

Traditional Fishing Gear-crafts: A Qualitative Study on the Cultural Context, Art of Making and Role of Bangladesh National Museum

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Abstract

The study aims to figure out the traditional culture of fishing gear-crafts in a Bangladeshi village. The people's perception of the historical and contemporary context of using fishing gear-crafts, how and why various gears were made, and to analyze the diversity of collection on traditional fishing gears hold by the Bangladesh National Museum were investigated. The primary data were collected from the 15 in-depth interviews, the museum's galleries, stores, object information system software, records books, and analyzed through thematic analysis. Villagers practiced the culture of fishing gear-crafts and fishing with diverse water bodies 50-70 years ago, which regenerated social solidarity, cultural identity, and subsistence economy. Climate change has led to a loss of water resources and fish diversity, causing the inhabitants to abandon traditional fishing gear-crafts. People used special skills to make seven types of gear-crafts during the monsoon that had different sizes, shapes, and purposes regarding different fish and water bodies. The Bangladesh National Museum's collection of 59 traditional fishing gear-crafts is insufficient since the diversity related to types, marine gears and regions are excluded. It is indispensable to follow an inclusive approach to display the cultural diversity based on endangered fishing gear-crafts in Bangladesh.

Keywords: *Traditional, Fishing Gear-crafts, Climate Change, Bangladesh National Museum (BNM), Object*

1 Introduction

The proverb "Rice and fish make a Bengali" highlights the significance of rice and fish in Bangladesh's lives and subsistence (Valbo-Jørgensen et al., 2007). The country has numerous inland water bodies, including rivers, marshes, canals, and lakes (Das et al., 2022). Fish and fishing are deeply ingrained in culture, with tools, techniques, and equipment being considered traditional methods (Basumatary et al., 2023). Fishing gear-

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crafts includes nets, tools, equipment, and mechanical devices used in aquatic environments to catch fish species (Raju et al., 2016). In rural Bangladesh, sporadic fishermen use nets, rods, or hand fishing for food in floodplains and beels. (Valbo-Jørgensen et al., 2007). The Bangladesh National Museum (hereafter BNM), founded in 1913, opened in 1983 in Shahbag. It collects, preserves, and researches ethnological, political, historical, archaeological, natural, and artwork-based objects and artefacts. The Department of Ethnography and Decorative Art of the BNM showcases local culture, customs, festivals, beliefs, and rituals (BNM, 2016). The Department of Ethnography and Decorative Art of the BNM showcases local culture, customs, festivals, beliefs, and rituals (BNM, 2019). The study examines the historical and cultural significance of Bengali fishing culture by examining the use of traditional gear and crafts made by local practitioners. It also examines the diverse collections at the Bangladesh National Museum, in preserving the lost cultures diversity related to fishing gear-crafts.

2 Literature Review

Mia, Arif, Das, Islam, & Hossen, (2018) investigated around 16 fishing techniques and crafts are found the Surma River, Sylhet where six gear types, including lift nets, dip nets, gill nets, seine nets, cast nets, and push nets. Some gears catch multiple species, while others destroy wild species habitats (Mia et al., 2018). In another study, a total of 28 gears, including nets, traps, and weapons of injury, were found in Ashura beel in Dinajpur. These tools were used to catch 37 different fish species highlighting the need for government education on damaging gear and its impact on aquatic resources for sustainable fisheries (Ferdoushi et al, 2018). Sultana & Islam (2016) examined fishing equipment and techniques in the Chalan Beel, a vast system of fluvial waters with diverse ichthyofauna. The majority of techniques are archaic, rooted in local traditional knowledge, and adapted to the tumultuous conditions. Thirty fishing techniques and tools were examined in this study and grouped into five categories: fishing nets, traps, wounding tools, hooks and lines, and others. Various varieties of fishing nets, including purse nets, gill nets, dip nets, and cast nets, were discovered during a study on traditional fishing nets and crafts used by the fishermen at Hatiya island in the Noakhali area of Bangladesh (Azam et al. 2014).

Ali, Das, Islam, Masud, & Rahman (2014) conducted a study to identify various fishing gears and their modes of operation at the Lohalia River of Patuakhali in coastal Bangladesh. The study revealed a wide variety of gears, some selective for specific species and others catching multiple species. However, some gears destroyed wild species' habitats, causing harm to the estuary's biodiversity (Ali et al., 2014). Sultana, Mazumder, & Kunda (2016) studied at Amtali upazila under Barguna district aimed to identify traditional fishing gear-crafts used by fishermen in the area of the Payra River, a renowned coastal region in Bangladesh, is a breeding ground for various fish species, including *Tenualosa ilisha*. The study found 18 types of fishing gear, including netting, angling, trapping, and spearing. However, some gears were selective for specific species,

causing harm to the river's biodiversity (Sultana et al., 2016). Another study conducted in the Payra River, eighteen types of fishing gear were identified, including gill nets, seine nets, fixed purse nets, lift nets, push nets, cast nets, traps, hook & line, and wounding gears. Chandi Jal caught the highest amount of fish, while Chip Borshi caught the lowest (Hoque, et al., 2019).

