Fishing at the Frontier

Lived Experiences from a Riverine Fishing Community at the Bangladesh-India Border

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A fisher standing hopelessly on the erosion site, losing all of his properties in the womb of the mighty Padma River. (Photo: Jaman Ahmed Udoy,2021).

This chapter reveals how riverine fisheries serve as a livelihood option for vulnerable fishing communities and identifies the major challenges and stressors these communities face at the Bangladesh-India border. Riverine fishery plays a significant role in livelihood, food, nutritional security, employment, and culture for the local fishing communities; however, this community is continuously shrinking and displaced due to various natural and man-made reasons, particularly by a barrage in the upstream. The 'Farakka Barrage' extremely disrupted the natural riverine production systems, especially fisheries, through noticeably changing natural flow patterns and hindering migrations of fish. Most importantly, riverbank erosion threatens fishers' livelihoods, leading to a devastating loss of homestead land while also changing border boundaries at the frontier. To shield the geophysical and socioeconomic vulnerability of fishers, the unprotected settlement should be safeguarded by efficient and environment-friendly embankments, and their livelihoods should be protected under existing social safety net programs.

Introduction

Bangladesh is situated in the world's largest delta, the Bengal delta. The country is crisscrossed by rivers of varying size and length that primarily originate from three major river basins: the Ganges, the Brahmaputra, and the Meghna. There are 406 flowing rivers in Bangladesh, of which 57 are transboundary rivers, 53 of which originate in India and three in Myanmar (BWDB, 2021). For millennia, rivers played a significant role in the development of human civilizations worldwide as humans relied on rivers and floodplains for their livelihoods, culture, and food (Ahmed and Sinha, 2014). In Bangladesh, people living in the rural areas along the rivers harvest fish almost all year round. Perhaps more than in any other nation, they catch fish without any prior or little investment as part of a subsistence fishery or as professional fishers. A large section of the population relies on riverine fisheries for food and employment. Apart from directly fishing, many people rely on other fishery-related practices such as fish marketing and trading,

craft, and gear repairing activities to make a living. For many people, fishing is a seasonal activity, mainly during the rainy season. But for traditional fishing families, it is the primary and, in some instances, the only source of income (Rahman et al., 2002). In addition, each year, many people join fisheries-related activities since they have lost other livelihood options as a consequence of natural disasters such as cyclones or riverbank erosions. Thus, riverine fisheries often serve as the 'activity of last resort' or 'safety valve' for the impoverished section of the society (Islam, 2012).

Riverine fisheries were once well-known for their rich biodiversity and are still cherished for the exotic taste and texture of the fish. However, due to the water withdrawal activities in the upstream countries, barrages, dams, canals, and tunnels have dramatically altered the waterflow — to the point that several long stretches of even those larger rivers stay dry for most of the year (Ahmed & Sinha, 2014). Over-exploitation of the fisheries resources, degradation of the natural habitats, siltation due to reduced water supply, construction of sluice gates are all major threats and stressors to the sustainability of the riverine fisheries and the livelihoods of those who depend on them (IFC, 2012). However, challenges to river-based fisheries are multi-faceted and new challenges are continuously evolving. This chapter presents how riverine fisheries serve as a livelihood option for the people living on the border areas of Bangladesh and the challenges they regularly face.

The Padma River, anthropogenic changes, and affected livelihoods

The Padma, as a transboundary river, is known as the River Ganges in India. It is a symbol of faith, hope, culture, sanity and a source of livelihood for millions. The river is the center of social and religious tradition in the Indian sub-continent and most sacred in Hinduism, known as *Ma Ganga* (Mother Ganga) as a living Goddess. By supporting agriculture, animal husbandry, fisheries, tourism, trade and transport, the river contributes significantly to the livelihood, food, and nutritional security of about one-third of Indian and

two-thirds of the Bangladeshi population (Kumar, 2017). It is also a center of cultural heritage and has long been a source of fishery-based livelihoods. The biography of the Padma fishermen and boatmen, their joys and sorrows of life, the laughter and the tears, the lack of grievances — which are inherently an integral part of that way of life — are portrayed in Manik Bandopadhyay's classic Bengali novel *Podda Nodir Majhi* (Boatman of the Padma).

