



West Bengal

The unique home of the Royal Bengal Tiger

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On behalf of **IELA/ABMKSS/NPSSF**

(The Political Ecology of Wetlands, Forests, Tea, Mining and the people of West Bengal)



Nalband Wetlands/ Bandapani Tea Garden/Wild Elephant Jhargram

Foreword

West Bengal first created in 1905 through the partition of Bengal by the British cannot be fully understood without its other half, what is currently Bangla Desh. The independence of India created certain major issues for this State and the neighbouring seven sisters of the North East. For West Bengal, partition meant that the jute industry was left without raw material, then grown in East Bengal. North East India was connected to India by what is now known as the chicken neck. The above already shows the imprint of Capitalism on Bengal once famous for Muslin from Dhaka which had to be crushed to make way for British manufactured cloth, by systematic policies and brutality that destroyed the production of these Muslin weavers. Muslin however was originally from Mosul, now in Iraq showing the deep connection between these two countries and the imprint of Persia on Bengal through the sea route. Jute a natural fibre crop grown in Bengal and the North East, got impetus through the expansion of trade from Kolkata and its usefulness as a packaging material.

While Jute faced another crisis about 40 years later with the introduction of bags made of synthetic fibre, the port of Kolkata was hit by the introduction of container cargo vessels which could be better serviced by Colombo and the new port at Paradip which unlike Diamond Harbour was right on the sea coast and could cater effectively to these vessels. Despite that Kolkata still retained its importance as a hub for trade with the East. The tea industry also faced crisis with the development of the tea industry in the South as well. The once prosperous hub of British trade and commerce gave way to other cities across the country.

As the centre of the Renaissance in India with Raja Ram Mohan Roy and others, this cultural development found a counter current due to the influence of the British and subservience of landlords, middle class (Bhadralok) to British Imperialism. Bankim Chandra Chattopadhyay and Swami Vivekananda among others brought back a sense of Bengali pride emaciated under the subjugation to the British. The partition of Bengal was an attempt to crush the resurgence by dividing the population on communal lines, This first attempt by the British in 1905 created such a National upsurge that the British reunified it a mere six years later. This first major Nationalist wave, reverberated across the country.

The withdrawal of Khilafat/ Non Cooperation movement by Gandhi in 1922 made the move for Swaraj relatively less important. Pan Islamism among the Muslims gained ascendancy, peasant struggles assumed a communal character between 1923 and 1936. Communist led movements since 1936 were designed to bring about a peasant revolution, following the quit India movement, in 1942, peasants too joined this struggle.

Post Independence, operation Bargardar provided recognition to the tiller. It was the main reason, left came to power in Bengal, while local governance was strengthened as a result of this, the lack of a concrete response to Capitalist form of development, resulted in protests by the very peasants that had brought the left front to power in the first place. Singur and then later the massacre at Nandigram on 14th March 2007, the death Anniversary of Marx signaled the end of the left front brought as they were to power by the peasant struggles in the State. That the Trinamul Congress which came to power abdicated their responsibility to the peasants of West Bengal is another story altogether.

The communal imprint on West Bengal has reared up sharply over the last two elections in West Bengal a direct result about the dichotomy over the process that brought the Trinamul

to power and the abdication of these very people in the policies and plans the State has set in motion. Clearly the need to revisit the natural resource policies of the State exist to understand the realistic road to development where people matter.

Background

As part of ICAN (Indian Community Activists Network) and AIFFRS (All India Forum for Forest Rights Struggles), Akhil Bharatiya Mazdoor Kisan Sangharsh Samiti, interacted with DMF (Dakshin Banga Matsyajibi Forum) and National Fisher's Forum (NFF). The coterminus between forest and fishers in the Sunderbans made this a priority. Accordingly Tarun Kanti Bose on behalf of AIFFRS covered this as the first case study on the Status of implementation of Forest Rights in the State of West Bengal. This study was later followed up in his study titled *Marginalised but not Defeated* which has recently been published as well.

Separately ABMKSS engaged with forest dependent communities in Jhargram on the proposed Elephant Corridor from Jharkhand to Odisha and other issues related to the ecology and livelihood support system of the region. The wide range of NTFPs and the need for proper support structure for their propagation, protection, value addition and appropriate marketing system for the same were among the aspects covered. Links with forests of Jharkhand and Odisha were also discussed.

Prior to the above, the issue of the relevance and significance of the East Kolkata wetlands was highlighted through a case study on Mudiali Small Fishers Cooperative Society that was successful in controlling the pollution that had destroyed the wetland and had successfully reestablished fishing in the wetlands. It was an example that showed that if industrial waste was successfully treated, the wetlands could act as means to not only treat the organic waste of Kolkata city, it could also be a source of income for the fishers. With the depleting catch in the East Kolkata wetlands, the National Green Tribunal (NGT) had passed restraining orders on industrial pollution of these wetlands.

