concerns.

It is interesting to note that Mumbai is also part of C40 Cities Climate Leadership Group and as a response the State government around mid-March this year had even launched a Mumbai Climate Action Plan¹⁷¹, aiming at reducing emissions to meet the climate goals outlined in the Paris Agreement to limit global warming to 1.5 °C. Drafted by the Municipal Corporation of Greater Mumbai with support from World Resources Institute (WRI) India, this plan has key actions including urban greening and biodiversity along with working on energy and building, sustainable mobility and air quality. The big road, infrastructure, railway, transport projects coming, and the constant shrinking of green spaces cast a long shadow on the intent behind these action plans.

¹⁶⁹ Sanjana Bhalerao, Mumbai: ‘Betrayed’ Aarey tribals say govt will pay for hacking trees, ready with questions for candidates, The Indian Express, 11 October 2019, <https://indianexpress.com/article/cities/mumbai/mumbai-betrayed-aarey-tribals-say-government-will-pay-for-hacking-trees-ready-with-questions-for-candidates-6063451/>.

¹⁷⁰ Sanjana Bhalerao, Mumbai: ‘Betrayed’ Aarey tribals say govt will pay for hacking trees, ready with questions for candidates, The Indian Express, 11 October 2019, <https://indianexpress.com/article/cities/mumbai/mumbai-betrayed-aarey-tribals-say-government-will-pay-for-hacking-trees-ready-with-questions-for-candidates-6063451/>

¹⁷¹ Priyali Prakash, Explained | What is the Mumbai Climate Action Plan?, The Hindu, 18 March 2022, <https://www.thehindu.com/news/cities/mumbai/explained-what-is-the-mumbai-climate-action-plan/article65231102.ece>

This becomes crucial because the Intergovernmental Panel on Climate Change (IPCC) in its recently released second part of Sixth Assessment Report (AR6) highlights the impact of climate change on megacities and predicts rise in cyclones, floods, surface temperatures, and heatwaves in case of Mumbai.¹⁷² The impact of climate change is most severe for the marginalized communities who live in areas close to these ecosystems, and are displaced and uprooted by floods. The expansion of development and the scale and variety of multiple projects that are coming up are not just a threat to SGNP and its wildlife but will impact all struggling and surviving ecosystems be it land, air, or the sea.

¹⁷² Mrityunjay Bose, Sea-level rise, cyclones: IPCC report's warning for Indian megacities, Deccan Herald, 1 March 2022, <https://www.deccanherald.com/science-and-environment/sea-level-rise-cyclones-ipcc-reports-warning-for-indian-megacities-1086589.html>

Going through this compendium, one can see that the national parks being affected by infrastructure or developmental projects are not sporadic cases. A distinctive pattern can be observed of how these protected areas are being forced to bear negative consequences due to ‘human needs’, ‘public interest’ and ‘development aspirations’ of the nation. The manner in which several projects within or near national parks have been given a go ahead by regulators including the MOEFCC and the NBWL raises serious questions as to whose interests are being served.

This also raises the question: how to ensure that such protected areas are not sacrificed at the altar of development? One key thing is to ensure that when any kind of infrastructure or developmental project is being proposed within or near any protected area, there should be wider consultations with members of civil society, affected communities, environmentalists and the broad public. This should be accompanied by detailed disclosures related to the proposed projects, the background and track record of project proponents, periodic review of the projects, putting grievance redressal mechanisms in place, etc. Along with this, the impacts of the projects should be seen not just on a standalone basis, but also taking their cumulative impacts into account, both at the time of approval and on a periodic basis.

The dilution of environmental laws, instead of their strengthening, is also a matter of deep concern, since they have so far proven ineffective to a large extent in preserving protected areas and other forests. More worryingly, further dilutions of environmental laws are being proposed and this may further result in loss of habitats, making international commitments to protect the endangered and threatened species redundant. It becomes a collective responsibility to ensure that the laws are shaped in a manner which ensures conservation and sustainability. Verdicts like the recent one passed by Supreme Court in June 2022, which stated that a minimum 1 km ESZ should be mandated for all protected areas where a wider ESZ has not yet been proposed or notified, would provide some additional protection, but at the same time need more deliberation as to why so many protected areas have still not notified an ESZ despite its acknowledged significance.

With the focus on Protected Areas, the well-being of forest dwelling communities is often undermined and overlooked by authorities, including the forest department. While the conservation goals for Protected Areas are crucial in several aspects, the short-sightedness of the forest department and higher authorities in trying to create ‘inviolable spaces’ needs to be critically questioned, as it often leads to violation of rights of forest-dependent communities, especially when the importance of a symbiotic relationship between these communities and forests has been widely recognized as playing a crucial role in preserving protected areas. Whether it is the issue of displacement, proper rehabilitation, generating livelihoods or forced migration, forest dwelling communities should not be made to bear the brunt of conservation goals. This also needs to be weighed against the fact that often the forest department and state governments see these protected areas as a revenue-generating tool through wildlife tourism, which essentially is in conflict with their quest for inviolable spaces. Adequate measures should be taken to ensure that where the displacement of forest-dwelling communities becomes unavoidable, proper rehabilitation takes place along with ensuring that they can secure their livelihoods. At the same time, the consent of Gram Sabhas should be respected if these communities want to live inside these protected areas. There should also be adequate Grievance Redressal Mechanisms for them which should also be made accessible for them through proper support.

Financial accountability and transparency are key mechanisms to challenge destructive projects. When the case studies in this volume were being prepared, it was observed that financial information such as the cost of the projects, key financiers behind the projects, safeguard mechanisms followed by the financiers, etc. was not available in the public domain. Making such information accessible can go a long way in strengthening financial accountability, which in turn can ensure that projects are not pushed indiscriminately solely for the sake of financial returns.

Often, such infrastructure and development projects are at loggerheads with the goals of conservation and sustainability, especially in preserving our precious biodiversity, which cannot be traded merely for financial gains. This also provokes fundamental questions about the need for such projects, who gets to decide that such projects should materialize, and the larger debate on the direction of development, which has been discussed and debated ad infinitum. But such questions are even more pertinent in today's turbulent times, when nations are in a race for economic growth and the dangers of climate change are manifesting more than ever.

Annexure

Location of Selected National Parks on India's Map



Centre for Financial Accountability (CFA) engages and supports efforts to advance transparency and accountability in financial institutions. We use research, campaigns and trainings to help movements, organisations, activists, students and youth to engage in this fight, and we partake in campaigns that can shift policies and change public discourse on banking and economy.

We monitor the investments of national and international financial institutions, engages on policies that impact the banking sector and economy of the country, demystify the world of finance through workshops and short-term courses and help citizens make banks and government more transparent and accountable, for they use public money.