The Padma River in northwestern Bangladesh is vital to riverine fish species as a feeding and breeding ground. The most famous fishery species is Hilsa (*Tenualosa ilisha*), locally called 'Padma Ilish'. The species of Padma is the tastiest of all Hilsa — rich in fat and flavor. The Padma River in Bangladesh holds immense importance for supplying water for irrigation, trade and business, transportation, conservation of wildlife, and daily household use of riverbank inhabitants (FAO, 2011). However, the free-flowing Ganges River faced its first barrier in 1974, when the Farakka barrage was built by the Indian governments near the Bangladesh border. The dam is situated 17 kilometers from the border with Bangladesh, and was built to withdraw water from the river, which immediately caused severe socioeconomic and ecological consequences in Bangladesh. The withdrawal of water causes serious ramifications to the riverine fisheries of the Padma River. Following the operation of Farakka barrage, the flow of the Ganges in Bangladesh reduced significantly in the dry season. It was estimated that the average pre-Farakka flow (1934–1975) was 2,340 m3 /sec, whereas during post-Farakka, the average flow was recorded to be only 1,236 m3/sec (1975–1995) at Hardinge Bridge point in Bangladesh (Rahman, 2006). At the same time, the discharge of water is increased during monsoons, causing flash floods. The fluctuation of Ganges flow significantly degraded the total ecological system by disrupting fisheries resources, agriculture, navigation, and has led to a growing salinity intrusion from the coast (Mirza, 1997; Giupponi, 2014). River navigation, which is called the heart of Bangladesh's transport network, was also significantly affected. The country already lost about 15,600 km of inland navigational route, and another 3,300 km has become risky for navigation due to the upstream withdrawal of water in India (Ahmed, 2006). Moreover, many fishers, boatmen, businessmen, and farmers have changed

their livelihood patterns during the post-Farakka period (Hossain, 2009).

Characterization of small-scale fisheries in the Padma River

The fishing communities presented in this case study live on a *char* (riverine silted island), known as Char Khidirpur. The char is located at the Bangladesh-India border on the bank of the Padma River. 120 fishing households were surveyed through face-to-face semi-structured interviews. In addition, 5 focus group discussions were conducted to gather empirical data. The age of the active fishers ranges from 14 to 76 with an average age of 46. The majority of people are born in the char while the rest are migrants who came to the village after losing their lands due to river erosion. Most of the fishers' families were composed of 4 to 5 members (54.16 percent), 2 to 3 members (31.66 percent), and more than 5 members (14.16 percent). Almost half of the fishers are illiterate, and the rest attended five to ten years of schooling. There is only one government-run primary school in the village. More than half of the fishers (58 percent) send their children to primary school, and the rest employ their children in income-generating activities, mainly in fishing. The instances of child labor are high. Around 65 percent of children study and work besides to supplement the family income. Almost 100 percent of women are housewives, and some of them help their husbands in agricultural work. About 45.65 percent of people are involved in fishing as their primary occupation. The rest do fishing alongside other activities i.e., agricultural work, day laboring, petty business etc. About 55.61 percent of fishermen have an average monthly income that ranges from BDT 8,001-10,000, 19.09 percent of fisherman earned BDT 6,001-8,000, while only 11.62 percent earned more than BDT 10,000 (1 USD=85 BDT). For the majority of the year, the fishers are hardly able to save any money after meeting all the expenses, and the majority live from hand to mouth. However, during the peak season, when they catch a lot of fish, they could save money to cover the expenses during the lean period of the year. About 80 percent of fishers have no

additional land except their homestead. The overall characteristics of the fisheries systems are presented in Table 1.

The physiographic condition of the char is precarious and prone to erosion. The fishers have to move from one place to another if they lost their land due to river erosion. Thus, the majority of the residents are found to be living in temporary huts made of mud and roofed with a kind of weed leaves, locally called 'Kash Bone'(*Saccharum sponfaneum*) collected from the riverside. Another smaller group of fishers live in a tin shed surrounded by tin house. Some relatively wealthy fishers live in tin-roofed brick houses. Fortunately, the overwhelming majority have access to safe drinking water from the tube-well while only a few households drink river water. Due to its remoteness, the char is not connected to the national grid of electricity. However, almost everyone has access to solar power-generated electricity. The island is poorly connected to divisional headquarter Rajshahi, the major city in the region. For modern treatment facilities, fishers have to cross the river to go to Rajshahi. Due to poor connectivity, in many cases, the dying patients fail to reach the hospital in time.