Following the rout of the left front Government and sense of loss of direction of for left democratic forces, the Bhangar Struggle taken up in earnest by CPIML Red Star provided a new sense of purpose to left and democratic forces in Bengal and elsewhere. ABMKSS formally got in touch with CPIML Red Star in late 2017 and agreed to jointly help form Adivasi Bharat Mahasabha with its first convention in February 2018 along with Adivasi Ekta Parishad as well. Issues related to role of affiliate members and need to revise the constitution keeping this in mind resulted in the formation of Adivasi Bharat Mahasabha (Unity Forum) with its first convention in May 2022. Subsequent to this it has been observed that ABMKSS has the perspective and approach to give proper shape to this duality (centralisation and decentralisation operating simultaneously). Following up on the Jharkhand study this one tries to give more concrete shape to this duality.

Considering the numerous links with the Jharkhand study, apart from the forestry angle which in West Bengal context, makes fisher communities an equal partner with adivasis, there is a need to properly understand issues related to mining, the lessons from Damodar Valley Corporation and the Tea plantations of North Bengal as they sharply shaped the road ahead leaving a different imprint on the political economy of the country as well.

Dedication



Hare Krishna Debnath

<http://www.mainstreamweekly.net/article1948.html>

Mainstream, Vol XLVIII, No 12, March 13, 2010

Tribute to Harekrishna Debnath

Friday 19 March 2010, by Santanu Chakraverti

#socialtags

Harekrishna Debnath, veteran social activist, Chairperson of National Fishworkers' Forum (NFF) and Executive Member of World Forum for Fisher Peoples (WFFP), passed away on December 30, 2009 at 11.15 am, at his residence in Ashoknagar, North 24 Parganas, West Bengal. On his demise the coastal fishers' and fishworkers' movement and the struggle for environment and social justice suffers a great loss.

In 2008, Debnath led what was to become one of the key milestones of the fishers' movement in India, the national coastal campaign along the coast of India, which led to the final withdrawal of the proposed Coastal Management Zone Notification. Debnath played a crucial role in leading the protests against the eviction of fishworkers' in Jambudwip. He also played a leading role in organising the struggle in 2006-07 against the proposed nuclear cluster at Haripur. Most recently, he had been active in protesting against the multi-SEZ proposal of a PCPIR at Nayachar in West Bengal. He was the founder Convener of the National Campaign for the Protection of Coast (NCPC). Debnath's concern with coastal environmental issues led him to be associated as a Governing Body member with the Kolkata based environmental group, Society for Direct Initiative for Social and Health Action (DISHA).

Harekrishna Debnath was born in East Pakistan, now Bangladesh, on the October 16, 1949. A brilliant student, he was studying Physics at the University of Dhaka, when he became active in student politics and became the President of the Chhatra League (the students' body attached to the Awami League). Debnath was active in the independence movement of Bangladesh. Close to Sheikh Mujibar Rahman, he was the Editor of Padakshep, the mouthpiece of the Awami League. After Sheikh Mujib's death in 1975, Debnath moved into India on a permanent basis. Thereafter he lived a life of hardship, but continued to be active in social movements in this country, including the movement for the rights of the Bangladeshi refugees who had fled to India from Pakistani repression.

Sometime in the early 1980s Debnath joined the NFF. He rose to become its General Secretary in 1985. Thereafter Debnath's name became intimately associated with the fishworkers' movements all over India. A charismatic speaker who could successfully address and electrify the masses, he could also charm academic audiences with his profound knowledge of coastal environmental and livelihood issues and an amazing ability to infuse life and drama into apparently dry information. His encyclopaedic knowledge of fisheries and rights issues of fish-workers led him to be appointed to the National Fisheries Development Board.

Harekrishna Debnath will be remembered by fishers and fishworkers all over India, particularly those who have long struggles ahead against the invasion of coastal land and waters.

In memory of the Tiger victims and Tiger widows in Sundarban

<https://www.deccanchronicle.com/nation/current-affairs/300719/sunderbans-fisherman-dragged-by-tiger-third-incident-in-2-weeks.html>

Sunderbans: Fisherman dragged by tiger; third incident in 2 weeks

DECCAN CHRONICLE | [DC Correspondent](#)

Published on: July 30, 2019 | Updated on: July 30, 2019

Kolkata: A fisherman was dragged away by a tiger in West Bengal's South 24 Parganas district on Monday. The incident has taken place three weeks after two women were killed in separate tiger attacks.

