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POVERTY PARADIGMS AMONG TRADITIONAL HINDU FISHERFOLK AND FLOWS OF MULTIPLE CAPITALS AS COPING STRATEGIES FOR SUSTAINABILITY: AN EMPIRICAL STUDY

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Abstract: Bangladesh is a lower middle-income country, where traditional fishermen, called Jaladas are at extreme risk of long-lasting poverty. Two Jaladas villages were chosen as study locations to identify the roles of different actors in capital penetration and its relationship with poverty dynamics, including socio-economic transformations. This study adopted a qualitative method, specifically Focus Group Discussion (FGD) and also surveyed 100 households selected through random sampling. The study found that NGO-led activities increased awareness, education, leadership development, health and sanitation facilities, legal services, and alternative employment skills to improve the quality of life in one fishing village. However, in the same village, social bondage and kinship, as well as the visibility of traditional institutions become dysfunctional due to the misuse of diversified capitals. Commercial entrepreneurs, who are mostly profit-centric, over-exploit fisheries, and adversely affect the sustainable livelihoods of Jaladas. Furthermore, powerful market functionaries establish strong control in the fish marketing structure. Based on capital management and inherent characteristics, Jaladas cope with changes through collective and individual initiatives. This study urges the state and global donor organisations to pay attention to the political and socio-economic empowerment of Jaladas to ensure their well-being.

Keywords: Sustainability, Jaladas, poverty, capitals, well-being.

Introduction

Global fish production in 2020 was 174.6 million metric tons, compared to 148.1 million metric tons in 2010 (Food and Agriculture Organisation (FAO), 2022). Bangladesh ranked 2nd for freshwater fish production and 5th for fish cultivation, following China and India, which secured 1st and 2nd positions, respectively (FAO, 2020). Small-scale fishing (SSF) in inland and marine zones contributes to employment, food security, supply chain, and socio-economic development. Rashid *et al*. (2020) revealed that Asia, especially South Asian countries, contributes to almost 90% of global fish production. SSF communities in South Asian countries face difficulties such as absence of governance, illegal, unregulated and underreported fishing, and adverse effects of climate change, making nature-centric sustainable livelihoods vulnerable.

Fisheries in Bangladesh are divided into two main categories: Marine and inland. Marine fish are an important source of food and play a vital role in the national economy. Bangladesh has an Exclusive Economic Zone (EEZ) of 166,000 km^2 and territorial rights over 200 nautical miles. The Department of Fisheries (DoF, 2020) confirms that marine fisheries contribute 14.90% to total fish production. The Marine Fisheries Office (MFO, 2019) reveals that SSF contributes 83.72% of all marine catches. Khan and Latif (1997) claimed that the economic conditions of SSF communities and other groups in this sector are adversely affected by certain external factors. Islam (2011) also indicated that SSF communities in Bangladesh face multidimensional poverty. The lack of proper management of fishery resources, scarcity, pollution, population

growth, decline in fish catches, overfishing by commercial entrepreneurs, and limited capacity of regulatory bodies hinder the sustainability of marine resources and the livelihoods of SSF communities. The erosion in income sources leads to multiple problems related to nutrition, health, education, sanitation, and employment.

Historically, marine fishermen in Bangladesh were categorised into different castes and subcastes of Hindus. The 1901 census clearly revealed that there were 550,000 fishers in Bengal with over 95% of them being Hindus (Pokrant & Rashid, 1995). Several substantial studies have shown that Jaladas (meaning slaves of water) are low-caste Hindus belonging to SSF communities, who have been fishing in the Bay of Bengal in Bangladesh for generations (Associated Services, 1979; BOBP, 1985; Ahmed, 1994; Alam, 1996). Alam (1996) described Jaladas as socially neglected, powerless, and seriously deprived of economic benefits. Their personal freedoms are limited by the wishes of Muslim moneylenders.

Entrepreneurs slowly establish control over natural resources and it is anticipated that Jaladas communities will become de facto wage labourers for investors. Jentoft and Midré (2011) also mentioned that traditional Hindu fishing communities not only suffer from income erosion but also other forms of poverty such as poor access to healthcare, food, sanitation, and education. This article focuses on the poverty dimensions of traditional Hindu fishing communities, specifically the Jaladas and their coping strategies for sustainability using multiple sources of capital. The role of different actors in contributing to capital flows and its relationship with poverty reduction has been critically analysed. Finally, this article urges national and global actors to take emergency initiatives for the sustainable well-being of the Jaladas in Bangladesh.

Literature Review

In Bangladesh, studies on the biological and production aspects of fisheries dominate the literature and overlook human issues, particularly traditional Hindu fishing communities. This is a vital research gap. This section describes the findings from previous limited research on traditional Hindu fishing communities. Three theories, i.e., poverty theory, capital theory, and coping theory are briefly discussed to lay a theoretical framework, with a focus on poverty dimensions and coping strategies for the well-being of Jaladas.

The sustainability of similar marine fisherfolk has also been threatened in other countries due to different endogenous and exogenous factors. Asif (2019) found that SSF communities of coastal Cambodia relied on marine resources for many decades. The increasing presence of capitalist groups, particularly in illegal, unregulated, and underreported fishing has caused a decline in catches for the last 15 years. The fisheries sector of Indonesia needs an international effort for its sustainability (Rudolph *et al*., 2020). A total of 95% of Indonesia's fish catch comes from SSF. Indonesia is a leader in attracting private capital flows to the fisheries sector. Cahaya (2015) described the domineering behaviour of middlemen, mostly representatives of the private sector, who disrupt the social structure of fishermen. As a result, most artisanal fishermen become socially marginalised. Angeles *et al*. (2019) revealed that SSF communities in Myanmar suffer from unplanned tourism and their nature-based livelihoods are seriously affected by climate change.

Traditional Hindu fishing communities in Bangladesh face chronic poverty (Rahman *et al*., 2002 and Ali *et al*., 2020). It was found that 88% of Hindu fisher households were below the poverty line. Jonayed (2009) indicated that debt is a major cause of social distress in the fishing community. Fishermen receive *dadan* (advance money as loans) for different reasons (e.g., repairs and buying nets, boats, and other fishing gear, bearing accidental costs, treatment for sickness, ransom to sea pirates, dowry for marriage and rituals, living expenses during the off-season, etc.) on the condition that fishermen will supply their catches to *Dadandar* (the

informal moneylender) at a lower price than the market rate. This exploitative relationship enslaves the social and personal freedoms of fishermen. Jentoft *et al*. (2011) found that Jaladas are a class-exploited group without bargaining power. Fragile institutions and poor organisation are other forms of vulnerabilities. As a result, they become helpless against any exploitation, for example mistreatment by middlemen.