The aforementioned literatures did not investigate the rural fishing culture based on traditional gear-crafts, or the growth or decline of these. They could not pinpoint the factors that contributed to the decline of traditional gear-crafts, fish species, and water bodies based on people's perception. The making, usage, and changes in local fishing culture remained unexplored. Moreover, the previous studies overlooked traditional fishing culture of Bangladesh, which has a long history and plays a significant role in the rural subsistence economy.

3 Conceptual Framework

19th Century evolutionary anthropologist classified fishing as the 'art of subsistence' along with other subsistence strategies of primitive people. Many anthropologists explained fishing from material context and ecological relationships by employing a 'natural' model. Thus, emphasis was placed on the individual's technical ability to catch fish and the importance of social organization for adaptation (Palsson, 1989). According to Morgan's humans moved from their initial habitat to numerous locations on the planet thanks to Morgan's Middle Stage of Savagery, where they learned to fish and use fire for cooking. Fish became the first artificial food, allowing people to live everywhere, regardless of climate or location. The 'undeveloped' stage of production is characterized by tribal ownership and the basic or natural division of labor enforced by the family, included hunting and fishing as the first substage (Palsson, 1989). Consequently, numerous significant evolutionary theories of the nineteenth century held that primitive fishing was a distinct and early stage in the development of humans. Many contemporary stories of particular groups of people who were heavily dependent on fishing emphasized this theme. It was common practice in medieval Europe to differentiate between three types of prey based on the medium in which it moved, i.e., fishing, fowling, and hunting.

Hewes (1948) stated that fishing activities are distinctive due to their unique behavior in aquatic environments and the different media used by hunters and prey. He suggests an ecological definition of fishing, which is connected to the capture or gathering of animals or plants that regularly dwell in water. This distinction between land hunting and gathering suggests a more comprehensive understanding of the nature of fishing activities. 19th-century observers were fascinated by primitive fishermen's skills, highlighting the importance of extracting mobile prey. Modern anthropologists like Lubbock, Tylor, and Walton continue to admire these informants' skills, highlighting the fascination with manly activities and nature (Palsson, 1989). Anthropologists often describe fishing in terms of social contexts, as it occurs in diverse social contexts. These societies are not as cohesive as band societies, which unites diverse groups. The search

for a common denominator involves focusing on technical acts and ecological context, such as extracting fish from aquatic habitats. However, an alternative model emphasizes the inevitably embedded nature of extractive activities in social relations. A model distinguishes fishing societies based on access restrictions and product circulation, aiding understanding of indigenous fishing methods (Palsson, 1989).

4 Research Objectives

The study aims to investigate the culture of traditional fishing gear-crafts in rural Bangladesh, and various impacts on this particular culture. In this regard, three specific objectives were explored:

- i) To understand the people's perception on the historical and present context of using traditional fishing gear-crafts.
- ii) To know how and why different traditional fishing gear-crafts were made by the local people.
- iii) To analyze the role of Bangladesh National Museum in preserving the diversity of traditional fishing objects-based culture in Bangladesh.

5 Methodology

The village Chorghosta, which is about eight kilometers away from the Manikganj district town and is located on the bank of the Kaliganga River, has been chosen for the fieldwork due to its history of flooding and abundant fish during the monsoon season. The village's topography and tradition of fishing have been passed down through generations, making it an ideal location for fieldwork. Purposive and snowball sampling were used to conduct 15 in-depth interviews in the village. It has been observed that how certain traditional fishing gear-crafts were made by the craftsman and how these were kept in the home's storage. Additionally, a total of 59 traditional fishing gear objects were selected from the wide ranged collection of objects related to the way of life and culture from the Department of Ethnography and Decorative Art of BNM. All of the traditional fishing gear-related objects that BNM has collected have been observed in the museum's stores and galleries as a source of primary data. The Department of Ethnography and Decorative Art's eight main register books, classification books on objects for people's lifestyles, the Object Information System (OIS), and inventory documents from the Registration Branch have been studied to collect data on these artifacts. Both primary and secondary data were used in this study. Moreover, academic articles and books on fishing equipment have been studied as secondary data. Thematic analysis was used to analyze the data collected through in-depth interviews, observation and other sources.