A resident of Rajatjubli in Gosaba, Arjun Mandal, 45, was dragged away from a boat where he was preparing his lunch, said forest officials.

This was the tenth attack in the Sunderbans since December 2018. Sunderbans is home of the Royal Bengal Tiger.

As per the report released by Prime Minister Narendra Modi on Monday, the number of tigers has increased from 76 in 2014 to 88 in 2019 in Sunderbans.

A senior forest official said the search was on but no body has been recovered.

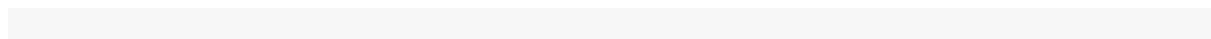
According to locals and forest officials, Mandal went to Pirakhali that is a part of the core forest area on Friday (July 26) to catch fish. He was accompanied by two villagers Dhruba Mandal and Paritosh Mridha, Hindustan Times reported.

Mandal and Mridha couldn't save him and informed the forest officials. A senior forest official said all three of them had permission to enter the core area of the forest for fishing.

The Sundarbans is crisscrossed by rivers and narrow creeks -- often not more than 15-20 feet wide -- hosting a lot of fish and crabs. Those who go to catch fish in these creeks often come under predatory attacks.

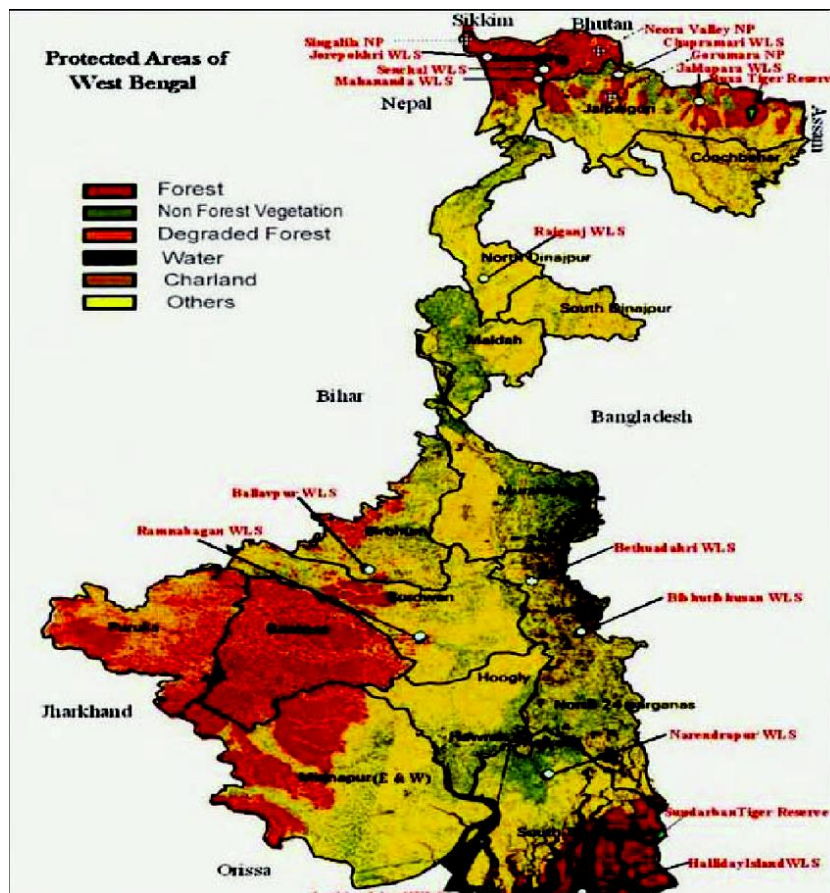
Usually, the tigers attack fishermen who step on the land. Sometimes, tigers also jump on the boats where the channels are narrow.

Fishing, collection of honey and firewood is the primary source of income for the inhabitants of Sunderbans.



Part I

Forests of West Bengal



Forest Map of West Bengal¹

¹ https://www.researchgate.net/figure/Map-showing-forest-of-southern-West-Bengal-and-northern-West-Bengal-source-West-Bengal_fig1_235657047

Forests:

https://www.westbengalforest.gov.in/forest_of_wb.php

Total recorded forest land in the state is 11,879 sq.km, of which 7,054 sq.km is Reserved Forest, 3,772 sq.km is Protected Forest and 1,053 sq.km is Unclassed State Forest, thus constituting 13.38% of the geographical area of the state.