Kleih *et al*. (2003), Singh *et al*. (2019), and Rashid *et al*. (2020) stated that Jaladas are poor and have limited assets for their livelihood. The decline in fish catches, piracy, poor-conditioned boats, exploitation by moneylenders, lack of access to credit on reasonable terms, being denied from marketing structures, and social exclusion are major causes of their livelihood constraints. Dastidar (2009) found that the economy of Jaladas communities in Bangladesh has changed due to technological innovation by investors. It has also led to the formation of a new socio-economic class, changing production relations, and conflicts between SSF and capitalist groups have increased. Moreover, conflicts increase over the control of *faars* (spaces for fixing up nets) due to demographic expansion in Jaladas communities and influx of newcomers in fishing, mostly Muslims. Deb (2010) stated that the livelihoods of Jaladas are primarily dependent on income from natural resources and their engagement in income-generating activities.

Fishermen with low income are not only at a high risk of malnutrition but also live with low social status. Vulnerabilities are cross-sectional in Jaladas communities rooted in natural resources, institutional governance, endowments, geographical location, political environment, and religious and cultural identities that influence fishermen to cope and collectively or individually with changing situations. This article takes into consideration a few theories aligning with the study objectives. The incorporation of poverty theory helps to find out the dimensions of poverty in Jaladas communities. Capital theory supports the identification of diversified capitals and how they affect sustainable lives and livelihoods of fishing families.

This article also adopts the coping theory to scrutinise mediating factors, particularly to examine the use of multiple capitals for improving the standard of living and quality of life. Poverty breeds poverty. Poverty has myriad dimensions that must be studied separately. But it is constituted by an integrated network of deprivations. Laderchi *et al*. (2003), Islam *et al*. (2019), and Ali *et al*. (2020) emphasised a monetary approach to measuring poverty, concentrating on the income (or consumption) short-fall of a person.

However, Sen (1985) claimed that "capability failure" is one of the major reasons for poverty. Silver and Miller (2003) indicated that social exclusion, i.e., declining participation and deprivation of resources, breeds poverty. "An Inquiry into the Nature and Causes of the Wealth of Nations", a renowned book published in 1776 by Adam Smith discusses the concept of capital as a "fund" and "goods". Yet, the concept is evolving. From the perspective of community development and the involvement of people, seven capital situations—human, physical, natural, financial, social, cultural, and political—have been identified. Building Resilience amongst Communities in Europe (BRACE, 2012) refers to the ability to cope with real life, bounce back to previous conditions, and develop skills for avoiding unconstructive paths associated with risks. This article incorporates these theories to investigate the impact of diversified capitals in the Jaladas community, the conditions of multidimensional poverty, and the identification of coping strategies for sustainable well-being. Figure 1 shows the theoretical framework.

Materials and Methods

Study Design

Study design outlines each stage of the research in order to obtain a comprehensive understanding and fulfil the objectives. Duff (2008) and Azman *et al*. (2021) suggested considering the aim of

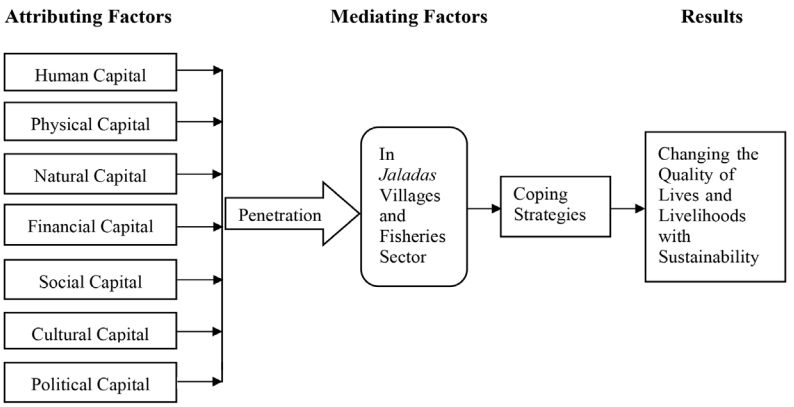

Figure 1: Theoretical framework

research during the study design. Creswell (2014) termed it as a step-by-step procedure espoused before the collection of data, data analysis, and ensuring reliability and validity to fulfil the objectives. On top of that, this study is explorative and phenomenological; hence, it mainly adopts the qualitative method. Gambino and Silva (2009) urged that the household survey is a particular category of social survey. Ricci *et al*. (2019) also emphasised that the reflection of respondents by the qualitative method is strengthened by the incorporation of a household survey. Questionnaire items are helpful to safeguard the validity of the qualitative method. A survey on 100 randomly selected households was conducted to find out key information from the two fishing villages studied. The household survey questionnaire had 21 questions to measure poverty and poverty measurement and approaches of coping with multiple sources of capital. The features of the study design are as follows (Table 1).

Study Location and Respondents

This study was conducted in two fishing villages in Bangladesh. North Salimpur Fishing Village is located at No. 10 Salimpur Union Parishad (UP), Sitakunda, Chittagong. South Dhurung Fishing Village is at No. 2 South Dhurung Union Parishad (UP), Kutubdia, Cox's Bazar. The key considerations for selecting these two study villages are as follows. The Jaladas community lives in both villages and has been engaged in marine fishing for many generations. Fishermen in these villages use different fishing methods and are involved in various type of production organisations, relations, and marketing linkages. Additionally, one fishing village is located on a remote island while the other is in an industrialised zone.

The qualitative method, specifically the Focus Group Discussion (FGD) technique was used to address the study objectives. The authors also surveyed 100 randomly selected households, as suggested by Ricci *et al*. (2019). They argued that incorporating household surveys into the qualitative method strengthens the reflection of respondents and enhances acceptability and comprehensiveness. Van and Angehrn (2017) and Azman *et al*. (2020) suggested that smaller groups of 6 to 12 participants are more effective and informative for an FGD. The main author organised four FGDs with a total of 40 participants (20 females and 20 males). Considering the socio-economic and cultural perspectives of Bangladesh, separate FGDs were held for males and females. Each FGD had 10 participants, which was considered sufficient and manageable for obtaining information.

