SMALL-SCALE FISHING COMMUNITY OF *HAOR* AREAS: WHAT MATTERS TO THEM

ABSTRACT

Small-scale fishing communities in *haor*areas are among the most vulnerable to climate change and poverty. The aim of this study is to investigate the context of small-scale fishing communities in Sunamganj and nearby regions in terms of climate change and poverty. *Haor* regions are critical to the Bangladeshi economy, and many of people rely on them for a living. Small-scale fishing communities in Sunamganj are regarded the most vulnerable among the populations who live in *haor* regions because they are socially disadvantaged, undereducated, lack market access, have the identity of a working-class community, and have no notion how to change their fortunes. Due of climate change, the environment in many locations is changing, and as a result, the supply of fish is diminishing year after year. Additionally, the regular flash floods in these locations leave the fishing population vulnerable owing to restricted access to basic supplies. These factors contribute to the impoverishment of the small-scale fishing community and its decline into the vicious cycle of poverty. Also, they have limited access to tools and other sources of money that may aid them in escaping poverty. Hence, even if they tried, they couldn't escape their predicament of poverty. As following objectives, we offered a number of government initiatives, additional revenue streams, and local infrastructure restoration.

Keywords: Climate change, poverty, wetland, fishing community, Bangladesh.

1. Introduction

Bangladesh is one of the world's fastest growing nations, rich in natural resources, and known as the "Queen of Natural Beauty." It is mostly rich fertile flat soil, with the bulk of it being less than 12 meters (39 feet) above sea level (Kamruzzaman et al. 2019). Bangladesh is a riverine nation with a long history of interaction with rivers and wetlands with fertile land rich in pollen due to its geographical environment and position with respect to sea level. Besides other different geographical locations, wetlands (*haor*) are equally and sometimes more important in Bangladesh because they provide a stable breeding ground for fish, provide a diverse

environment, help to purify contaminated water, and provide employment opportunities for millions of people (Karim, 1993; Bagchi et al. 2020; Rath, 2018). It also settles pollen at the bottom, which appears mostly during dry season, providing a lot of fertile lands that are incredibly productive for growing crops in these regions.

Haor is a "U" shaped low land that occupies a large area which is created by being isolated from the estuary (Alam, 2004). It receives river water flows, which is why it is full during the monsoon season but dry throughout winter season.This wetland is mostly located in northern Bangladesh, including the districts of Sunamganj, Habiganj, Moulvibazar, Kishoreganj, and Netrokona(BHWDB, 2011). Among many natural specialities*haor* is a one-of-a-kind item from Bangladesh that is a valuable source of aquatic animals all over the world (Hossain et al. 2014). Sunamganj is the poorest of the six *haor* districts, with a high rate of poverty, regular climatic shocks, and insufficient transportation. This district is located at the foot of the Indian state of Meghalaya, posing a major threat to climate change-related disasters such as flash flooding and sudden floods (Mia, 2021). Flash floods hit the residents of the Sunamganj*haor* basin almost every year, destroying nearly every acre of agricultural produce. Apart from that, wealth depletion, such as the destruction of houses, the death of livestock and poultry, and so on, leaves families financially vulnerable. And, again here, their misery has left them in a worse position(Sumiya et al. 2019;Rahman, 2014). Among the wetland communities, small scale fishing communities hold significance contribution in resource extraction in Sunamganj by addressing the need for fish supply in this country (Sultana et al. 2022). They largely dependents on fishing over the years and do not engage in alternate income generating activities. This mostly makes them vulnerable due to the extent of poverty and sudden shocks of climatic events. And it is assumed that small scale fishing communities are the poorest and mostly vulnerable to climatic events among all others (Islam, 2011).

Due to their economic significance and ability to supply the need for fish protein, Sunamganj's small-scale fishing villages do not receive the attention they merit.The country has undertaken several measures to improve the living standard of the Sunamganj*haor* people, but they are insufficient to eradicate poverty and reduce the danger of climate change because the full picture of poverty and the impact of climatic shocks in this region is hidden from view (Tikadar et al. 2022). Especially the small scale fishing communities were mostly ignored in this context which

need to address as soon as possible. That is why, in order to provide an insight to policymakers, this study aims to look at poverty and climatic consequences in Sunamganj.