Since 1922, broadly two management practices were followed in forestry in West Bengal. A system of clear-felling and thereafter artificial regeneration through taungya (Agri-Silviculture) was followed for forests of sub Himalayan tract comprising of Jalpaiguri district and Siliguri sub-division of Darjeeling district. The main species was Sal (*Shorea robusta*) mixed with associates *Terninalia* spp, *Chukrassia* spp. etc. The lateritic tract comprising of the districts of Purulia, Medinipur, Bankura, Birbhum and part of Burdwan districts contained 38% of the state's forest land. The main species was Sal with associates of *Madhuca latifolia*, *Diospyros melanoxylon* etc. Management system followed was simple coppice system. Forests were scattered and interspersed with blank forest land and also private farm land.

Relevance of NTFPs for livelihood:

https://www.academia.edu/65001671/The_Importance_of_Non_Timber_Forest_Products_in_Tribal_Livelihood_A_Case_Study_of_Santal_Community_in_Purulia_District_West_Bengal

Karkatia village in Purulia district is a tribal dominated village in the forest fringe areas. Lack of agricultural land, unfertile soil, lack of irrigation and poor communication compel the local people to depend completely on the forest ecosystem for their daily needs. Collections and sell of different non-timber forest products (NTFPs) for domestic and commercial purposes are considered as important means of their livelihood. The tribal people seasonally collect various NTFPs to satisfy the needs for their food, fodder and also medicine.

https://www.researchgate.net/publication/325957343_INTERNATIONAL_JOURNAL_OF_CONSERVATION_SCIENCE_ASSESSING_THE_SOCIAL_ECOLOGICAL_AND_ECONOMIC_IMPACT_ON_CONSERVATION_ACTIVITIES_WITHIN_HUMAN-MODIFIED_LANDSCAPES_A_CASE_STUDY_IN_JHARGRAM_DISTRICT_OF_WEST_BENGAL

Sacred groves are tracts of virgin or human- modified forest with rich diversity, which have been protected by the local people for the centuries for their cultural, religious beliefs and taboos that the deities reside in them and protect the villagers from different calamities. The present study was conducted Copraburi (CSG) and Kawa-Sarnd (KSG) sacred grove in Nayagram block of the Jhargram district under west Bengal, in appreciation of its role in biodiversity conservation. The study aimed at the documentation and inventory of sacred groves, its phytodiversity, social, ecological and economical role with mild threats. A total of 120 species belonging to 113 genera distributed 43 families from 24 orders were recorded from the sacred groves according to the APG IV (2016) classification, which covering 47, 26, 23, 24 species of herbs, shrubs, tree, climbers respectively. Moreover, both groves support

locally useful medicinal plants for various ailments. This is the first ethnobotanical study in which statistical calculations about plants are done by fidelity level (FL) in the study area. Therefore, there is an urgent need not only to protect the sacred forest, but also to revive and reinvent such traditional way of nature conservation.

Status of implementation of the Forest Rights Act in Jhargram

<https://dishaeearth.org/Report%20on%20FRA%20Implementation%20in%20Nayagram%20Sept%202020.pdf>

Forest dwellers were found to be dependent on the forest in many ways. They collect naturally produced forest products and sell those, either in the same form or after a primary stage of processing; villagers were also found to produce direct consumables such as ropes from Babui grasses, kitchen utensils from canes, cocoons from insects etc. They send the products or directly go to local weekly markets for selling it to the customers. Agents of different agencies also come in forest villages to buy the collected raw and semi-processed products. Government agencies like forest development corporations, tribal development corporations etc. provide minimum support price (MSP) for a wide range of collected raw materials from forest.

Although recognition of Common Forest Rights was absent, at least 32 responding groups informed the surveyors that few forest dwellers have received individual 'land patta' or 'title for forest land under occupation' (Under FRA). These title deeds on closer inspection revealed that they bear no date or registration number, and although the deeds have been signed by Divisional Forest Officer / Dy. Conservator of Forest; Project Officer–cum–District Welfare Officer, BCW (Backward Class Welfare), Paschim Medinipur; Additional District Magistrate & D.L.L & R.O Paschim Medinipur; the signature of District Collector / Deputy Commissioner was missing in all of them, raising several questions as to the legality of the same.

The findings of our survey lead us to conclude that majority of the population in the villages under survey in Nayagram Block are traditionally dependent on forest resources. Their dependence on common resources as well as occupying individual lands for agricultural and home are primary and bona fide. The Forest Rights Act 2006 needs to be implemented here in order to recognize and secure the rights of the forest dependents as well as to safeguard them from unjust and illegal threats of eviction, deforestation and construction. Appropriate and immediate action has to be taken to implement the provisions of the Forest Rights Act, 2006 and Forest Rights Rules, 2007 (as amended in 2012)

Promise and potential of FRA

www.fra.org.in/document/Promise%20and%20Performance_West%20Bengal%20Report-Final-05Aug17.pdf

West Bengal covers only 2.7% of India's land area but supports 7.55% of its population (2011 census), leading to a population density of 1,028 persons / km². Of the state's 9.13 crore population, 5.49% are Scheduled Tribes (mainly Santals) many of whom reside in

forest areas, and many more households in rural areas depend on forests for their livelihoods.