The participants were selected based on their willingness, knowledge about the fishing community, and real-life experiences. Lewis (2003) found that the facilitation skills of the moderator are essential to ensure the quality of an FGD. Managing time, asking questions, actively listening, and thinking capabilities

Table 1: Features of study design

Features	Application in Poverty Dimension, Flows of Multiple Capitals, and Coping Actions in Traditional Hindu Fisherfolk Study
Theoretical base	Poverty theory, capital theory, and coping theory
Method	Qualitative: Applying the Focus Group Discussion (FGD) technique Household survey to strengthen opinions of respondents
Sample strategy	Qualitative: Maximum variation to select FGD participants, determination of inclusion, and exclusion criteria Put on random sampling for household survey
Data collection	Gender segregated FGD setting and facilitation for reliable findings Using printed questionnaire and door-to-door visit for survey
Data validation	Spot-checking for the face, content, and construct validity Process-centric FGD
Data analysis	Excel spreadsheet for tabulation and data analysis ATLAS.ti software for analysis of qualitative data

are prerequisites for a high-quality FGD. The moderator must also avoid expressing personal judgement and dominating the participants. Discussions should be inclusive and balanced. A female social worker assisted in co-facilitating the FGD with females, ensuring gender-segregated seating and a congenial environment for facilitation. With the consent of the participants, the author used a tape recorder, as suggested by Rice and Ezzy (1999). They argued that recording discussions is a reliable source for coding data and its analysis.

North Salimpur Fishing Village had 408 households while South Dhurung Fishing Village had 190 households involved in fishing activities. The total sample size for the household survey in the two fishing villages was 100, evenly split between the two villages. The authors adopted a random sampling technique, as Singh and Masuku (2014) argued that random sampling is unbiased compared to other sampling methods and provides better estimates of parameters. Each unit had an equal probability of inclusion. The major inclusion criteria for respondents of the household survey were being the head of the household, willingness to provide information, living in the study village, mental soundness, and being at least 18 years old. The authors used the Global Multidimensional Poverty Index-2019, developed by the Oxford Poverty and Human Development Initiative and UNDP to address the dimensions of poverty in the questionnaire, namely health, education, and standard of living. Possible actors of multiple capital penetration such as the government, NGOs, private sector, and in-built characteristics, as well as coping strategies were considered when designing the closed-ended and open-ended questions.

Data Collection

The authors carried out fieldwork from July 2020 to February 2021. Process-centric FGDs were conducted with a tape recorder. The authors emphasised both broad and narrow questions in order to obtain information from the FGDs. Issues such as child mortality, nutrition, school attendance, drinking water, sanitation, electricity, housing, life-saving information, awareness building, access to cyclone shelters, land ownership, fishing assets, income, scope of income-generating activities, training and financial support, sustainable use of fishery resources, security at fishing grounds, institutional supports, social stigma and exclusion, practices of cultural activities, rituals of Jaladas, social cohesion, and coping strategies were discussed through interactive dialogue and

recorded. The authors also visited randomly selected houses and interviewed the head of the household using a printed questionnaire.

Reliability and Validity of Data

Internal consistency typically determines whether respondents consistently agree or disagree with each item on the questionnaire (Sarstedt *et al*., 2019; Halim *et al*., 2020). The authors conducted a pilot study in one study village to assess the reliability of the questionnaire. The heads of five households unanimously agreed on the consistency of the questionnaire items and suggested adding three questions. The responses and suggestions from the respondents demonstrated that the questionnaire construction was reliable. Reliability and validity are closely related with validity being the process of ensuring data accuracy and accurate measurement (Babbie, 2020). Face validity, content validity, and construct validity were emphasised by the authors during the household survey. Two social workers, one male, and one female assisted the author in rechecking the data provided by the respondents. Additionally, the data was cross-checked with the neighbours of the respective respondents.

Cypress (2017) noted that the reliability and validity of qualitative research are process-oriented rather than post-evaluation. Inquiry and constructive engagement during fieldwork are more valuable than post-verification. The author followed a step-by-step procedure to facilitate each FGD. This included setting criteria for participant inclusion and exclusion, establishing a trusting relationship with community members, arranging gender-segregated seating and a supportive environment for facilitation, involving knowledgeable individuals, maintaining a standard number of participants, encouraging cross-person discussion, using sub questions to elicit truthful responses, effectively managing time, and tape-recording conversations.

Data Analysis Procedure

The data from the household survey were limited in size. Thus, a simple arithmetical analysis was made using Excel. The profile of respondents, including their education, employment, income, land ownership, condition of houses, latrine availability, electricity access, access to drinking water, valuation of fishing assets, debt position, frequency and ranking of problems, and coping strategies were quantified through hand tabulation. The survey data analysis highly emphasised approaches for fulfilling the study objectives.

Regarding qualitative data analysis, Kerrigan (2014) described it as an initiative to interpret data content and text by defining themes and systematic classification. ATLAS.ti (8 Windows Version) software was used for analysing the findings from FGDs. The coding process was helpful for interpreting different types of text and identifying themes. Verbatim quotes from FGD respondents were aligned with respective codes. Analysing relevant data generated themes. Ensuring the flexibility and accessibility of data was a key aim of thematic analysis. The authors followed six steps for thematic analysis (Figure 2) as suggested by Braun and Clarke (2012).

Ethical Considerations

The authors followed all ethical considerations at every stage, from data collection to publication of this article. The main author clearly explained the purpose of this study and maintained the privacy of all data, information, and comments of participants. Participation of respondents was voluntary. The authors strove to avoid leading and sensitive questions and assured the respondents that no one could be identified. The present study interpreted field findings from multiple perspectives. Therefore, the authors followed the principle of bias-free data collection, critical analysis, and interpretation. The main author created a congenial environment with a considerate seating arrangement. Participants were encouraged to speak spontaneously.