2. *Haor* Ecosystem in Bangladesh

Bangladesh is surrounded by a diverse range of wetlands, including rivers, *haor*s, estuaries, and mangrove swamps, as well as *beels*, streams, ponds, and floodplains (Hossain, 2014). And each individual belongs to a distinct group of people with distinct patterns of ecology and livelihood. The largest wetland in Bangladesh is "Hakaluki*Haor*," also known as one of Asia's marsh (a low-lying region that is flooded during wet seasons or at high tide and normally stays waterlogged at all times) wetland, located in the country's northeast. In Bangladesh, there are roughly 400 small and big *haor*s occupying an area of around 80,000 square kilometers (IUCN, 2007).

Haor has a wonderful ecosystem. In comparison to other wetlands, the *haor* area's flora and fauna have even more fascinating lifestyles. Because of the continual submersion, "anaerobic bacteria" provides an environment that allows "hydrophytes" to expand underwater without oxygen, and can provide food and shelter for both fish and birds, and can also be used as fertilizer after the water evaporates in the post-monsoon season. Besides *haor* is home to over a hundred species of birds, migratory birds, and wildlife animals. Large swamps are raised during the winter season due to water drying up, where various types of grasses and bushes can be found, providing habitat and a stable breeding ground for birds (Sufian, 2017). Plants that have been uniquely modified to withstand all of *Haor*'s shifts, such as *Hijal* and *Koroch*, also give protection to birds during the year and provide the greatest importance to people and the climate (Thompson &Chowdhury, 2007).

Freshwater wetlands, also known as *haor*s, are vital to the economy of the region. Thousands of people rely on these wetlands for their subsistence. Fishing and farming are, for the most part, the default occupations in wetland regions(Oakkas& Islam, 2020). Depending on the season, they sometimes change jobs. Though wetlands can provide fertile ground for farming in the summer, they are perfect for fishing at any time of year. *Haor* protects the mother fish breeding grounds, resulting in a large amount of fish harvest (Sultana et al. 2022).

Through bringing the terrestrial and aquatic domains together, the *haor* ecosystem has played an important part in the natural cycle. It also contains a substantial number of provincial and national species. In Bangladesh, a large number of flower and vibrate species are fully reliant on wetlands to survive (Yousuf&Kibria, 2017). Inland, migratory, and threatened fish species both

benefit from the presence of ecosystems. As a result, estimating the economic impact of wetlands or *haor* areas on Bangladesh is unavoidable (Aziz et al. 2021).

Bangladesh does have an inland water area allotted to it, and the relatively shallow scheme produced the littoral, which is ideal for small-scale fishing (Islam &Hoq, 2018). In *haor*, there is also a large population that relies solely on small-scale fishing. However, neighborhood values have still been overlooked and undervalued for small scale fishing communities. Many surveys have attempted to report on or examine the climate, habitats, and diversity of fish species, but small scale fishing communities has received far less recognition than it deserves.

3. Small Scale Fishing Community in Sunamganj

Haor is the mother of fishery and is made up of water. As a result, the locals' way of life is dependent on water resources. It's a plentiful resource with a variety of delectable fish species that are in high demand both domestically and globally (Hasan, et al. 2017). As a result, a notable portion of the population in these areas relies on fishing as a source of income directly or indirectly, while some engage in other non-fishing activities. Even though non-fishing people switch to fishing during the rainy season, fishing is still a mandatory occupation here (Nahar, et al. 2018).

The common name for numerous fishing communities in *haor* areas varies. "*Jaldash*" refers to Hindu fishing families, while "*Maimal*" refers to Muslims in Sunamganj (Hossain, 2021). Professional fishermen, seasonal fishermen, and pabulum fishermen are the three categories of fishermen categorized on the basis of catching fishing as an occupation by small scale fishers in *haor*. Pabulum fishermen only fish when they are paid to do so; otherwise, they fish wherever they want. Professional fishermen fish throughout the year, while seasonal fishermen start fishing during the Bangla season Ashar (rainy season: June to October) (Deb &Haque, 2011; Alam, 2001). While there are various types of fishermen in the *haor* areas in terms of occupation, place, and name, almost all of them are small-scale fishermen. The following is how they describe themselves as a small-scale fishing community:

Small-scale fisheries imply a comparatively low investment, conventional fishing gear and boats, restricted access to well-developed fish markets and fish capture for livelihood.