As the state gradually annexed forest lands from the mid-19th century, (recorded forest area is currently 13.38 % of the state's geographical area), they deprived local people of a wide range of customary rights. These deprivations, which largely continue to the present, include: extinguishment of customary collective management, control and use rights; restrictions on cultivation in forest areas, de-recognition of established villages and eviction of families without rehabilitation; creation of indentured/bonded labour 'forest villages'.

As per the promise and Potential report brought out in 2016, the area under traditional village boundaries where FRA should automatically be applicable is 5,21,835 hectares. Considering the area outside village boundaries as well the Promise and Potential report brought out by Community Forest Rights Learning and Advocacy process estimates that the total potential area of forest to be covered by FRA in West Bengal ranges between 592764 ha to 663692 ha. However till January 2020, only 8,498.54 hectares were recognised under FRA ie. only 1.43% of the potential area has been recognised. The details for Community Forests rights indicate that 686 titles have been given for 572.03 hectares of land ie less than one hectare per title meaning only Community Right titles not Community Forest Rights Titles. The Forests of Sundarbans are mostly outside the village but fishermen and honey collectors have rights to these forests. From the estimates of the promise and Potential report, it is clear that most of these forests have not been included in the Promise and Potential report, the Government of West Bengal have also kept these forest outside the purview of the Forest rights act. The AIFFRS policy brief URL given below, provides a road map as to how CFR titles should be claimed in such mangrove forests.

http://ielaind.org/wp-content/uploads/2017/05/AIFFRS-Polcy-Brief-2-Perspective-on-Mangrove-Forests_Rights-of-Fishers-and-other-Forest-Dwellers.pdf