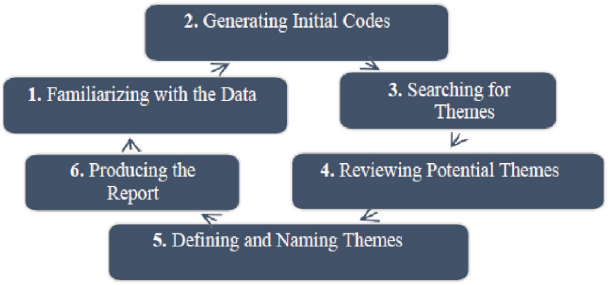

Figure 2: Six steps for thematic analysis

The authors did not disclose the name of any respondent, which could cause possible harm to them. Results and directions of other relevant literature were properly acknowledged in this article.

Limitations of Study

One study village, South Dhurung Fishing Village is on a remote island. The main author had to stay there for many days for data collection. It was a bit difficult to understand the local dialect. Two Jaladas villages from two coastal districts were selected for fieldwork. Thus, the results of the existing study must be generalised with care. Calculating the yearly income of fishermen was very difficult because their daily income is not fixed and they do not keep any records. "Government" and "State" are completely separated. In some cases, respondents mix them up with each other. The authors write their verbatim quotes without any editing, which may mislead any reader.

Results

Education

Household survey reveals that 42% and 74% of respondents from North Salimpur and South Dhurung fishing villages, respectively are illiterate. One fisherman from North Salimpur described his experience with education. He said:

"Our father did not recognise the importance of education. One DANIDA-supported NGO i.e., Community Development Centre (CODEC) started work in our village in 1985. We obtained the opportunity of adult literacy. Around 1,020 children completed primary education from CODEC-led schools. It has increased our dignity in society."

Another fisherman from the same village talked about the rough behaviour of entrepreneurs and the significance of education for sustainable employment. He recounted:

"The fishing occupation of Jaladas will, someday, disappear because of big investment in the fishing sector. Therefore, we are aware of the education of our children. We believe that education will be one of the good pathways for economic emancipation and well-being of our beloved next generations."

One female of South Dhurung echoed this sentiment:

"Economic hardship of family and unawareness of parents, particularly the father, interrupt the dreams of children of obtaining education."

It has been identified that 43.10% of children in South Dhurung have dropped out of high school and primary school. Furthermore, a majority of these children are involved in various risky activities. The main reasons for this high dropout rate include opportunity cost, economic hardships faced by families, malnutrition among children, parental unawareness, the extended absence of fathers nine months out of the year, and a lack of social protection.

Training and Skills

One fisherman from North Salimpur explained that CODEC advocated with the Department of Youth Development in Sitakunda Upazila (subdistrict) for the training of youths. A total of 60 youths received training in driving, sewing, and poultry. He also added:

"CODEC arranged training for people from fishing communities, especially on savings and credits, management of Village Organisation (VO), leadership development, legal awareness, community-driven advocacy, sanitation, and disaster management."

One woman from the aforementioned village mentioned a "Shonglap (Dialogue) Programme" for adolescent girls that took place from 2010 to 2012. This programme was supported by the Stromme Foundation in Norway and a total of 225 adolescent girls completed the Shonglap package. She provided further details:

"One female trainer conducted a session with 20 to 25 adolescent girls. The session mainly focused on personal cleanliness, nutritional education, health risks, reproductive health, menstruation management, HIV/AIDS, water-borne diseases, early marriage, dowry, domestic violence, and sexual harassment."

One woman from South Dhurung blamed the government and NGOs for neglecting people in the fishing village. She commented:

"The Upazilla Youth Development Department arranged two training sessions (half-day long) in 2017 on duck rearing. 80 (female-40 and male-40) attended. In the last five years, no other training was provided for us. Attention of NGOs for our socio-economic development is also very limited."

In short, it is recognised that UNICEF provided financial and technical support for the employment of adolescents in 1999. Carpentry, electrical, and tailoring were major areas of skill development for adolescents. UNESCO established the Community Resource Centre (CRC) and Community Learning Centre (CLC) in North Salimpur Fishing Village from 2006 to 2009 for the education of young women and adolescent girls. However, skill development support and training from the government is very limited in South Dhurung Fishing Village.

Employment

A household survey in North Salimpur Fishing Village reveals that out of 528 households, 408 are headed by a fisherman. Basically, the forefathers of all were fishermen. There are two reasons for giving up the fishing occupation in 120 households. The heads of 85 households left the fishing profession due to very low financial benefits from fishing, torture by pirates, and lack of financial capital. Other households earned better income opportunities through higher education, migration abroad, and engaging in businesses. The majority of migrants work in fishing, particularly in Libya and the Middle East. It is found that 62% of respondents are fishermen full-time while 38% of respondents are involved in fishing during the hilsa (herring-type fish) season (i.e., mid-June to end-September) only. The proportion of full-time fishing is steadily decreasing due to the decline of fish in their catchment areas.

94% of respondents in South Dhurung Fishing Village had a father, who was a fisherman, who used country boats with sails and oars. Nowadays, 60% of respondents work as fishing labour on big mechanised fishing boats operated by entrepreneurs. One fishing labourer from South Dhurung said:

"We are appointed verbally. Our wages are low. Usually, we must stay nine months (continuously) at sea for fishing. Opportunity of leave is very rare. We only go back to shore during fishing embargo periods and cyclone season."

Another fishing labourer of a big boat from the same village said:

"Occupation of Jaladas sharply disappears because of capital penetration by businessmen. Jaladas are pushed out from their traditional

occupation and turn into bonded slaves. No one is really concerned about the plight and terrible conditions of fishing labourers."

Women and girls from South Dhurung fishing village migrate to Chittagong City to work in garment factories. However, they lack technical skills. The women in this village are keen to participate in Income Generating Activities (IGAs) such as grocery, duck-rearing, handicrafts, dairy, dry-fish processing, and cow-fattening. Unfortunately, they face limitations due to a lack of support.

Monthly Income

Income is one of the key indicators of economic progress. Table 2 shows the monthly household income of two fishing villages.

Land Ownership and Conditions of House

A total of 92% of respondents in the North Salimpur Fishing Village are functionally landless, meaning they own up to 0.05 acres of land. The fathers of 88% of the respondents in this village were also landless. In the South Dhurung Fishing Village, a total of 98% of respondents are functionally landless, with 94% of their fathers being landless. Unfortunately, one fisherman from South Dhurung expressed regret:

"My grandfather was the owner of some land, like half an acre. Muslims forcefully bought (i.e., grabbed) our lands at a nominal price. Some vested Muslims attacked the *Protima* (idol of the Goddess) and temple to create a fearful environment. They want to evict us and grab our homestead."

