



IMPACT OF SHRIMP AQUACULTURE ON FISHERPEOPLES' RIGHT TO FOOD AND NUTRITION IN INDIA

A case study from two fishing hamlets in Tamil Nadu



FIAN
INTERNATIONAL



Algal bloom caused by untreated sewage in a marshland, Chinnakottaimedu



HANDRAPADI AND CHINNAKOTTAIMEDU, two small traditional fishing hamlets in Tamil Nadu, South India, have a population of 1899 and 213 respectively. These fishing communities lack organisation, political representation and recognition, making them vulnerable and marginalised. It is through traditional boat fishing – their primary livelihood – that they are able to realise their human right to adequate food and nutrition (RtFN) and other related rights such as the rights to land, territories, cultural practices and a clean environment. In addition to fishing, they occasionally catch shrimp as a bycatch. During the monsoon and rough seasons, when it is impossible to go out to sea, the fisherpeople depend on brackish water to catch shellfish such as mud crabs to sustain their livelihoods. Shrimp farms were established in the area in the early 1990s after private land, mostly owned by local farmers, was leased to the shrimp industry and individual farm operators.

At present, there are 24 shrimp farms in [Chinnakottaimedu](#) covering an area of about 44.66 hectares. In [Chandrapadi](#), there are 5 shrimp farms, and the nearby 2 km village boundary has also been used for shrimp farming. According to the fishers interviewed, mangroves have been cut down to make way for the shrimp farms, and tidal flats have been dug to make way for an artificial canal to bring in fresh water from the rivers.

This briefing summarises the impacts of shrimp aquaculture (in particular pesticides and antibiotics) on the RtFN of fisherfolk. The information is based on interviews with 72 local fishers.

CONTAMINATION AND DEGRADATION OF WATER BODIES

Shrimp farms use various chemicals, some of which are banned in India, such as antibiotics, pesticides, disinfectants and feed additives. These substances are discharged untreated into brackish water bodies and eventually reach the sea, contaminating and degrading important fish and shrimp breeding habitats. Local fishers in both hamlets have observed direct effects, including a reduction in the size and quantity of fish and shellfish, the death of aquatic organisms, and excessive algae growth. Pollution and fish depletion caused by shrimp farming prevent fishers from fishing in the brackish river during bad weather, affecting 90% of the river fishing in Chinnakottaimedu. Illegal poaching of polychaetes, allegedly by poachers employed by shrimp farms, has further damaged the food chain of the brackish water ecosystem and degraded the mudflats. Although water samples have not been tested, a [recent study](#) by the Federation of Indian Animal Protection Organisations shows that 100% of fish and shrimp farms in India have dangerous levels of lead and cadmium.

DETERIORATION OF SOIL FERTILITY

40 years ago, Chandrapadi and Chinnakottaimedu boasted of abundant fruits and vegetables, with schoolyards producing vegetables for nutritious meals under the Indian state of Tamil Nadu's government's mid-day meal scheme. However, the introduction of shrimp farms led to the disappearance of the once thriving plants and fruits. In Chandrapadi, agricultural land extending to the neighbouring hamlet was completely converted to shrimp farms, negatively impacting local food systems. The cessation of rice cultivation and the lack of alternatives have forced fishing communities to purchase all of their food, negatively impacting household incomes. Coastal areas adjacent to the villages, once thriving with agriculture, now face significant land loss due to sediment disposal along the coastline. Soil salinisation has further reduced agricultural yields, prompting farmers to convert farmland to shrimp farms for higher commercial returns. This conversion has eradicated green vegetation, including native plant species and coconut trees known as "Kalam". Grazing lands have lost fertility, affecting livestock and the supplementary income of fishing families, who now face challenges due to charred and destroyed grasslands following the arrival of shrimp farms.

LOSS OF LIVELIHOOD AND IMPACT ON FISHERPEOPLES' HUMAN RIGHTS

The discharge of untreated sewage has damaged the breeding grounds of shellfish (such as mud crabs), affecting the ability of fishers to feed themselves and their families during monsoons and rough seas. In addition, shrimp farms produce large quantities of shrimp, driving down the price of wild shrimp. Cheaper farmed shrimp are therefore naturally preferred by consumers. In Chandrapadi, the fisher's income has been reduced to a quarter. Gradually, people stopped buying wild shrimp and it has now disappeared from the local markets. This has also affected the livelihoods of women fish vendors. In Chinnakottaipeda, women fish vendors used to make a living by selling wild shrimp, but this is no longer possible. They had to adapt to the new buying pattern and started selling farmed shrimp.

DENIAL OF ACCESS TO FISHING GROUNDS

Before the occupation of land by shrimp farms, the fishers had undisturbed access to the sea. They could decide when and how to fish, enter the brackish water to fish and park their boats, and walk along the adjacent lands (river banks). Today, fishers do not have direct access to the sea and have to cross the brackish water and shrimp farms to reach the sea in Chinakottaimedu. During the night, the shrimp farm workers do not allow the fisherpeople to carry their nets and pass through their shrimp farms. The customary fishing rights of the fisherpeople are being violated.