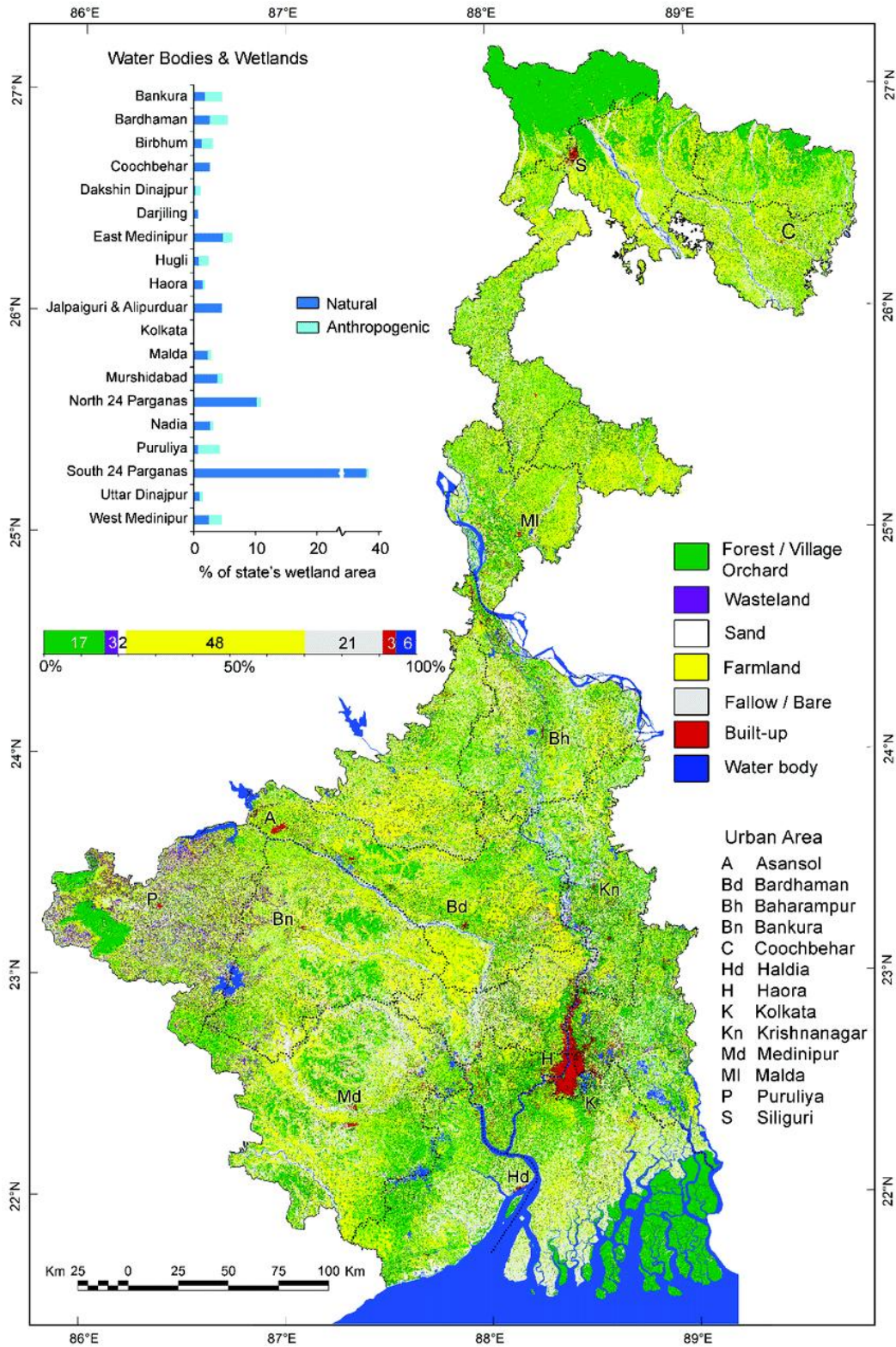
Man/Animal Conflict

[https://link.springer.com/article/10.1007/s10344-022-01583-w#:~:text=A%20total%20of%20519%20people,Government%20of%20West%20Bengal%202019\).](https://link.springer.com/article/10.1007/s10344-022-01583-w#:~:text=A%20total%20of%20519%20people,Government%20of%20West%20Bengal%202019).)

A total of 726 human deaths, 1233 human injuries, 51,542.027 ha areas of crop loss, 34,446 hut damage, and 136 unnatural elephant deaths were reported in West Bengal during April 2010 to March 2019 due to direct HEC. Electrocution was the leading cause of unnatural elephant deaths, followed by train accidents and poaching. South Bengal witnessed maximum crop raiding by elephants. About INR 59.09 crores were compensated by the government to the victims of wild elephant depredation during the same period.

Part II

Water Resources of West Bengal



Wetlands of West Bengal (uploaded by Sunando bandyopadhyay)

https://www.researchgate.net/figure/West-Bengal-Land-use-and-land-cover-District-wise-distribution-of-the-states-6_fig4_275833658

West Bengal (88,752 km²) is the only Indian state that extends from the Himalaya to the Bay of Bengal. It can be divided into nine physiographic provinces of which the Himalayas, the western plateaus, the northern and western alluvial fans and the Ganga delta are the most important.

<https://timesofindia.indiatimes.com/city/kolkata/livelihood-of-east-kolkata-wetlands-natives-under-threat-as-outsiders-make-steady-inroads-over-20-years/articleshow/93669290.cms>

The East Kolkata Wetlands, which was listed as a Ramsar site exactly 20 years ago, is witnessing a steady inroad of outsiders who have interest only in the commercial value of the land and not sewage-based livelihood. While there is constant pressure on the native population to quit farming and give up the bheris, those that are still sticking around with traditional means of livelihood are completely dependent on sewage. What is also adding to the pressure is the lack of basic civic amenities.

A survey by environment action group Society for Creative Opportunities and Participatory Ecosystems (SCOPE) 1,662 households in Hatgachha, one of the 32 mouzas that make up the EKW, has revealed that one in every four persons residing in Hatgachha is an outsider with 97% of them having no links to sewage-based farming. Locals say there has been a boom in construction of houses in recent years.

<https://timesofindia.indiatimes.com/india/the-teesta-river-dispute-explained-in-10-points/articleshow/58091320.cms>

India says it has its own compulsions. "Not enough water is flowing into the Teesta to meet our irrigation needs. We have to increase the area under irrigation in North Bengal to boost agricultural production. We will achieve our target of bringing in 1.5 lakh acres of farmland," said the then West Bengal irrigation minister Rajib Banerjee, three years ago.

That means more than one lakh hectares of land across five districts in Bangladesh are severely affected by withdrawals of the Teesta's waters in India, said the Observer Research Foundation. These five Bangladesh districts then face acute shortages during the dry season, it added.

Banerjee has in the past countered the above line of argument citing the amount of Teesta waters India already gives Bangladesh. "When we need a certain quantity of water to maintain our Kolkata Port and fulfil the need of farmers, water is released from Teesta and Farakka barrages to Bangladesh sacrificing the state's interest" she said in 2013.