The condition (wall) of houses in two fishing villages is shown in Table 3. In South Dhurung Fishing Village, the condition of houses is more dilapidated than in a slum. In common cases, rooms are badly ventilated, wet, dark, small, and infested by bedbugs. Up to 13 to 14 family members, including the grandmother and grandfather live in small houses and have trouble maintaining privacy.

Table 2: Monthly household income of two fishing villages

In Taka	North Salimpur (%); N = 50	South Dhurung (%); N = 50	National (%)
	Total (%)	Total (%)	
< 1,500	-	-	4.47
1,500 – 2,499	2	2	2.81
2,500 – 3,999	4	14	5.04
4,000 – 5,999	26	12	9.32
6,000 – 7,999	30	8	11.49
8,000 – 9,999	14	40	11.30
10,000 – 14,999	10	20	21.62
15,000 – 19,999	8	4	12.84
20,000 – 29,999	6	-	12.01
30,000 – 34,999	-	-	2.58
35,000 and up	-	-	6.52
Total	**100**	**100**	**100**

Source: Fieldwork (August & September 2020); (HIES, 2016)

Table 3: Type of houses

Types	North Salimpur (%); N = 50	South Dhurung (%); N = 50	National (%)
	Total (%)	Total (%)	
Brick/cement	10	16*	30.51
CIS/wood	52	10	49.37
Mud/brick/wood	-	12	11
Fence/straw/bamboo/leaves	38	62	8.81
Others	-	-	0.31
Total	**100**	**100**	**100**

Note: *Constructed by Bangladesh Navy.
Source: Fieldwork (August & September 2020); (HIES, 2016)

Health and Nutrition

One woman from North Salimpur talked about the importance of awareness building and access to health services. She expressed her appreciation for:

"Workers from the local health department visit our village monthly. All children are vaccinated (e.g., BCG, Pentavalent, PCV, OPV, IPV, and MR). Females are much more aware about family planning. The majority of girls are taught to use sanitary napkins during menstruation."

Regarding this finding, another female from the aforementioned village commented:

"We are aware of safe births and maternal mortality. We are also conscious about family planning. Regrettably, some families cannot go to hospital or private clinics because of insufficient money."

One female in South Dhurung said:

"Skin disease is a common problem due to salinity. Adolescent girls and females severely face problems during menstruations due to lack of fresh water during winter. "

Another female in the same village lamented:

"The distance of Upazila Health Complex from our village is only 8 km. Generally, no vehicle is available after 10:30 PM. Few staff and brokers demand bribes and hassle patients and their caregivers. Three women from the fishing village died at home because of childbirth-related complications in the last three years."

Drinking Water, Sanitary Latrine, and Electricity

In North Salimpur Fishing Village, 56% of households have shallow tube wells, but they have difficulty with potable drinking water due to ironing at ground level. 98% of households use a sanitary latrine (i.e., water-sealed). Each family has electricity. Moreover, 82% of households have a dish-line connection and television.

There is one small pond in South Dhurung Fishing Village. People must depend on six deep tube wells for drinking water, washing clothes, and baths. Groundwater is usually reduced during winter. They face extreme problems with water, particularly the women and adolescent girls. It is identified that the latrine of 24% of households is non-sanitary. There is no electricity in the village. The survey reveals that 32% of households use a solar panel, which costs Taka 25,000/-. The solar panel has the capacity to operate one small fan and three light bulbs (i.e., 25 watts for one bulb).

Financial Debts

The household survey reveals that 50% of respondents from North Salimpur Fishing Village have loans ranging from Taka 40,000/- to 159,999/-. Most of them borrow money from relatives, neighbours, or friends, who charge high interest rates (interest: > 120%). The survey also identified that 50% of respondents from South Dhurung Fishing Village do not have access to loan facilities. A total of 36% of households take loans within the range of Taka 49,999/-.

One fisherman from North Salimpur remarked:

"Our grandfathers and even fathers received loans from influential Muslims. It is called a *dadan* loan. They were forced to sell all fish to *Dadandar* at cheap rates. Now *Dadandars* realise that giving loans to fishermen is not profitable because of declining fish near the shore."

Another fisherman from North Salimpur also raised his concern. He remarked:

"Some solvent people in our village provide loans to fishermen. In common cases, if a fisherman receives Taka 100,000/- for a year then he must return Taka 200,000/- by the end of the year. Hindu moneylenders seriously exploit the people of their own community. Table 4 shows the dependency of respondents to different financial actors."

Fishing Assets

One fisherman from North Salimpur said that the boats of traditional fishers were carvel-planked with solid wood. They have been installing small engines (i.e., 6 Horse-Power, H.P.) in traditional country boats since 1990. The mechanised boats were faster and as a result, the fish landed were fresher. He also stated:

"Now, many Jaladas use engined fibreglass boats (i.e., from 16 H.P. to 22 H.P.). In contrast, commercial fishing boats use high-powered engines i.e., from 300 H.P. to 350 H.P. Commercial entrepreneurs never consider ecological damage and our economic difficulties. It is completely against our sustainable livelihoods."

Tables 5 and 6 show the valuation of fishing assets as reported by respondents and their fathers, using the present value and recall methods.

