Offshore Wind Energy Projects in South India: Indigenous Coastal Communities Left in Dark

Indigenous shore seine fishers in Thoothukudi (near Gulf of Mannar or Mannar Island), Tamil Nadu
Photo credit: Kebiston Arokyasami

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Gulf of Mannar: the Marine Space and the People

The Gulf of Mannar is located on the southeast coast of India. Spanning 10,550 square kilometers from the southern tip of Tamil Nadu state of India to the northern part of Sri Lanka, the Indian Gulf of Mannar features a chain of 21 islands[1] (now there are only 18 - three have already submerged). It stretches from Mandapam to Tuticorin/Thoothukudi - covering a distance of 140 kms along the coast of Tamil Nadu. The island is situated at a distance of between 2 and 10 kms from the mainland. Over 300,000 people from the districts of Ramanathapuram, Thoothukudi, and Tirunelveli depend on the Gulf of Mannar. They are primarily from Paravar or Bharathar communities, along with a small presence of Mukkuvar, Karaiyavar, and Mudrayar communities. For centuries, Indigenous and traditional fishers from both countries have relied on the shared resources of the islands.

The Mannar Islands are also a vital marine biodiversity hotspot for both India and Sri Lanka. In 1989, UNESCO recognized this region as a biosphere reserve - the first of its kind in Asia, highlighting its ecological and socio-economic importance. It boasts an incredible diversity of marine life, including 2,200 fin fish species, 117 species of coral reefs, 106 species of crab, more than 400 species of molluscs, 147 species of seaweed, seagrass beds, mangrove forests, sand dunes, and various species of sea turtles as well as the Indo-Pacific bottlenose dolphin, the finless porpoise and the humpback whale. The presence of the dugong, a marine mammal, further underscores the ecological significance of this region. Additionally, it is estimated that more than 160 bird species migrate through the Mannar Islands of India.[2]

These marine ecosystems and resources have been protected and sustainably used by Indigenous coastal communities like the Paravar over the years. The area

Map of Gulf of Mannar *Source: Drishti IAS*

is also considered a potential site for eco-tourism, offering alternative sources of income to traditional communities.

Offshore Wind Energy Development in the Gulf of Mannar

Both the Union Government of India and the State Government of Tamil Nadu have begun implementing plans to install 450 wind turbines in the ecologically rich Gulf of Mannar region.[3] In 2015, the Government of India launched the National Offshore Wind Energy Policy. As per the policy, the Ministry of New and Renewable Energy (MNRE) will act as the nodal agency with responsibility of development of offshore wind energy in India, including monitoring thereof, and will work in close coordination with other government entities for development and use of maritime space within the Exclusive Economic Zone (EEZ) of the country.

In 2013, the European Union delegation to India, in close cooperation with the MNRE, awarded a 4 million EUR grant for a four-year project titled FOWIND (Facilitating Offshore Wind in India) to support the development of offshore wind energy in India, with a focus on the states of Gujarat and Tamil Nadu. The Global Wind Energy Council (GWEC) headquartered in Belgium led the consortium for the project in partnership with the

[1] List of Islands in Mannar: 1. Shingle, 2. Krusadai, 3. Pullivasal, 4. Poomarichan, 5. Manoliputti, 6. Manoli, 7. Hare, 8. Mulli, 9. Valai, 10 Thalaiyari, 11. Appa, 12. Poovarasanpatti, 13. Valimunai, 14 Anaipar, 15. Nallathanni, 16. Puluvinichalli, 17. Upputhanni, 18. Kariyachalli, 19. Vilanguchalli, 20. Koswari and 21. Vaan

[2] IUCN (International Union for Conservation of Nature), "The Gulf of Mannar and its Surroundings," 2012. [Online]. Available at: https://portals.iucn.org/library/sites/library/files/documents/2012-094.pdf; ENVIS Centre Department of Environment (2015) Information Booklet on Gulf of Mannar Biosphere Reserve. Chennai: Government of Tamil Nadu. See the link: http://www.tnenvis.nic.in/WriteReadData/UserFiles/file/gulfofmanner.pdf