Fisher settlement near brackish water river, Chandrapadi

ADVERSE HEALTH IMPACT

Shrimp farms adversely affect the health of local communities, leading to problems such as allergies, skin diseases, severe leg swelling, abdominal pain, nephrological problems, kidney-related health problems (resulting in three deaths), and breast cancer in Chandrapadi. In Chinnaoktaimedu, proximity to the shrimp industry has increased the risk of mosquito-borne diseases. The expansion of water spreading areas around shrimp ponds has created breeding grounds for mosquitoes, contributing to an increase in cases of viral fevers, especially among children. Fishers blame shrimp farms for the increase in disease, while local doctors link skin irritations and illnesses to water contamination. These health impacts not only take a toll on people's well-being, but also result in additional costs for medical treatment. In addition, the discharge of sewage and effluent into rivers and soil creates foul odours, contributes to environmental degradation, and creates unsanitary conditions for those who live nearby and depend on the rivers.

LACK OF DRINKING WATER AND DOMESTIC WATER USE

Shrimps are raised in saline ponds operated by shrimp farms. Shrimp farms, which operate more than 100 saline ponds in Chandrapadi alone, lead to the salination of groundwater. Another contributing factor is the extraction of fresh water from the riverbed by the shrimp farms, which adversely affects people's drinking water. Previously accessible throughout the year, water scarcity now forces women to spend time fetching

water and families to purchase drinking and household water, increasing the financial burden (an average additional monthly cost of INR Rs. 1000 to Rs. 1500, equivalent to USD \$ 18). While the state government has implemented the Kollidam Combined Water Supply Scheme to address the shortage, providing piped water twice a month, the supply is inadequate. In addition, until 2015/2016, shrimp farms were reportedly illegally drawing water from this scheme, which was intended to compensate for the loss of drinking water for local communities.

SOCIAL AND CULTURAL IMPACT

The introduction of shrimp farms has disrupted social harmony and triggered conflicts within the local community. The situation has escalated to the extent that the village panchayat has had to pass a resolution asking villagers not to work on shrimp farms. In addition, long-standing fishing traditions have been adversely affected. A community pond, traditionally used for bathing and rituals during the festival of Deepavali (Diwali), is now inaccessible due to pollution. The importance of brackish water in fishing traditions, once integral to the transmission of ecological knowledge from elders to younger generations, has changed since the advent of shrimp farms in 2004. Changes in water availability and quality have altered once vibrant practices. In the words of a local fisherman: “We used to bathe and perform pooja for Lord Ayyappan (Hindu ritual). We also used to catch fish even in rough seas and offshore to feed ourselves. Now nothing can be done, that life is long gone.” Most of the houses in Chandrapadi are rotting, due to the combination of humidity and the salinity of the region. The risk of collapse increases during the rainy season, affecting even newer houses built only five years ago. Renovation and reconstruction are urgently needed. The traditional fishing technique known as “kacha”, using a trap cage and practiced by elderly fishers unable to fish in the sea, has completely disappeared due to the degradation of brackish water bodies.



Boat landing site for traditional fisherpeoples, Chinnakottaimedu



Shrimp farm, Chandrapadi

GOVERNMENT ACTION AND INACTION

Aquaculture, including shrimp farming, is regulated by several laws in India. According to the [Coastal Aquaculture Authority Act \(2005\)](#), coastal aquaculture cannot be conducted within 200 meters of the high tide lines. Also, shrimp farms are required to treat the post-harvest water before releasing it back into the sea to avoid any adverse impact on the environment and the ecosystem. Both hamlets are located within 200 meters from the sea yet no treatment is done at the time of discharge, according to testimonies from fisherfolk and local non-fisherfolk communities. The establishment of shrimp farms is also in violation of the [Coastal Regulation Zone \(CRZ\) Notification \(2019\)](#) as they are established in ecologically sensitive areas as categorised by the CRZ Notification. Despite the human and environmental impacts of shrimp farms, both the central and state governments of India continue to promote shrimp farms and aquaculture through [financial subsidies](#) and [insurance schemes](#), thereby failing to respect and protect the RtFN of the fisherpeople.

AUTHORS:

Pradeep Elangovan, Jones T Spartegus, Yifang Tang

EDITING AND PROOFREADING:

Katie Anne Whiddon

PHOTOS:

Pradeep Elangovan

Caption on the front page: A traditional fisherman in brackish water, Chinnakottaimedu.

ACKNOWLEDGEMENTS:

The authors express their gratitude to the Mayiladuthurai District Fisherwomen Federation Tamil Nadu, India for its kind support.

PUBLISHED BY:



FIAN
INTERNATIONAL



NOVEMBER 2023

Sponsored by the Rosa-Luxemburg-Stiftung with funds of the Federal Ministry for Economic Cooperation and Development of the Federal Republic of Germany.



**ROSA
LUXEMBURG
FOUNDATION**