Supports of Government, NGO, and Other Actors

The DoF issued a database-linked Identity Card to each fisherman. It helps fishermen obtain 86 kg of rice from the Union Parishad (UP), the lower tier of the local government of Bangladesh, during the 65-day fishing ban (from 20 May to 23 July). The Government of Bangladesh (GoB) ensured vaccination for children and childbearing women in two fishing villages. Moreover, all households of North Salimpur

Table 4: Loans of respondents to financial actor(s)

Indebted to	Interest Rate (per Year)	North Salimpur		South Dhurung	
		Amount (in Taka)	Contribution of Actor (%)	Amount (in Taka)	Contribution of Actor (%)
Bank	9	200,000/-	5.70	175,000/-	14.24
NGOs	24	920,000/-	26.21	424,000/-	34.50
Neighbour/ relative/friend	> 120	2,100,000/-	59.83	560,000/-	45.57
Shopkeeper	> 80	290,000/-	8.26	70,000/-	5.69
Total	**-**	**3,510,000/-**	**100**	**1,229,000/-**	**100**

Source: Fieldwork (August & September 2020); (HIES, 2016)

Table 5: Valuation of fishing assets between father and respondent in North Salimpur

Fishing Assets	Father		Respondent	
	No.	Present Value	No.	Present Value
Nets	589	8,835,000/-	345	5,175,000/-
Country Boat*	24	2,260,000/-	-	-
Wooden Boat (6 H.P.)	11	1,110,000/-	-	-
Wooden Boat (12 H.P.)	9	910,000/-	-	-
Fiberglass Engine-boat (12 H.P.)	2	280,000/	17	1,940,000/-
Fiberglass Engine-boat (16 H.P.)	-		2	300,000/-
Fiberglass Engine-boat (18 H.P.)	-		3	540,000/-
Fiberglass Engine-boat (22 H.P.)	-		13	2,600,000/-
Fiberglass Engine-boat (30 H.P.)	-		2	700,000/-
Total	**635**	**13,395,000/-**	**382**	**11,255,000/-**

Note: *Country boat is made from wood and operated with sails.
Source: Fieldwork (August 2020)

Table 6: Valuation of fishing assets between father and respondent in South Dhurung

Fishing Assets	Father		Respondent	
	No.	Present Value	No.	Present Value
Nets	233	3,495,000/-	63	945,000/-
Country Boat*	27	1,950,000/-	5	420,000/-
Wooden Boat (6 H.P.)	2	160,000/-	2	180,000/-
Wooden Boat (12 H.P.)	1	100,000/-	4	470,000/-
Total	**263**	**5,705,000/-**	**74**	**2,015,000/-**

Source: Fieldwork (September 2020)

Fishing Village obtained electricity (with payment based on usage) from the government. A 1 km road beside the village was constructed with bricks in 2015 through the initiative of the Local Government Support Project 2. A total of 36% of households in North Salimpur Fishing Village received Vulnerable Group Development (VGD) and other allowances through advocacy with the Union Parishad (UP).

Five NGOs, namely Association for Social Advancement (ASA), BRAC, CODEC, Society for Development Initiatives (SDI), and Village Education Resource Centre (VERC) have been working in North Salimpur Fishing Village since 2007, 2019, 1985, 2005, and 2006, respectively. As of 31 August 2020, their outstanding loans amount to Taka 6,014,083/-. CODEC has facilitated many social programmes, including awareness building, legal services, education, health and sanitation, promotion of life-skills, training, human rights education, and advocacy with financial support from different donors. Three NGOs (BRAC, COAST Trust, and Grameen Bank) have operated microcredit in South Dhurung Fishing Village since 1994, 2000, and 2006, respectively. As of September 2020, their outstanding loan amount is Taka 949,295/-.

One female from South Dhurung said:

"A minimum daily income of Taka 350/- to 400/- is necessary for one family to survive. But financing by NGOs is insufficient. They are also not interested in effectively improving the lives of the extreme poor, like us."

A household survey shows that 50% of respondents in this fishing village are without loan support. They are neglected and overlooked by development organisations due to extreme poverty. However, BRAC provided non-formal primary education for children from 1994 to 2000. COAST Trust supported income-generating activities on a limited scale and provided humanitarian aid after cyclone Roanu in 2016. FRIENDSHIP established a Satellite Clinic in 2013, primarily for awareness building. Internet facilities (with payment based on usage) are available in both fishing communities through the initiative of the private sector. Sangu Gas Plant constructed a three-storey building as a cyclone shelter cum school in 2011 at North Salimpur Fishing Village using funds from Corporate Social Responsibility (CSR) initiatives.

Embankment and Cyclone Shelter

The coastal embankment beside North Salimpur Fishing Village is dilapidated. Unfortunately, one ship-breaking yard grabbed a major area of the embankment in 2010. Overall, the people of Kutubdia Island are insecure due to erosion of the embankment. The people of both study villages are at risk of cyclones and storm surges. CODEC constructed one small cyclone shelter after the catastrophic cyclone in 1991 on the east side of North Salimpur Fishing Village. Now, it is rundown. People usually take shelter in the three-storey "PSN-Building" before cyclones. Its space is also limited, covering less than four decimals on the ground floor. Generally, people must go to Fozdarhat K. M. High School and Primary School (1 km east of the fishing village) to take shelter before cyclones. Kutubdia Island is a disaster-prone area. A total of 22,000 people of Kutubdia Island died in the cyclone of 1991. The people of South Dhurung Fishing Village go to Dhurung Government Primary School and Dhurung High School, which are three-storey buildings half a kilometre west of the village.

Disaster Risk Reduction

Access to safe shelter is a key action for disaster risk reduction. Study findings reveal that the people of two study villages are conscious about early warning. One female from South Dhurung expressed rationality in this regard. According to her:

"Cyclone Preparedness Programme (CPP) is a government-led intervention for disaster risk reduction. Volunteers of CPP arrange miking. They also disseminate early-warning messages door-to-door. Now people, at least, know that they must go to the shelter before a cyclone."

Road, Transportations, Telecommunication, and Fish Marketing

The roads, growth centres, and communication at North Salimpur Fishing Village are quite good. It is nearer to Chittagong City. A household survey shows that all respondents have cell phones. Fishers mention that they sell their catches under an auction process on the embankment. They have full freedom to sell to any trader. Fishers usually sell fish on the embankment during the peak season to save time and energy. It is found that the communication system at South Dhurung Fishing Village is very difficult because of its remoteness and geographical vulnerabilities. 98% of respondents from South Dhurung Fishing Village use cell phones due to the low cost (i.e., minimum cost is Taka 1,200/) in Bangladesh. One fisherman from South Dhurung described their role in fish marketing:

"About 12 to 15 Muslim *Paikers* buy our catch on the embankment. Regrettably, they pressure Hindu fishers, sometimes physically assault, to sell their catch at a cheap price. Religious discrimination is used to deny the real price."