6 Findings

6.1 Perceptions of the People

The Chorghosta village, was once a fully developed river with numerous canals, marshes, and ponds. The lowland agricultural land was affected by waterlogging during the rainy season. During the rainy season, people make trap-related fishing gear-crafts in their homesteads, using it as a hobby, leisure activity, or profession. One of the participants research Md. Awulad Hossain (75) said, *In the south of Ghosta, there were Vatsala Beel, Garibpur Beel of Harirampur & Ghughujani Beel. But now all have dried up and paddy is being cultivated all over the Beels.* There were some river-based cultures of fishing and sports in the Chorghosta village, as one of the old village member Md. Moyazzem Hossain (72) told,

Every year on the first Sunday of the month of Bhadra, there was a spectacular boat race on the Helachia-Nali canal. Now the boat is far away, water does not come in the canal during the rainy season. Also, fishing was a kind of festival with Polo Bait in this canal during Paush month.



Natural water sources, including rivers, canals, and marshes have dried up, causing limited flow during monsoon. One of the fishermen of the village Md. Rafiz Uddin (64) said, *Kaliganga river near Ghosta village is nearly dead, with no water flow except during monsoon. Seven canals were filled and paved roads built.* Villagers and nearby communities are losing fishing practice, according to Md. Abdul Kader Munsii (65),

Those who once chose fishing as a profession, are now unemployed. It has become difficult for them to survive. A few fishermen families in Baliabeel and Char Baroil villages beside Ghosta village used to earn their living by fishing. Many of them have now given up fishing and joined other professions.

The village and its neighboring peoples were mostly involved in fishing and used to make traditional fishing gears, but tradition of making fishing gears has lost. One of the participants of the research Md. Fazar Ali (63) mentioned,

In the 1980s, in Ghosta, only on the north side of the river, about 80% of the 250 farmer households engaged in recreational fishing with Chai-Doaris during the monsoons. But now you will get Chai-Doari only in four houses. Doaris have been carelessly left on the floor of the storeroom. Boichanya Doari which was common in the area has lost first.

They remember that about 50-60 years back there were lot of waters around every natural source. During the monsoon paddy field used to overflowed and people from different age got engage in fishing with diversified fishing gears. One of the participants of research Abdul Hoque (65) said,

In the 60s and 70s, the rainy season in our locality was heavy water in rivers, streams, canals, and lakes. During monsoon, the water overflowed river banks and entered paddy fields, reaching 8-10 feet in height. This led to no work in the house, and seasonal fishermen, particularly young and middle-aged men, would take 7/8 Chai-Doaris in small boats and set them in the paddy fields of Aman.

The peasants enjoyed crop variety since there was an overflow of water so they could grow crops that were conducive to fishing. According to Md. Chanbor Ali (68),

Our traditional Aman paddy was a type of paddy which was plowed and sown in the month of Chaitra-Baishakh and reaped in the month of Agrahayana-Poush. The more water there is in the paddy field during the rainy season, the bigger the rice plants will float. In this way, even in 12/14 feet of water, this paddy plant can float easily. Three types of Aman rice were available locally – Baaila, Diga and Baran. It is currently in short supply.

To catch fish by trap fishing gears, villagers used to provide natural insects into the fishing gear. One of the participants Md. Taher Uddin (67) said,

In the month of Ashwin-Kartika, the water recedes from the field, causing paddy to fall and increase yield. A green grasshopper is found in the field, and caught in a bamboo cage called Khaicha. This cage serves dual purposes, catching grasshoppers in the afternoon and keeping fish the next morning. The grasshoppers collect Malponka from under the soil in crop fields during break work or in the afternoon.

In the past, they utilized jungle and forest resources to collect natural elements for various Doaris. One of the participants Md. Abdul Aziz (60) said,

As forest has become to perish, we do not get vines today. Trees have declined in a great number. Two or three Doaris can be made from one bamboo. More bamboo needed to make Boichnya and Cheora Doaris. If I want to make around two feet long Bhasa Doaris then the bamboo needs to be cut about two feet long, then its need to be cut very thin pieces (Shala) from bamboo. Shala should be made smooth and make these rounds with a sharp knife by the left arm.

One of participants Md. Aulad Dewan (65) was describing the reason why they give up making fishing gear-crafts for last couple of years.

As continues no overflow occurs, thus the crops have lost day by day. It is hot everywhere, intolerable hot, no rains in the rainy seasons, but more rains in other seasons. No overflow of water happens because the Farakka badh, you know. There are gates, when I monsoon comes, they closed the gate but when there is flood goes, they open the gate. Here are uneven drought and flood. Water comes in river very fast when they opened the gate. But during monsoon no flood and water. How can we catch fish when there is no overflow of water in the area? As no fish, we do not make gears anymore. We the people are responsible for our sin.

There were fish diversities in the village's water resources; they had a culture of sending fish as gifts to relatives, Md. Moyazzem Hossain (72) said about the fish diversity lost and giving up making fishing gears,

When overflow of water in past days, I used to catch Icha (prawn) fish, and many types of Icha such as Thaingai Dimola, Kakulya, Murgura, Neel Dimola. And Baila and Baim. When there was abundance of, we got, then we to do, we sent fish to our relative's house. How many fish I used to send my daughter's house! Look, as water levels have dropped since 1975, so has fishing. I no longer get those kinds of fish. We stopped making fishing gear-crafts when the fish disappeared.