Fishing as a livelihood strategy

Almost all the fishers are hereditary fishers, and they want to continue this professional tradition into the future. Despite the adversities and hard-working environment, the fishers find peace and solace in their forefather's profession. They believe that there is a spiritual connection between this river and their occupation. For this reason, they cannot leave this profession even in an unfavorable environment, and they are proud to introduce themselves as fishers. They are highly skilled and professional, and they don't have convertible skills to do other jobs, so fishing is their only hope. But, again, to start agricultural farming or petty business, they would require adequate capital, which they cannot manage. Thus, they entirely depend on the riverine fishery for their livelihoods. Fishers use a variety of fishing gears and crafts for fishing. The majority (68 percent) of the fishers have their own fishing craft; the rest of the fishers hire fishing boats from other fellow fishers or the

dadondar (local private money lenders and investors in the fishing business).

Table 1. Characterization of small-scale fisheries in the Padma River.

Key features	Explanation
Use of boat	Fishers use boats for fishing at a short distance from the bank or in a distant river.
Types of boat & size	Both engine operated boats and Dingi (non-mechanized simple boat) are used. Usually, small & medium size boats were used in the study area (mostly between 5-15 meters), with a few small trawlers for deep river fishing.
Power of boat engine	Mostly 5HP to 20HP
Materials of boat	Mainly by wood from Mango tree (*Mangifera indica),* Jambul tree *(Syzygium cumini),* Lebbek tree *(Albizia lebbeck),* Shishu tree (*Dalbergia sissoo*) and plain sheet.
Boat production cost	Small to medium size: approximately 40-60 thousand BDT. Large size: different price ranges according to variations; generally costs more than 1 lakh BDT.
Use of fishing gear	Gill net, Seine net, Cast net monofilament, Gill net, Push net, Scoop net, Fishing trap, Hooks & lines, Set bag net and Wounding
Number of people required for gear operation	Usually 3-5 members
Major target fish species	Hilsa shad, *Aspidoparia spp.*, Flying barb, Giant river prawn, *Tengara mystus,* Tank goby, Ticto barb, *Mola carplet*, *Garua Bachcha*, Humped featherback, Bronze featherback, Long-whiskered catfish, Wallago catfish, Stinging catfish, Rohu carp, Catla, Silver carp, Indian river shad, Ganges river sprat, Striped spiny eel, Himalayan glassy perchlet, pama, Corsula, Black rohu, Pangas catfish, Rita, Spotted snakehead, Striped snakehead, Great snakehead, Climbing perch, Giant gourami
Fishing area	Fishers have the right to fish throughout the river. Fishing areas range from short distance of 2-3 km to longer distance of 20-25 km. With the water flow changes of river, fishers also change their fishing areas.
Monthly income	6,000-10,000 BDT
Fishing season	Year-round
Occupational mobility	Only fishing; Fishing plus other employment (e.g., agriculture, day laboring, petty business etc.).
Main purpose of fishing	Mainly for both sale and household consumption or either for sale or consumption.
Disposition of catch	Direct sales to town market or local market, sales to middleman, and retailers.
Processing of catch	Sold fresh for human consumption.
Fishing restrictions	Fishing nets with mesh above 4.5 cm. Two ban periods for hilsa shad fishing. 22- day fishing ban to protect brood hilsa shad in October each year. 8-month fishing ban to protect juvenile hilsa shad (November to June each year).

Both engine-operated boats and non-mechanized traditional boats (*Dingi*) are used by fishers, which are usually small to medium in size. The size of these

boats varies between 5-15 meters. Engine boats are used for fishing in distant part of the river, while *Dingi* is used for fishing in short-range distant fishing. A few small trawlers were also used for deep river fishing. Engine power of the mechanized boat mostly range from 5HP to 20 HP. Boats are mainly made of wood from the Mango tree (*Mangifera indica*), Jambul tree (*Syzygium cumini*), Lebbek Tree (*Albizia lebbeck*), Shishu tree (*Dalbergia sissoo*), and plain sheet. The production cost of *Dingi* boats range from 20,000 to 25,000 BDT while medium-size, engine-operated boats cost between 40,000-60,000 BDT. Production cost of large size engine-operated boats depended on various factors, including wood quality, engine power, and other variations; the cost of these boats is generally over 100,000 BDT.