[3] Pavan (2024) Editorial. Newsletter of NATIONAL INSTITUTE OF WIND ENERGY, Chennai, Issue 81 – April-June 2024. See the link: https://niwe.res.in/assets/Docu/news_letter/Issue_81.pdf

Centre for Study of Science, Technology and Policy (C-STEP), the Gujarat Power Corporation Limited (GPCL), and the World Institute of Sustainable Energy (WISE) in India and DNV GL (now DNV) in Norway. The National Institute of Wind Energy (NIWE) under the MNRE was a knowledge partner to the project since 2015 while there were also industry partners to the project such as the Renew Power Ventures Private Limited[4] and the IL&FS Energy Development Company Limited (IEDCL).[5]

The project documents suggest that the development of offshore wind energy in India's Exclusive Economic Zone (EEZ) has been discussed at the government levels for more than two decades.[6] Under the project, pre-feasibility study for offshore wind farm development in Tamil Nadu was published in 2015, followed by a supply chain, port infrastructure and logistics study in 2016, a grid integration study in 2017, and a feasibility study in Tamil Nadu in 2018.[7] Those studies were based on modelled wind data collected from a combination of onshore weather stations and satellite data. With the aim to produce between 150 and 504 MW, the Gulf of Mannar region has been divided into five zones since the publication of the Offshore Tamil Nadu Pre-Feasibility Report in 2015.[8]

More recently, in February 2024, the Government of India has invited bids for the development of 4 GW (in four blocks of 1 GW each) offshore wind energy projects off the coast of Tamil Nadu, specifically in the Mannar Islands, through international competitive bidding.[9] According to the Government, "under this arrangement, developers who win the bid for each block will set up 1 GW offshore wind energy capacity and sell electricity directly to consumers under the open access regime. No Viability Gap Funding (VGF) will be provided under the open access bids, and the renewable energy generated will be sold to entities such as industries currently in the high-tariff band." It also states that "bids are being called after obtaining all necessary environmental clearances."

For the state of Tamil Nadu, "a site with an equivalent capacity of 1 GW has been identified for the proposed first project. The NIWE will carry out the necessary study/survey within the identified site, and the bid for a 500 MW project will be floated after conducting the required study/survey."[10] Similar procedures will be followed as in the case of the first offshore wind energy project in Gujarat in 2016.[11]

St. Andrew's Beach, Trivandrum Kerala India *Photo credit: Romer Ignatious*

[4] FOWIND (2018), "Feasibility Study for Offshore Wind Farm Development in Tamil Nadu", See the link: https://gwec.net/wp-content/uploads/2018/03/FEASIBILITY-STUDY-FOR-OFFSHORE-WIND-FARM-DEVELOPMENT-IN-TAMIL-NADU.pdf

[5] See the link: https://gwec.net/members-area-market-intelligence/fowind/

[6] Ministry of New and Renewable Energy website (2024) Offshore Wind. Government of India; See the website link: https://mnre.gov.in/en/off-shore-wind/

[7] See the reports at https://mnre.gov.in/off-shore-wind/

[8] FOWIND (2015) Pre-Feasibility Study for Offshore Wind Farm Development in Tamil Nadu. See the report at https://cdnbbsr.s3waas.gov.in/s3716e1b8c6cd17b771da77391355749f3/uploads/2022/12/2022121922.pdf

[9] GoI (2024) https://pib.gov.in/PressReleaseIframePage.aspx?PRID=2001947

[10] R. Mani Murali, P. J. Vidya, P. Modi and S. J. Kumar, "Site Selection for Offshore Wind Farms along the Indian Coast," Indian Journal of Marine Sciences, vol. 43(7) July, 2014