6.2 Art of Making and Using

Villagers made diverse fishing gear-crafts, including traditional tools like *Doail* or *Doari*, for catching various fish types with different techniques. Md. Nawab Ali (60) said, "*Bhasa Doari's Shala is flat and Jiwuba Doari's Shala is rounded. Cheora and Boichna Doari's scales are relatively thinner and rounded.*" The many varieties of fishing gears are made from bamboo and a few other comparable natural materials, with relatively few coming from synthetic sources. Md. Pannu Pramanik (68) said,

Bamboo is the main raw material for making Chai. Chai was usually made with Muli and Morol bamboo and wrapped with bamboo rope. In our Ghosta area, Chai or Doari is made from bamboo in the locality such as Makla, Noli and

Jaowa Bamboo. Along with this, jute rope, coconut rope and GI cable and a variety of vines are required. It takes about 200 to 250 Shala to make a Bhasa Doari depending on the size. Boichna Doari and Cheora Doari need several thousand of Bamboo Shala.

Bamboo sticks are used to create Chai parts, a time-consuming, challenging process that can be completed in one to three days. One of the participants of the research Md. Abdul Latif (61) said,

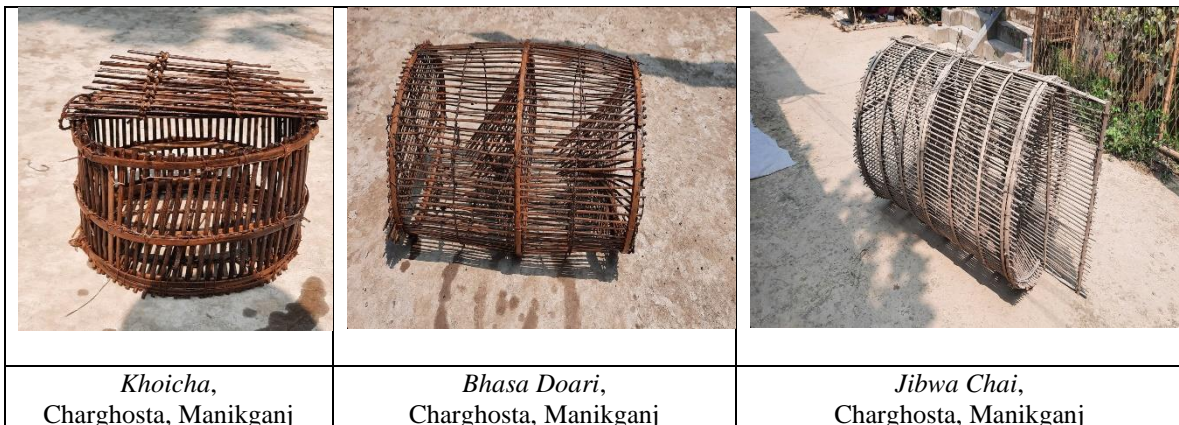
Shala is spread on the ground and bundled with jute rope, coconut twine, GI wire, or vines. Two knitted parts are joined, followed by half inch wide bamboo Bakhari or Chata of round weaved Doari rings covering mouth, backside, and middle. For longer Doaris, additional weaved rings are added.

Making Chai, or Doari is has a different model for different ones, as it is kind of trap then they make some entry part and some trap part where fish get stuck. Md. Shakhawat Hossain (60) said,

A six- or seven-inch-long Shala is laid on the ground with three bines rounded like a cup inside the front part of a Doari. The side should be tightly tied with wire-folds setting along the rings. It is we call Par. Another similar Par should be tied in the same way with the center or ring set inwards.

The inhabitants use various methods to put up various *Chai* in various water sources, supplying insects as food for fish. One of the villagers Md. Abdul Halim (63) said,

I used a bamboo log to press a Doari in the second par's Shala, then attaches jute rope tied to a paddy leaf, marking its location with a knot. The next day, the I retrieved each Doari and observes fish being caught in the cage.



One of the experienced and skilled gear makers, Md. Aulad Dewan (65) has described how they designed their traditional gears with different decorations,

The inner part of the Doari's door has to be fitted first. After that, the same thin Shala is again spread on the ground and cut to the size of the back part of the Doari with an oval bin and set with the back Byne or Chuck and rounded with a little thick Shala and three-fourths tied with wire-fold and the back part is closed. The remaining one-fourth is arranged as a hinge system, through which it can be opened and closed.