The fishers employ a range of fishing gears, including *Fash Jal* (Gill net), *Ber Jal* (Seine net), *Khepla Jal/Jhaki Jal* (Cast net), *Current Jal* (Gill net), *Thela Jal* (Push net), *Chekna Jal* (Scoop net), *Ayngta ber* (Fishing Trap), *Barshi* (Hook & line), Behundi Jal (Set bag net), *Ungta* (Wounding gear) as well as some traditional gears such as *Koch*,*Vair doar*, *Gang Dohar* etc. Usually, fishers go fishing in groups. In most cases, each team has 3-5 members. Operating a *Ber Jal* (seine net) requires 15-20 team members. Although fishing activities mainly take place at night, some fishers also go fishing in the early morning. The fishing trips usually last for 12 hours. The total fish catch greatly varies, and the average fish catch per fisher, per day, was about 8-10 kg during the peak season and 1-2 kg during the offseason. The catch rate also varies depending on the height of the water column in the river. The majority of the fishers perceived that they usually get the highest fish catch when floodwater started to recede at the end of the monsoon period. Another group of fishers perceived that the highest yield happened during the monsoon periods. The differences in opinion may be connected to the fishing gears they use. However, all fishers agreed that fish catch is becoming low during the winter season (December-February).

A major part of the catch is sold to the middleman. The retailers buy some catch and a smaller portion of it is directly sold to the consumers in local markets. On top of that, some high-valued fish are destined to city markets in Rajshahi. All fishers experienced a decrease in the amount of catch in

comparison to the previous years. Several types of fish species that they caught 10-15 years ago are now almost extinct or rare. The fishers thought several anthropogenic factors to be responsible for fishery decline in the Padma River. According to the fishers' perceptions, several man-made causes such as the use of destructive fishing gears, catching of brood fish, over-fishing, sand mining in the river, river pollution, building embankment on river flow, reduction of water due to the Farakka barrage, and siltation are behind the decline of the fishery. Due to the extreme disturbance of the river's ecological environment, fishery species are losing their feeding, breeding, and spawning ground.

Fishers' lived experiences at the frontier

According to the Mujib-Indira Border Treaty (1974), midstream of border (transboundary) rivers define the boundaries of Bangladesh and India. As the lower riparian state Bangladesh faces a greater risk of riverbank erosion on its side. The erosion of border riverbanks creates problems in border demarcation as the border pillars are sometimes washed away by erosion. This fluid border boundary often triggers conflicts between India and Bangladesh. Both countries will then engage in action to take over the new land (Mia, 2012). This case study on fishers portrays an example of how riverine communities face untold miseries as they live near an unstable river boundary. Due to the riverbank erosion, the border demarcation is changed, and the Border Security Force (BSF) of India has established a surveillance in those places where the border pillars of Bangladesh have been eroded. This situation creates a barrier for movement to mainland Bangladesh, as fishers must pass through Indian surveillance posts to go to mainland Bangladesh. Due to the conflict between the border security forces in the riverbank eroded areas, fishers often need to postpone the fishing activities. Sometimes Indian border security forces block fishers from going fishing in the rivers. The river-based ferry communication with Rajshahi also frequently faces obstruction. Communication with Rajshahi city is becoming very difficult, and fishers had to go through many split journeys to reach the city, which frightens them due

to a perceived sense of insecurity. There have been instances of fishers being robbed on the river during their trips. The transportation ferry to Rajshahi operates only at a specific time in the day which hampers the transportation of fish that is caught at different time schedules. Thus, fishers must sometimes hire a boat, paying a high price to transport small amounts of fish, which creates additional financial pressures. In this situation, fishers are forced to sell the fish at a lower price on the local markets. The fishing communities also face multifaceted challenges due to weak governance system. Some influential people use illegal gear for catching fish during the ban periods, but they are never brought in front of the law because of their connections to local politicians. As a result, genuine fishers cannot find enough fish even after working hard all day. At times, local fishers also employ illegal fishing gear to catch a higher number of fish; they often get imprisonment and fined, which burdens the family. The family often had to face financial trouble for continuing legal procedures, resulting in extensive hunger and poverty.

Overall, the livelihood outcomes of these fishers at the frontiers are dismal. Instead of catching fish in their nets, the fishers themselves have been caught up in a complex tangle of poverty, insecurity, and deprivation. The life of the fishers is trapped in *dadan's* net of moneylenders. This debt is hard to escape, leading to endless crises. From generation to generation, the chain of poverty is a constant obstacle in their lives. In sustaining their livelihood, they have to take loans at a high interest rate from moneylenders. As almost all the hard-earned income of fishers goes to the moneylenders to repay the loan, the condition of the fishing family remains unchanged. Even if they had thousand dreams, they cannot build even the smallest fortune.