[11] FOWIND (2018) "Feasibility Study for Offshore Wind Farm Development in Tamil Nadu", See the link: https://cdnbbsr.s3waas.gov.in/s3716e1b8c6cd17b771da77391355749f3/uploads/2022/12/2022121964.pdf
FOWIND (2017), "From Zero To Five GW: Offshore Wind Outlook for Gujarat and Tamil Nadu," See the link: https://cdnbbsr.s3waas.gov.in/s3716e1b8c6cd17b771da77391355749f3/uploads/2022/12/2022121911.pdf

In June 2024, the Government of India approved 1 GW offshore wind energy projects (500 MW each off the coast of Gujarat and Tamil Nadu) – first ever such projects in the country–under the VGF scheme with a total outlay of 7,453 crores Indian rupees.[12]

No Information Disclosure to Coastal Communities

Above-mentioned information about offshore wind energy projects is only available on government websites and in English. Coastal Indigenous communities, such as the Paravar and Mukkuvar, have limited access to the studies if any. They are not available in Tamil – let alone in Indigenous coastal languages or dialects, which makes understanding them a daunting task. None of those studies mention any consultation with the Indigenous Paravar and other coastal communities in the Mannar Islands. This implies that the Indigenous and local knowledge of the communities is not taken into account in conducting scientific studies of oceanic conditions and coastal processes in the region. Although some of the studies mention the consideration of international treaties, they are notably silent on the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).

The communities have limited to no awareness of the government processes and procedures regarding the projects. Information is not available locally such as at the local authorities, community centers, or religious institutions. They do not have information about the number of turbines, their exact locations, the type of foundations, the design of offshore transmission structures, or other potential developments, such as oil and gas exploration and extraction of sand and gravel. They want to know impacts on their livelihoods and benefits from the project for them during both the construction and operational phases. They ponder how the projects can ensure a participatory process when information is not even available to the customary right holders of the Mannar Islands. Accordingly, the communities have expressed major concerns about being excluded from the planning process and question whether they will be included in the implementation process.

Key Concerns of the Communities

Commodification of *kadalthai* / *kadalmatha* / *kadalamma* (Mother Ocean)

Members of the Paravar and Mukkuvar communities state, "In our customary wisdom, we do not separate ecology from the ecology-dependent people. We, the traditional fishing communities, consider the sea as our mother and the coast as our mother's lap, with our livelihoods and culture based on marine resources." While the projects are promoted as 'green energy' initiative, coastal communities view it as a destructive model that exploits blue spaces, expanding existing industries along the coast and seas and exploring new avenues.

Loss of Ocean Rights

The projects encroach upon the Indigenous communities' coastal territories and threaten their livelihoods. They will lead to displacement of the communities like the Paravar. Similar past projects have caused displacement, and the planned projects are likely to do the same. The communities are not officially recognized as customary rightsholders of the land/ocean and are not listed as scheduled tribes in India. That will mean that their rights will likely not be protected in the context of the projects.

Impacts on Livelihoods

Community members, whose livelihoods and source of income are highly dependent upon fishing, fear that the projects will negatively impact fish stocks, especially the spawning grounds of various species. Fishing activities will likely be restricted during both construction and operational phases. Fish behavior and habitats will likely be affected by magnetic fields generated by cables and heat dissipation, which could disrupt Indigenous knowledge systems and potential fish catches.

[12] PTI (2024), "Cabinet approves 1 GW offshore wind energy projects in Gujarat, Tamil Nadu," Available at: https://energy.economictimes.indiatimes.com/news/power/cabinet-approves-1-gw-offshore-wind-energy-projects-in-gujarat-tamil-nadu/111126584

Indigenous shore seine fishers in Thoothukudi (near Gulf of Mannar or Mannar Island), Tamil Nadu
Photo credit: Kebiston Arokyasami

Destruction of Marine Life

The wildlife that will be potentially affected by the projects include benthic communities (flora and fauna in the seabed surface layers), such as seabed worms, shellfish, and other benthic populations.[13] Since Indigenous fishers are not involved in the design of the project, the protection of marine life is jeopardized as the localized understanding of marine ecosystems is limited among mainstream scientists and bureaucrats involved in the projects. Evidence from other projects shows that export cables often make landfall across sensitive habitats, such as salt marshes and mangroves, particularly in densely forested areas like in Punnaikayal.[14] That disrupts sensitive plant life and breeding habitats for birds and other species in intertidal zones.