Technological Changes and Conservation of Hilsa, Other Fishes, and Ecology

It is found that the involvement of capitalists has increased sharply in the fishing sector. Generally, big merchants and wholesalers provide loans

to Bahaddar (owner of a mechanised boat that usually goes to deeper waters) for commercial fishing. Private banks also provide a large amount of loans to them. A big boat uses a high-powered engine, i.e., 300 H.P. to 350 H.P., amounting to Taka 800,000/- to 900,000/-. A total of 25 to 30 labourers work on a big fishing boat. Most big fishing boats use destructive nets like monofilament and nylon nets. For instance, one drag net is approximately 50 feet high and 600 feet long. They use different nets and catch all types of species, including threatened and endangered. They catch any species that has economic value, particularly for fish and poultry feed. These people never consider the ecological damages. In this case, labourers must carry out the orders of the employer, i.e., boat owner or his representative. The destructive behaviour of capitalists is one of the root causes of prolonged poverty among Jaladas. Psychological and physical clashes between capitalist groups and marginalised fishers have increased.

Bangladesh has different policies, acts, rules, and strategies for fisheries management. The Marine Fisheries Act 2020 was recently adopted by Bangladesh. In addition, the Bangladesh Biodiversity Act 2017 and National Environment Policy 2018 emphasise ecological conservation; generally, all documents of DoF underscore the conservation of fishery resources. However, hilsa is the leading natural resource in the Bay of Bengal, particularly for SSF in Bangladesh. Ashar (mid-June to mid-July) to half of Aswin (mid-September to end-September) is the main season for catching hilsa. One fisherman from North Salimpur said:

"Hilsa season begins from mid-June; however, fishing restrictions are in force until 23 July every year. The 65-day fishing ban has a positive impact and increases fish production. But we get inadequate rice (only 86 kg) from the government. We request Taka 6,000/- through "Mobile Banking"."

Security in Fishing Grounds

Robbery, kidnappings, ransom demands, torture, and killings of fishermen by pirates are serious issues along the coast of Bangladesh. One fisherman from North Salimpur explained:

"Pirates are a common problem for fishermen. We demand that the government establish a Bangladesh Navy (BN) post to protect fishermen. The government established a BN substation at Kumira (approximately 18 km north from our village) in 2019."

One fisherman of South Dhurung also reported:

"The occurrence of piracy has significantly reduced close to shore because of regular patrolling by joint forces. But news of mid-sea piracy is always underreported. Affected fishermen and fishing labourers take a long time to recover from financial losses."

Bargaining Power

Powerlessness is one of the significant symptoms of poverty. One fisherman from North Salimpur expressed:

"Once, Muslims avoided us and did not sit in the same tea stall as us due to our low caste. Owners of tea stalls kept different cups for us. But this is in the past. Now our sons and daughters are progressively being educated. Our bargaining capacity has also slightly increased."

Members of fishing families have long been oppressed by certain vested Muslims. One woman from South Dhurung has raised concerns regarding this matter. According to her:

"Our lands were encroached by Muslims. They have constrained our freedom and severely interfered in our matters and decision-making. Because we are a religious minority and the emergence of Islamic fundamentalists have put us in a helpless situation."

Social Cohesion and Bondage

Social bonding, intra-relationship, and cohesion are different in the two study villages. One female from North Salimpur said:

"We had strong bonds among neighbours and good social ties. We were very united in solving our problems, even minor issues,

though now the attitude of a few people is slowly becoming more individualistic."

Another female of North Salimpur added:

"We have not arranged Durga Puja in our village since 2017. Financial problems are not the reason, but intra-conflicts. Our traditional social institutions are dysfunctional. A few *Sardars* (traditional leaders) are corrupted."

One female from South Dhurung described that their *Sardars* are financially weak, but they are active in social events. By and large, they follow all decisions and guidance of *Sardars* during social ceremonies and life-cycle rituals. She also explained:

"Our youths voluntarily work during community-based religious festivals. But we cannot organise colourful celebrations due to the financial crisis. Our cultural roots are solid and we have strong community belonging."

Lives and Livelihoods

Lives and livelihoods of marginalised Jaladas communities are different from other occupational groups in Bangladesh. The main author tried to understand sustainable lives and livelihoods through consultation with 40 participants of the FGDs. Their experiences, constraints, and opportunities in their lives, livelihoods, and future dreams were considered. Each participant had an individual way of thinking and their own views. However, participants frequently pointed out 15 indicators. These indicators are listed in Table 7.

Shocks and Vulnerabilities

Jaladas communities face multidimensional shocks and vulnerabilities. Table 8 reveals the problems from the perspective of lives and livelihoods, as expressed by respondents from two fishing communities:

Coping Strategies

Each individual and household has different coping strategies, aligning with capabilities, diversified capital, and endowments. The coping strategies of selected respondents are given in Table 9.

Table 7: Indicators of standard of lives and livelihoods expressed by Jaladas communities

SL	Indicators
1	Ensure three nutritious meals in a day
2	Security in fishing ground
3	Potable drinking water and sanitary latrine
4	Education for children and guarantee of a sustainable job
5	IGAs support from government during fishing ban periods
6	Own equipment and boats for mid-sea fishing
7	Easy access to financing institutions
8	Employment for female of fisherfolk
9	A house in suitable condition
10	Access to good cyclone shelters
11	Able to consult with a doctor and good health facilities
12	Access to services without bribes and entitlement from government departments
13	Dignity and social inclusion
14	Practising rooted/traditional culture
15	Amusement

Source: FGD participants (August & September 2020)

Table 8: Origins of multidimensional poverty considering manifold answers of respondents