Banerjee yesterday proposed sharing the waters of other rivers, like the Torsa river. As north Bengal is completely dependent on the Teesta, she said, rivers like the Torsa, which are closer to the border of India and Bangladesh, are good options. The Torsa, in fact, has connectivity with Bangladesh's Padma river. The West Bengal CM proposed that the two countries set up a commission to ascertain the level of water flowing through the Torsa and the quantum of water that can be shared.

https://www.researchgate.net/publication/311607858_Climate_Change_-_Impact_on_the_Sundarbans_A_case_study

Sundarbans is the world's largest contiguous mangrove forest and is a designated world heritage site. Shared by India and Bangladesh, it is home to several species including tigers. The habitat supports approximately 4.37 million people. As per the research conducted it is believed that the Sundarbans have soaked in 4.15 crore tonnes of carbon dioxide. Due to climate change the Sundarbans faces several challenges. With rising sea levels, islands are disappearing and the increasing salinity in the water and soil has severely threatened the health of mangrove forests and the quality of soil and crops. Additionally, there have been serious disturbances to hydrological parameters and change in fishing patterns, resulting in disastrous consequences for fishermen. Frequent cyclones and erratic monsoon raining pattern are damaging ecology and humanity. In addition to general environment protection laws, India has also set up institutes at both the Central and State levels to specifically tackle the effects of climate change on Sundarbans. However, split responsibilities between Centre and States and multitude of institutions has resulted in overlap of responsibilities, loss of time and resources, which makes the institutions ineffective. With risk of the Sundarbans submerging, there is an urgent need for global reduction of emissions and replacement of fossil fuels with renewable energy. Governments also need to promote plantation of local saline resistant seeds. Even as the State and Central Government of India finalise action plans to tackle the problems of climate change and take steps for poverty alleviation in one of the world's poorest regions, there is a pressing requirement to set up flood relief centres and rapid action response teams to cyclones and storms.

Part III

Energy sector in West Bengal



alamy

Image ID: J3VT77
www.alamy.com

https://energypedia.info/wiki/West_Bengal_Energy_Situation

Energy Capacity

Installed Capacity of West Bengal Power Utility (megawatts):

RES: Renewable Energy Sources (include: small hydro, biogas, biomass, waste and wind energy)

Total Installed Capacity	Thermal	Nuclear	Hydro	RES
9891.66	9220.19	92.88	315.88	262.71

The State level Perspective Power Planning Committee (2006) has projected the aggregate demand for electricity to be between 66,368 and 71,351 MU by FY 2021. Per capita consumption of electricity in the year 2009-10 was 492 kWh in West Bengal

The peak demand in West Bengal is projected to be between 8,937 and 10,871 MW in 2021 increasing to about 14,730 MW by 2031. In FY 2008, the state faced a shortfall in meeting energy demand (1188 MU) and also experienced peak-load deficits to the tune of 296 MW. [

https://www.business-standard.com/article/economy-policy/bengal-plans-to-take-renewable-energy-generation-from-5-to-20-by-2030-122071501367_1.html

West Bengal is aiming to take its renewable energy generation to 20 percent of the total installed capacity by 2030. At present, the renewable energy share of the total installed capacity is 5 percent. Rooftop solar panels have been installed in 1,954 schools of the state and work was underway to add another 1,890 schools to the list.

<https://www.thehindu.com/news/cities/kolkata/study-flags-poor-compliance-by-west-bengal-power-plants-in-pollution-control/article66209924.ece>

Not a single coal-based thermal power plant in West Bengal has installed flue gas desulphurisation (FDG), a technology to eliminate sulphur compounds from exhaust emissions, a study has found.

<https://www.youthkiawaaz.com/2018/04/bhangar-land-agitation/>

The damage to the environment is a major concern of the people spearheading the Bhangar agitation as well. The power grid is using sulfur hexafluoride (SF6). Hindustan Times reports that one villager **said**, “*One engineer told us that any accidental spillage of the SF6 gas could lead to tragedies like the one in Bhopal...*” However, **according** to Srikumar Mallick, former head of the electrical engineering department at Bengal Engineering and Science University, “*There is indeed no alternative to SF6... and the environmental concerns appear to be hugely exaggerated.*”

<https://thewire.in/environment/west-bengals-mejia-thermal-power-plant-kills-people-supposed-benefit>

Despite supplying power to West Bengal and neighbouring states, the plant has brought misery to the lives of several hundreds of villages who live near it. Harmful emissions from the power plant have not only polluted the ground water but have also caused health hazards. The fly ash pond, spread across an area of 700 acres, is filled with waste that has risen to a level of 100 feet. Villagers say that over 7,000 tonnes of fly ash is dumped in the pond everyday.

https://www.banktrack.org/download/the_dark_side_of_ntpc/181029_the_dark_side_of_ntpc_coct2018.pdf

All these came at a heavy cost to people and environment. Be it forced evictions without rehabilitation, destruction of forests and other natural resources, pollution, health hazards to people living in the vicinity, ground water contamination, dumping of toxic wastes, issues related to disposal of ash and many such.