Small-scale fishermen usually fish in the *beel*, which is the lowest section of the *haor* and remains wet even throughout the dry season. They settle there as a group and live as a family for

the duration of their stay. They split themselves into two classes of two vessels while fishing. However, the kinds of nets and fishing methods used are determined by the depth of the water and the species of fish. To capture fish, they usually use the *Berjal, Dori, Chai, Koach, Borshi, Dharmajal, Thelajal,* and*Jhankijal* (Rahman et al. 2016).

Fishermen put in a lot of effort over the years to capture fish and provide for their families. However, no significant changes in their way of life have been noted over time among the small scale fishing communities in this area. They are socially disadvantaged, undereducated, lack market access, have the identity of a working-class society, and have no idea how to improve their fortunes (Hossain et al. 2020). As a result, they have accepted their plight and believe that this is the end of their story. Women and children are assumed to be the most vulnerable members of the small-scale fishing family. Women sacrifice all the majority of the time due to inadequate financial realities, limited access to affordable health care services, and poor education facilities. And when they are pregnant, they are lacking access to basic and emergency health care due to poor road infrastructure in this area. During the rainy season, when the only mode of transportation is by boat, the condition got even worse. Children in small-scale fishing communities, in addition to women, are seriously malnourished and have poor access to their basic needs compared to other areas. Schools and colleges are located miles away from certain communities in rural areas (Islam, 2012). As a result, children find it difficult to attend school. When they are bound by the water, however, they can not attend school for up to a month. Furthermore, due to the weak economic conditions of small-scale fishing, children are forced to support their families by participating in income-generating activities, even sometimes willingly (Kazim, 2011).

4. Climate Change Impact on Small Scale Fishing Communities

Climate change is now one of the most hotly debated issues globally. It has such a negative impact on human lives that policymakers and climate experts have been working tirelessly to transform the negative aspects of climate change into positive aspects (Rahaman et al. 2016). As a result, climate change is a top priority for every nation on the planet. However, nature has its own set of laws, which is why people find themselves in so many dire circumstances as a result of climate change. The majority of people in the *haor*s area like Sunamganj suffer greatly because their survival is dependent on the habitats and climate of these regions (Islam et al. 2022).

In a single year, people in the Sunamganj*haor* area mainly face two major climatic events: flood and drought. Extreme rainfall in this *haor* area from April to June triggers floods and destroys whole crop fields (Kamruzzaman& Shaw, 2018;Mahtab et al. 2018). Drought, on the other hand, occurs during the winter and pre-monsoon months of December to May, resulting in a reduction in the river water supply (Roya et al. 2019). *Haor* habitats and biodiversity have changed as a result of these processes, which affects small scale fishing communities in Sunamganj because their livelihood is dependent on it. People in that *haor* area struggle to catch enough fish during fishing season because inadequate biodiversity has produced poor living places for fish to flourish (Begum et al. 2019). Besides the Sunamganj*haor* area, similar cases are also found and small-scale fishermen in the Halda River area have been unable to capture fish due to the disappearance or change of spawning grounds (Kibria, 2017). As a result, fishermen's limited chances to capture fish on a wide scale are lost, and their income generation process suffers. Climate disasters like floods also occur here and it has a catastrophic effect on crops, land, animals, income, occupations, food and water resources, sanitation, and the welfare of households in all industries (Hossain et al. 2017). One of the flash floods hit Bangladesh's northeast wetland area at the start of 2017, affecting nearly 1 million households and damaging rice crops worth US$450 million like every other year (Kamal et al. 2018). During a flash flood in the area, most people suffer for not having freshwater supply and wrecked homes. Flood reliefs take too much time to reach the spot because communication facilities and roads become very poor during floods in that area (Abedin&Khatun, 2019). In that case, most of the fishing communities become helpless during the flood and also in drought seasons. So it is clear that the Sunamganj*haor* fishing sector's vulnerability is deeply linked to climate change. For this kind of climate change, the small-scale fisherman has tried to alter their fishing profession. But in most of the cases their livelihood status has not improved yet. So, the majority of the small scale fishing communities remain poor, and they have been forced to live in poverty due to frequent floods and other natural disasters (Haque et al. 2022). This type of circumstance creates a vicious circle of poverty among them. But people in the *haor* culture are still overcoming disasters by using a variety of new tactics, though they are insufficient. It is common knowledge that we cannot always manage nature on our own, however we can minimize losses. We have little to do in *haor* areas for the poor fishing community except enforce effective policies to mitigate climate risk (Dey et al. 2021).