Md. Moyazzem Hossain (72) was telling us how villagers follow some techniques of setting *Bhasa Doari* in the water,

Some men take Doari house and set it next to the house for safety reasons if lost or stolen. If I do not dip or soak it, the dry Doari during the day will float in the afternoon, not sitting on the ground under water. For this reason, some people take fish from the Doari again and leave it in the same place. Food or grasshoppers are not given then. We called this method 'Bhasa-Doari Pata' because the leaves are floated from the boat.

Md. Abdul Latif (61) said *Bhasa Doari* was being placed in the rainy season,

Bhasa Doari place until river overflows the river bank. Paddy is tied with Doari so that it does not get washed away by the current water. At the beginning of the rainy season, the work pressure of agricultural people is high in Jaishtha-Ashadha month. From morning till evening, they are busy in harvesting paddy fields. Then before evening, 6/7 people went to the river in groups of 7/8 by bike (with load) with Doaris.

One of the occasional fishermen, Md. Abdui Kader Munsu (65) was describing a traditional gear,

In paddy fields near the river, before the leaves of Doari, tie a Malpoka to the eye of the back of each Doari, close the 'Chali' (open-and-close door) and place it on the ground in knee or waist water and bring 3/4 paddy plants from both sides of the Doari under the water. It is tied with a knot along the middle.

Md. Moyazzem Hossain (72) is also an occasional fisherman used to place in the paddy field and described his techniques,

A paddy leaf (above the water) is kept folded next to the Doari for guidance. If there is a thick paddy in a field, after the Doari leaf, paddy trees up to 8/10 feet in front of the Doari should be stepped on and tilted on both sides to make a 'Kel' (path) for the convenience of fish. In this way, I placed 7/8 Doaris at a distance of 50/60 feet

One of the participants of the research Md. Abdui Kader Munsu (65) said about the time to pick up the gears

In the time of Fajr Azan, they call each other again and go to the river to pick up the Doaris, and one by one, they pick up the Doaris and put them together at one place, and after taking out the fish, load the Doaris on bikes (load them) and return home.

Another type traditional gear *Bana* was being described by Md. Chanbor Ali (68) as follows,

During the rainy season, a Bana which is a type of barrier made of thin bamboo slats is built into the ground at an angle from the dry side of the canal to the mouth of the Doari to get the Doari facing the current in the canal or river. Similarly, on the opposite side of the Doari, another Bana is put into the ground at an angle. Then the lower space between the Bana and Doari is closed with Guji which is a barrier made of dry grass. As the fish swims against the current, it slowly moves towards the mouth of the weir, and when the mouth of the weir opens, it enters and gets stuck. It is generally early afternoon or early evening and is picked up the next morning. The shape of such Doari is basically round.

Md. Taher Uddin (67) is one of the skilled occasional fishermen of the village was describing the how fish get stuck in the *Bana* and *Doari*,

In Kartik-Agrahayana months when the monsoon water recedes or in closed water bodies in winter, the same Doari sets again in a different form in the Beels. The whole channel or water body without current is blocked by making it transversely. After that, sometimes there are double plates facing both favorable and unfavorable sides. Here also the space below between the Doari and the Bana is closed with a Guji of grass. The fish, while moving to and from, get obstructed by the net and enter the Doari from both sides of the net and get stuck.

Another type of unique gear is *Jibwa* or *Cheora Doari* which is used according to water current of the rivers. Md. Pannu Pramanik (68) said,

The mouth of the Jibwa or Cheora Doari is divided into two parts. Jibwa Doari is usually made round. Some Jibwa folds are also triangular in shape. It sets in a horizontal or crosswise direction in canals or rivers so that there is no favorable or unfavorable direction to the current. Two or three of the Jibwa are sown one after the other on the ground. Obstructed from both sides of the current, the fish chew through the Jibwa and get stuck. It also forms sets in rivers or canals.

The two traditional gears *Boichanya* and *Cheora Doari* have few differences of outlook, Md. Pannu Pramanik (68) said,

Boichanya and Cheora Doari are larger and longer Doaris with different entrances for fish. Cheora has long, narrow entrances, while Boichanya has parallel entrances. Similar Doaris are flat and designed to obstruct fish movement. They usually do not fully submerge leaves in water.