Part IV

Minerals



Mineral Map of West Bengal

MINERAL RESOURCES

http://wbindustries.gov.in//files/Mineral_Report/DMM_Brochure_rev%2005.pdf

Major Minerals:

Coal: Raniganj Coalfield, Himalyan tertiary coalfield
Lignite: Purba, Brdhaman and Bhrbhum District
Apatite: Various parts of Purulia District,
Base Metals: Lead, Zinc & Copper: Kalimpong, Purulia
Limestone: Purulia and Bankura
Tungsten: Purulia

Minor Minerals:

Granite: Purulia, Bankura
Blackstone: Purulia, Bankura and Bhirbhum
Talc and Steatite: Darjeeling
Sand
Dolomite: Purulia and river bed deposits of North Bengal
Quartz and Feldspar: Purulia, Bankura, Jhargram, Bhirbhum
China Caly and Fire clay: Bhirbhum, Bankura and Purulia

Strategic Minerals

Ceasium

Comment: Major mineral source due to being part of the Chhota Nagpur belt and Himalayn region. The co-terminus with forest and forest destruction.

Part V

Agriculture in West Bengal



Agriculture map of West Bengal

Issues related to Agriculture:

<https://www.epw.in/journal/2022/23/special-articles/conditions-farmers-west-bengal.html>

Farmers' conditions in West Bengal are very deplorable. Their source of income is highly volatile because they are facing double risks, that is, production and marketing risks. Further, from the early 1990s, neo-liberal policies entailed the reduction of public investments in agriculture, withdrawal of subsidies, weakening of institutional support, including institutional credit and extension, and the lowering of tariff protection on agricultural trade (Mahendradev 2000; Rao 2003; Ramachandran 2011). This leads to increasing dependency of farmers on moneylenders for credit, traders for sale of their crop output and agricultural input dealers for crop advice, etc. Thus, the middlepersons, traders, input sellers, etc, have an increased scope to exploit them, while they are deprived of getting fair returns from the selling of output. About 90% of farmers in West Bengal are small and marginal farmers. High population pressure on land leads to subdivisions and fragmentation of landholdings, making it difficult for them to meet ends. Moreover, increase in the price of agricultural inputs, uncertain price of perishable agricultural produce, inadequate market infrastructure, and distress sale of produce by small and marginal farmers are additional problems that pose serious challenges to sustainability of the farm sector in the state (Goswami et al 2014). The socio-economic condition of the farming community is declining in the absence of appropriate technical, social, financial, and market interventions (NABCONS 2009; Goswami et al 2014).

<https://abhipedia.abhimanu.com/Article/State/NDc3MQEEQQVVEEQVW/Agriculture-of-West-Bengal-West-Bengal-State#:~:text=Deterioration%20of%20soil%20health%20due,major%20challenges%20to%20agricultural%20growth.>

While the State has 2.7% of the land it has 8% of India's agricultural production and 7.6% of the population. Total cultivable area is 63% with cropping intensity of 182%. West Bengal Ranks first in the production of rice, jute and vegetables and second in potato production.

<https://www.statista.com/statistics/1083268/india-economic-contribution-of-fish-products-wb/#:~:text=West%20Bengal%20made%20up%20about,Indian%20economy%20that%20fiscal%20year.>

West Bengal made up about 243 billion Indian rupees in gross valued added from fish products towards agriculture across India in fiscal year 2020. The GVA from this state made up over 15 percent of fish products nationwide. Fishing contributed over 1.5 trillion rupees in GVA in the Indian economy that fiscal year.

<https://spaceandculture.in/index.php/spaceandculture/article/view/747>

In the wake of the 2009 cyclone Aila, the crop production in Gosaba rapidly declined due to high salinity and low pH in the soil. Most of the agricultural land remains a seasonal fallow due to the shortage of freshwater during the dry season. The direction of the surface slope has been altered by the unsystematic construction of embankment and haphazard construction of closure in river channels. The saucer-shaped appearance of the island causes massive drainage congestion induced waterlogging problem in the agricultural field.

Part VI

Case Studies

This section is being done as a stand alone for now. Since a participatory approach is envisaged, the report is only indicative of the direction that will be taken.