Hazardous spaces and displacement

Living in a hazardous environment, fishers constantly face the risk of displacement from their settlement due to erosion (Figure 1). The fishing village is under an ongoing process of erosion. There were four villages on the char but within fifteen years, three villages were completely eroded. As a result, the land area of the char is decreased: from 4,000 hectares to only 40

hectares with only one remaining village. The population has also decreased: from about 10,000-12,000 to 3, 500. Riverbank erosion forced the fishing communities in the village to move their home from one place to another like nomads. They shared their thoughts of looming fears, afraid that when they are out fishing on the river, their house might be lost in the womb of the river. During the rainy season, many of them will lose their houses and will need to build new ones in other places. In a sudden event of released water from the barrage, they may lose their home with all their belongings. About half of the fishers reported losing their home 5-6 times due to erosion; the rest had to move even more frequently — about 8-10 times in their lifetimes. While the local authorities often attempt to control the erosion, these attempts are primarily short-termed and inadequate to protect the land during the monsoon season. Thus, riverbank erosion is likely to continue with the risk of changing border river boundaries.

Figure 1: (Left): Part of the fisher's home just near the bank of the river, thus prone to riverbank erosion (Photo: G. M. Mehedi Hossain). (Right) A fisher standing hopelessly on the erosion site losing all of his properties in the womb of the mighty Padma River (Photo: Jaman Ahmed Udoy)

According to fishers' statements, when the banks of the river collapsed, and the Bangladeshi villages disappeared, the Indian Border Security Forces (BSF)

established the surveillance post in these parts of river water. When the river water recedes in winter, the course of the river changes. To go to Rajshahi, the nearest economic hub and divisional headquarters, the fishers need to cross over the river to where the new Indian surveillance post is. In these cases, they have to rely mostly on the whims of the Indian Border Forces to allow passage. Unsurprisingly, they are terrified of fishing and moving across the border region. According to the fishers, due to smugglers' involvement in the smuggling activities on both sides, innocent fishers face various problems. There have been several allegations of Bangladeshi fishers being detained and tortured by Indian border guards. It was also reported that the fishers from another side of the border often fish illegally in Bangladesh's water territory with highly efficient and destructive fishing gears. This type of action sometimes causes skirmishes between the two countries' border guards, and these fishing communities often bear the brunt of the consequences.

The fishers have blamed Farakka Barrage for the hazardous riverscape. Due to the construction of Farakka Barrage upstream, the flow of water in the Padma is significantly reduced during the dry season. As a result, fish biodiversity in the river has lessened, and agricultural works are at risk due to insufficient water. Notably, in the monsoon, all gates of Farakka Barrage remain opened to release floodwaters. Consequently, the water level of the river Padma in Bangladesh reaches dangerously high levels, inundating surrounding households and intensifying riverbank erosion. Excessive sedimentation, river depth declination, change in thalweg and water flow direction are the adverse effects of the Farakka Barrage. These changes together are the main factors behind the riverbank erosion. The number of fishers is decreasing in these Charlands as their lives are getting more complex day after day. According to one estimation, about 1,500 fishers have migrated over the last five years, relocating to other places, a process which is continuing to date. They mostly settle in the shanti areas of Rajshahi city, working as a day laborer, rickshaw pullers, masons, or sand miners. Some of them even migrate to longer distances, leaving no trace of their previous life in the char.

Conclusion

This study illustrated the deficient standard of living of the fishing families that are far behind in fulfilling their fundamental rights and sustainable livelihoods. Indeed, there has been a lot of progress done in the fisheries sector of Bangladesh lately. Still, without achieving a sustainable standard of living for small-scale fishers, this progress is not expected to last as small-scale fishers are the lifeblood of the fishing sector. The fishing communities in question are undoubtedly vulnerable, both in geophysical and socioeconomic terms. Efficient and environment-friendly embankments should safeguard the unprotected settlement and their livelihoods should be protected by the existing social safety-net programs. In broader context, both the government and non-government organizations must focus on the sustainable development of these vulnerable communities by improving their quality of life and building capacity.

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