Disruption for Migratory Marine Mammals and Birds

The migration of marine mammals (such as seals, dolphins, and whales) and birds (including sea-birds and migratory species) will be disrupted due to the projects as a result of potential collisions with wind turbines. There have been no efforts from the governments to track migrating birds and mammals in the context of the projects.

Other Environmental Impacts

The projects will affect the breeding and feeding seasons of marine life due to the construction schedule and processes, such as piling, which generates noise and vibration. Given the sandy seabed in the project area, the disturbance could lead to suspended sediments during construction, covering benthic populations and coral reefs, endangering them and diminishing natural protections against extreme weather and wave actions.

Impacts on Food Security and Leisure Activities

The potential disappearance of fish species due to the projects will affect the communities that rely heavily on fishing as their main source of protein. The communities use marine spaces for sailing and leisure activities, which will also be negatively impacted by the installation of wind turbines.

[13] Berwyn, "How do offshore wind farms affect ocean ecosystems?," Deutsche Welle, 22 11 2017. [Online]. Available: https://www.dw.com/en/how-do-offshore-wind-farms-affect-ocean-ecosystems/a-40969339. [Accessed 30 November 2017].
D. J. Russell, S. M. Brasseur, D. Thompson, G.D. Hastie, V. M. Janik, G. Aarts, B. T. McClintock, J. Matthiopoulos, S. E. Moss and B. McConnell, "Marine mammals trace anthropogenic structures at sea," Current Biology, vol. 24, no. 14, pp. R638-R639, 2014.

[14] See, for example, https://www.seabirdtracking.org/wind-energy-in-mannar-threatening-migratory-bottleneck-of-caf/

Traditional fish market or fish landing centre at Mariand beach-one of the Mukkuvar villages in Trivandrum, Kerala
Photo credit: Romer Ignatious

Some of the above-mentioned issues for similar wind energy projects in Sri Lanka are well documented.[15]

According to the members of the coastal Indigenous communities in Tamil Nadu, "disguised as green energy initiative, the wind energy projects are merely a veiled attempt to displace us from our marine homelands and render us ecological refugees. In the name of reducing carbon emissions to tackle the historically significant port city of Tuticorin, the government is taking steps to further displace us with wind turbines."[16]

Already, significant problems have occurred in the region, such as destruction of 65% of the coral reefs, coastal erosion, promotion of seawalls under the guise of coastal protection, and illegal sand mining for precious minerals. As a result, the Gulf of Mannar's islands are on the brink of extinction. The wind energy projects have added further threats to the islands and its people.

Call to Action of the Communities

No energy project in the Gulf of Mannar should proceed without meaningful engagement with and the consent of the coastal Indigenous communities of South India - that is what the communities call for in above context for offshore wind energy development affecting them.

[15] See, for example, Seabird Tracking and the Tamil Guardian. Available: https://www.seabirdtracking.org/wind-energy-in-mannar-threatening-migratory-bottleneck-of-caf/

[16] Interviews with community members by Kebiston Arockyasamy during the months of June-August 2024

Indigenous shore seine fishers in Thoothukudi (near Gulf of Mannar or Mannar Island), Tamil Nadu
Photo credit: Kebiston Arokyasami

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[17] Suggested citation: Jament, J. and Arockyasamy, K. 2025. "Offshore Wind Energy Projects in South India: Indigenous Coastal Communities Left in Dark". Available at: www.bluegreencoast.org and www.aipnee.org.