6.3 Gear-crafts Objects in Museum

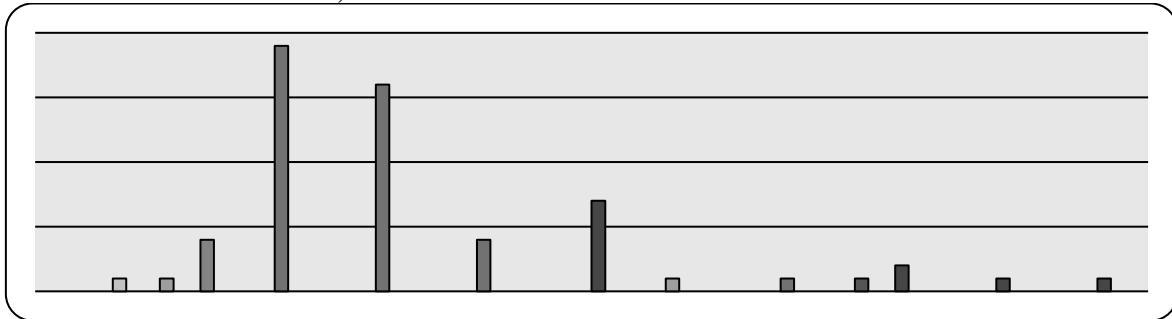
The Department of Ethnography and Decorative Art of Bangladesh National Museum focuses on collecting, preserving, and displaying objects of Bangladeshi people, reflecting their lifestyles, traditions, festivals, beliefs, and rituals. The diversity of collection held by the Bangladesh National Museum regarding the different regional traditional fishing tools are following:

FIGURE: 01; NO. OF TRADITIONAL FISHING OBJECT BASED ON COLLECTION YEAR

Collection Year	1983	1985	1987	1989	1990	2019
No. of Objects	01	02	40	11	04	01
Total No. of Objects	59					

Source: Register Books of Dept. of Ethnography & Decorative Art, BNM 1983-2023

FIGURE: 02; DISTRICTS WISE NO. OF COLLECTED OBJECTS



Source: Register Books of Dept. of Ethnography & Decorative Art, BNM 1983-2023

FIGURE: 03; NATURE OF THE TRADITIONAL FISHING OBJECTS

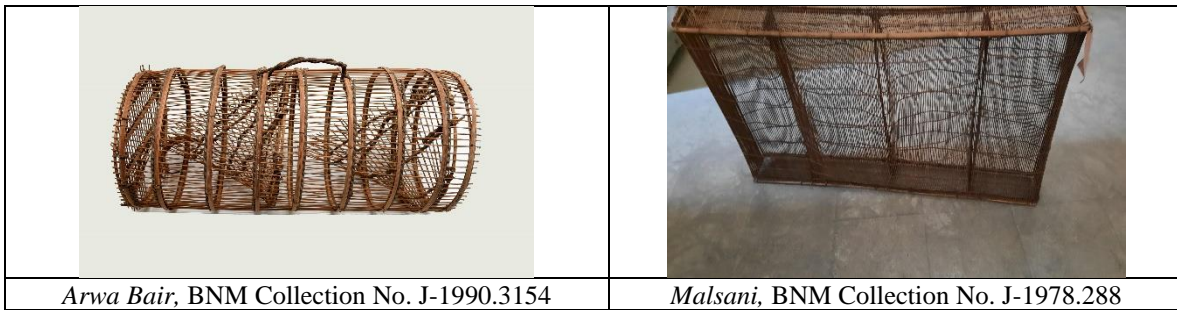
Trap	Net	Tools	Related equipment
21	04	20	14

Source: Register Books of Dept. of Ethnography & Decorative Art, BNM 1983-2023

FIGURE: 04; TYPE OF WATER SOURCES FOR TRADITIONAL FISHING OBJECTS

River	Haor	Canal	Marsh/Pond etc.
17	04	35	38

Source: Register Books of Dept. of Ethnography & Decorative Art, BNM 1983-2023



7 Discussion

7.1 Loss of Eco Diversity and Gears

According to participants opinion, numerous rivers, canals, marshes, and ponds in the village 50-60 years ago. During monsoons, these resources overflowed, attracting fish and a traditional fishing culture. However, this culture is diminishing at the same rate as water resources. Although, Bangladesh has the world's richest fish resources in its extensive interior open waters, which include rivers, canals, lakes, marshes, estuaries, and floodplains (Hossain, 2014). The Bengal Delta's marshes and river convergence contribute to its rich habitats, but open water fish stocks are facing decline due to natural and anthropogenic factors like pollution, overexploitation, and unregulated introduction of exotic species. Natural events like floods cause river channel changes, complicating soil erosion and waterway silting (Hossain, 2014). The village and surrounding areas had a rich eco diversity of trees, insects, crops, and water resources around 50-70 years ago. People used these resources to make traditional fishing gears, collect insects like Malponka and Grasshoppers, and connect with water resources, resulting in a thriving fishing culture. Thus, it is established that biodiversity serves as a significant food and income source for fishing populations (Raju et al., 2016). The traditional fishing gear culture in the village has declined due to decreased eco-diversity and lack of fish. Due to the scarcity, they have stopped making gears and preserving their traditional methods. They had a unique variety of paddy called Bayoila that could grow as tall as the rise in water during a flood. Due to the scarcity, they have stopped making gears and preserving their traditional methods. As a result of the scarcity of fish, they began to preserve their fishing gears and ultimately stopped making gears. Fish populations are impacted by habitat destruction, pollution, climate change, and invasive species, leading to mortality (Gebretsadik, 2016).