5. Widespread Poverty among Small Scale Fishers

For the last three decades, Bangladesh has made enormous strides in all aspects of poverty alleviation. Bangladesh has battled poverty hard and effectively since the 1990s, reducing poverty from 59 percent in 1991 to 25 percent in 2016, according to Bangladesh Bureau of Statistics data. During the same time frame, severe poverty plummeted from 43 percent to 13 percent, a significant achievement (Nuruzzaman, 2019). However, the question emerges when we inquire if Bangladesh alleviates poverty fairly in all regions.

In Bangladesh, the total area of wetland is about 7-8 million ha, which is about 50% of the total land area (Haroon&Kibria, 2017; Islam, 2010). And, *haor* areas of Sunamganj is one of the underdeveloped area as mentioned earlier, with a population of about 2.4 million, and one of the districts with the highest poverty rate (Islam, 2022). Poverty is declining in these regions, but not significantly so as compared to the rest of Bangladesh. The key causes for their poverty are most likely their geographical area, high susceptibility to sudden and flash flooding, low schooling levels, inadequate housing, and limited access to alternative income-generating activities (Sharmin& Islam, 2013). As Sunamganj district is highly vulnerable to natural disasters and it has a significant impact on their livelihood and, food and nutrition survival. Small-scale fishing communities secure their livelihoods from *Haor* by capturing, selling, drying fish, preserving aquatic life, and weaving nets and all of these are mostly seasonal in nature (Rahman, 2019). Income of most small scale fishing familiesare below the poverty line and they are one of Bangladesh's most marginalized and poorest groups. Small-scale fishermen's livelihoods are still in risk because they do not have unrestricted access to water bodies for fishing throughout the year due to the influence of political and local leaders (Pandit et al. 2022).

Poverty and *Haor* are inextricably linked. The *haor* community strives tirelessly to lift itself out of poverty (Hasan, 2019). They couldn't, though. It has been noted that the extreme poverty status in Sunamganj is caused by a number of major causes, with the *haor* population being the worst. Among them, there is less access to education for people in the Sunamganj*haor* areas. The majority of schools and colleges are located a long distance away from the fishing community, andchildren show less interest to attendschool (Mia, 2021). As a result the future generation as well taking theirs existing occupation and again they are facing the same situation over the years. Furthermore, transportation options are few. The entire *haor* area is immersed in water during

the rainy season, and the only way to navigate is by boat. This causes late supply of fish and agricultural products causing comparatively lower price (Jahan, 2019).

With little access to formal credit sources as well, the small-scale fishing community is finding it difficult to acquire fundamental inputs for their profession (Rahman, 2019). Again, this represents a barrier to evaluate revenue generating activities. They not only have very few alternative sources of income, especially formal sources of income. Moreover, the hairdressers have little access and are not prepared to accept modern technologies. And poverty is still behind them all.

6. Conclusion and Policy Recommendation

The *haor* regions of Bangladesh interrelate small-scale fishing populations, climate shock and hunger. The fishing community is working closely together year after year to ensure safe livelihoods. But climate shocks are destroying their optimism and once again making them poor. While fishing communities make a significant contribution to the hoar economy, they are underestimated. In the past year, the Government has put in place strategic measures to boost the overall state of the hoar economic and infrastructural (Kazal&Hossain, 2017). However, no special effort has been made for this group. In light of this, the following suggestions are made:

1. The government should provide strategic and financial assistance to the most endangered fishing population in order to combat climatic shock.
2. Alternate income-generating activities must be designed to provide financial stability during challenging time.
3. Appropriate steps should be taken to develop local infrastructure, including roads and transportation systems, to ensure improved access to emergency services.

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