7.2 Climate Change's Impact on Tradition

Due to the plentiful water resources, 80 percent of the village's households have engaged in fishing and the making of fishing gear during the previous 50 to 70 years. However, as water flow declined, the village's fish population and tradition of producing fishing gear disappeared. Since many full-time fishermen have given up fishing and followed other careers, their common culture becomes rare. There were three different categories of

fishermen in the village such as subsistence, seasonal, and professional (Rahmatullah et al., 2015). Due to the lack of water bodies and fish, the indigenous culture of making fishing gear is on the verge of extinction. Gift exchange is a crucial social practice in various cultures, creating symbolic and cultural bonds. It establishes and maintains relationships in traditional societies like the Northwest Coast Native Americans, Trobriand Islands, and Maori Hau. Marcel Mauss identifies three obligations, e.g., giving, receiving, and reciprocating. Gift exchange nurtures mutual interdependence and solidarity, as it attaches others to obligations rather than being voluntary (Mauss, 2002). In the Chorghosta, villagers used to send fish to their kin during monsoon abundance, reciprocating gifts. They also distributed fish, fishing gear-crafts among the villagers, fostering kinship through lending and borrowing from others. These practices contributed to the community's subsistence economy, traditional fishing culture and regenerated their kinship.

In fact, fishing is part of a network of activities that includes not just a product, but also culture, kinship ties, community cohesion, and place-based identity (Urquhart et al. 2010). Local people used to make traditional fishing gear-crafts to regenerate social relations and solidarity, while teaching techniques to future generations, ensuring community identity and promoting family involvement in fishing. Fishing is the glue that holds fisheries-dependent communities together (Brookfield et al., 2005). Fisheries communities become susceptible when their social cohesion is eroded and their cultural identity is challenged, as well as when they lack direction, leadership, organization, and a feeling of self-determination (Symes et al., 2009). Data shows villagers cherish their fishing traditions, promoting cultural continuity, but climate change threatens to lose traditional gears, threatening fishing identity and social cohesion. Over 50-70 years ago, people habituated to overflow in water bodies, allowing them to make traditional fishing gear-crafts. As water availability decreased and droughts increased, fish diversity decreased. The Farakka Dam, a geopolitical issue between India and Bangladesh, is perceived to cause droughts, resulting in fish scarcity and loss of fishing culture. Bangladesh faces significant threats from climate change, impacting fresh water cultural fisheries, rainy season, precipitation, flooding, and habitat expansion. Adaptation methods may increase inland capture fisheries production (Chowdhury et al. 2010). All the impacts of climate change have resulted in the loss of tradition of making traditional gear-crafts in villages and associated cultures also.

7.3 Making and Using Variety

About 30 fishing techniques and tools have been recorded in rural Bangladesh and categorized into five groups such as fishing nets, traps, wounded gears, hooks and lines, and others (Sultana et. al., 2016). Chorghosta village's people use traps, nets, wounding tools, hooks, and lines to catch fish using seven types of Doari or Chai, e.g., including Bhasa Doari, Gol Bana Doari, Jiwuba Doari, Boichnya and Cheora Doaris, Ocha, and Khoicha, made from materials like bamboo, jute rope, coconut rope, GI cable, and vines.

In addition to these, a variety of materials are used in different rural areas to make gears, including twine, plastic structural fasteners, clips and swivels, steel wire ropes, combination wire ropes, purse rings, polyester, polyethylene, nylon, cotton, polypropylene, mixed fibers, floats and sinkers, bamboo, and wood (Raju et al., 2016). The Khoicha Doari is a unique bamboo gear with a cylinder-shaped body, three levels, and one-way doors. The Arwa Bair is larger, while Jiwuba Doari has a bamboo layer and a tongue-like mouth. Bana Doari uses bamboo fences to trap fish in the opposite direction of the current. Boichanya and Cheora Doari have different entrances. In the evening, people put some insects into the Doaras trap for the fish, which are placed in a paddy field and tracing sign. They fish during the Jyoishtho to Asharh months, either with a group or alone. The Doaris used in the village vary in art, design, shape, purpose, and technique, all innate skills learned as members of the Chorghosta community.

7.4 Lack of Object Diversity

The Bangladesh National Museum's 59 collection of traditional fishing gears is insufficient to represent the diverse regional culture and traditions of fishing across Bangladesh. For example, Bangladesh's coastal and marine zones, including tidal flat, offer diverse fishing gear traditions, including mechanized and non-motorized boats, influencing various crafts and techniques (Hoq et al., 2013). There are 06, 16, 28 and 11 types of fishing gear-crafts found in Chalanbeel (Sultana et al. 2017), Surma River (Mia et al., 2018), Ahasura Beel (Ferdoushi et al. 2018), and inland water respectively (Kibria et al., 2005). In this context, the BNM could not collect the full range of regional and indigenous fishing gear-crafts that are frequently found in Bangladesh. Likewise, the diversified fishing gear-crafts based traditional culture remains out of canvas of the BNM while collecting, preserving and displaying the traditional culture of Bangladesh.

The traditional fishing object-based data describes that the BNM has collected fishing gear-crafts in 1983, 1985, 1987, 1989, 1990 and 2019 respectively. It has started its journey since 1983, and then about 40 years have passed but the year-based frequency of collection of traditional fishing gear-crafts is insignificant. Likewise, the Dhaka Museum, the predecessor of BNM, had not collected any fishing gear-crafts since 1913. Over the past 50-70 years, the art of making and using fishing gear-crafts in Bangladesh has declined due to the loss of natural water bodies and fish abundance, the changing cultural scenario that occurred in each decade that has not been reflected in the BNM's collection.

7.5 Needs Inclusivity

As Bangladesh is a riverine country with over numerous rivers that crisscross the country to the world's most complicated river system (Hoque et al., 2019). As result, most of the districts have rivers and natural water resources with fishing gears making and using traditions. The BNM has collected fishing gear-crafts from 11 districts in Bangladesh, but the collection is insufficient to represent the diverse fishing gears in different regions,

particularly lacking in Barishal and Sylhet divisions. For example, a total of eighteen types of fishing gear were identified under nine major categorizes which are used in the Payra River at Dumki Upazila in Patuakhali District (Hoque et al., 2019). The BNM's collection of traditional fishing gear-crafts is selective and partial, rather following a holistic approach to cover most districts of Bangladesh.

The main categories of fishing gears that are traditionally used in Bangladesh such as fishing nets, fishing traps, hooks and lines, wounding gears, and fish aggregation devices (Mia et. al2018). However, the 59 traditional fishing objects are categorized into nets, traps, wounding gears, hooks and lines. In addition to these, some related equipments are found within 59 objects. The BNM mostly collected traps and different kinds fishing tools. The focus could have given to collect same numbers of objects from each category. On the other hand, fishing objects were collected considering the water resources like rivers, haor, canals, marsh and ponds, but the marine based fishing gears and craft are not collected by the BNM. For example, a total of 190,023 different gears are used to catch fish in marine fisheries harvest of Bay of Bengal (Nazrul et al., 2018). Such as fixed purse net, gill net, dip net, cast net and some other crafts are used at Hatiya island of Noakhali district (Azam et al., 2014), but BNM has no diverse collection of nets from islands. Furthermore, four non-mechanized crafts made of fourteen types of wood, Hookline, Behundijal, Badhajal, Charpata, Chandijal, Gillnet, Kathijal, and KhalPata are used in harvesting Giant Freshwater Prawn in 16 river or canals and 32 locations of the Sundarbans along the Mongla-Passure-Dubla area within Sharankhola, Chandpai, and Khulna ranges (Shaha et al., 2014). However, the BNM has not collected fishing gear-crafts from water resources such as the Sundarbans regions. Therefore, the collection of BNM from various water resources is insufficient to display the diversity of fishing gear-crafts from all water sources of Bangladesh.

8 Conclusion

The Chorghosta village people used traditional fishing gear-crafts, which regenerated social relationships, cohesion, kinship, cultural identity, reciprocal and subsistence economy of the society. However, climate change, caused by anthropogenic influences like the Farakka Dam, has led to water scarcity, biodiversity loss, and high temperatures, affecting fish abundance and diversity. They started to stop making fishing gear-crafts, exchanging gifts and transmitting knowledge since 1975, and stopped entirely in 2020. They used seven types of Doari or Chai, made from bamboo, jute rope, coconut rope, GI cable, and vines, to catch fish. These gear-crafts were mainly for catching specific species, with few for multispecies (Ali et al. 2014). However, the Bangladesh National Museum has collected 59 traditional gear-crafts in 1983, 1985, 1987, 1989, 1990 and 2019 respectively. The BNM collected gear-crafts from eleven districts, but this collection is insufficient to reflect the cultural changes occurred due to water flow and fish abundance loss in Bangladesh. Bangladesh's fishing gears diversity of different regions like Barishal, Sylhet and Khulna are excluded by the BNM. The BNM's object of

gears of water bodies from rivers, haor, canals, marsh and ponds, but not collected from the marine, islands and Sundarbans, although around 16 types of gears are used in the Sunadarbans areas (Shaha et al., 2014). In this regard, the museum should collect, display, research and exhibits all kinds of diversity of traditional fishing gear-crafts to reflect diversity like types of gears, regions and water resources.

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Acknowledgement:

- 1) Thankful to the people of Chorghosta village, Manikganj and
- 2) Grateful to Bangladesh National Museum, Shahbag, Dhaka-1000