Problems	Response (%)	
	North Salimpur	South Dhurung
Government imposes restriction on fishing	94	82
Firing exercise by military	58	-
Reducing of fish catches	96	34
Piracy especially in mid-sea	-	60
Price hike of essential commodities	92	90
Entrance of commercial entrepreneurs rampantly using destructive fishing gear	98	52
Limited job opportunities	64	56
Government banks do not provide collateral-free loans and very limited loan facilities from private banks	82	86
Limited financial support for modern engine, boat, and nets for fishing in mid-sea	66	28
Limited entitlement in different social safety nets	42	84
Youths of fishing villages are comparatively excluded from skill development trainings and technical and financial supports	52	76
Lack of healthcare services especially for safe births at government facilities (Union and Upazila level)	20	86
Natural disasters and lack of cyclone-proof house	46	84
Poor condition of house	26	68
Salinity intrusion in village and water logging	22	70
Insufficient life-saving equipment aboard fishing boat	26	78
Sickness, accident, disappearance, and death	42	74
Erosion by sea	-	56
Cancelled fishing trips due to rough weather/high signal	68	40
Intra-village conflicts	60	10
Poor fishermen are exploited by Hindu moneylenders (own-caste)	54	-
Physically and mental abuse because of religious minority	6	94
Local political tyrants interfering internal community issues of fishermen	44	38
Illegal control and domination on *faar* management by powerful Hindus (Jaladas caste)	32	-
Muslim tyrants encroach on *faar* of Jaladas	-	36
Oppression by Muslim *Paikers*	-	34
Social insecurity, exclusion, and eviction	8	90
Local political party dominate on traditional leadership of fishing villages	58	38
Slavery conditions of labours in big size mechanised-fishing boats	-	60
Lack of potable water	80	30
Scarcity of electricity	-	100

Lack of sanitary latrine	2	24
Lack of cemetery	88	-
Dowry	30	92
Corruption of service delivery institutions	60	88
Pollution and encroachment by ship-breaking yards	100	-

Table 9: Coping strategies of respondents (multiple answers)

Coping Strategies	Response (%)		Contributing Capital
	North Salimpur	South Dhurung	
Problem Coping			
Significantly reducing the child mortality because of vaccination coverage by GoB	100	100	Political capital
Contribution of private sector to construct school cum cyclone shelter	80	-	Physical capital
Activeness of government-led Cyclone Preparedness Programme (CPP) volunteers in raising awareness in fishing village	-	64	Political capital
NGO providing scholarship to deserving student for higher education	54	-	Human capital
Obtaining white-colour job	6	-	Human capital
Government department and NGOs support for youth vocational training	28	2	Human capital
Migration abroad	10	-	Financial capital
Employment opportunity in ship-breaking yard	8	-	Human capital
Emotional Coping			
Family members praying for fishing labourers i.e., especially those who spend nine months at sea	-	60	Cultural capital
Keeping mind positive and patient	44	86	-
Praying for a large catch and better income	100	100	Cultural capital
Psychological preparedness for living with distresses	62	90	-
Psychosocial supports for adolescent girls by NGO; awareness building, education on menstruation management, and reproductive health	74	38	Human capital
Economic Coping			
Reducing amount and compromising on quality of meals	42	40	-
Loans from NGO/neighbour/relative	76	50	Financial capital
Purchasing food on credit	48	16	Financial capital
DoF issue digitalised Identity Card for genuine fishers; providing 86 kg rice during fishing ban (65 days)	100	100	Political capital

Local government provides VGD card and other allowances	36	10	Political capital
Refrain from attending social events like weddings	48	34	-
Philanthropic organisation and individual provide financial support	54	6	Social capital
Selling livestock	-	52	Financial capital
Advanced selling of labour	4	26	Human capital
Alternative employment during fishing ban and off-season	34	20	Human capital
Leasing the *faar*	38	-	Physical capital
Loan from goldsmith through mortgaging of ornaments	8	-	Financial capital
Sending children to do hazardous works	6	38	-
Sending daughter/wife to work garments factory	8	34	Human capital
Utilisation of savings	26	4	Financial capital
Self-help group provides financial support to each other	22	-	Social capital
Social Coping			
Food sharing with neighbours to reduce the stress of hunger	34	52	Social capital
Collective voices of fishermen and advocacy with duty-bearers for different facilities (like road construction, allowances, compensations, and subscription for worship)	48	10	Social capital
Influence policymakers to increase amount of rice aid	58	-	Social capital
Alerting the authorities and the public on the need to crackdown on piracy	42	-	Social capital
Use social networks and kinship bondage for employment in Chittagong City	4	34	Social capital
Capacity and leadership development by NGO	42	-	Social capital
Non-fishing group exercises social power and fishermen surrender to them	30	-	-
Technological Coping			
Fishing boats are equipped with high H.P. engine	80	30	Physical capital
Mesh size of gill-net and set-bag net are reduced and introduction of new gear	88	36	-
Fibreglass Engine-boat has emerged instead of wooden-mechanised boat	68	-	Physical capital
Use of cell phone	100	98	Financial capital
Cultural Coping			
Bondage among kinships	56	98	Cultural capital
Strong community ties	88	100	Cultural capital
Local arbitration (*Sardar* and *Samaj*) for conflict resolution	20	86	Cultural capital
Psychological adjustment with foreign culture and reality of globalisation	60	4	-

Discussions

Socio-economic, environmental, technological, cultural, political, and policy perspectives have been considered to discuss and interpret the study findings. Based on the study objective, findings are critically examined to find alignment and discordance with past studies and incorporation of theories. Capital theory remarkably emphasises investment in education to develop human capital. The Bangladesh Bureau of Educational Information and Statistics (BANBEIS, 2017) revealed that the dropout rate of learners from primary school was 18.85% and 37.81% from high school in Bangladesh. The existing study shows that the rate of dropout is 15.56 from primary school and 28.57 from high school in North Salimpur Fishing Village.

Unfortunately, in South Dhurung Fishing Village, the dropout rate from primary school is 43.10, which is alarmingly higher than the national average. The present study provides evidence that the investment of donors, through NGOs, especially in education (i.e., for adults and children) had a role in increasing awareness and insight among the people of North Salimpur Fishing Village. The adult literacy programme influences adults on the importance of education. This study also found that although the earnings of fishermen did not appreciably improve, their social status has improved due to education. From a policy perspective, it is found that the implementation of the National Education Policy 2010 is weak on the remote island due to a lack of concentration by the GoB and international development agencies.

The National Youth Policy 2017 of Bangladesh defined "youth" as a person aged 18 to 35 years. A total of 33.79% of family members of North Salimpur Fishing Village and 39.75% of family members of South Dhurung Fishing Village are youths. A total of 60 youths (female and male) of North Salimpur Fishing Village received training in poultry, driving, sewing, and nursery from the Youth Development Department, Sitakunda Upazila. Regrettably, a major portion of youths in South Dhurung are deprived of education.

The GoB and international development agencies must step up efforts to provide human capital development for such downtrodden people. Otherwise, dreams of Bangladesh becoming a developed country by 2041 will only be on article. It is revealed that fishermen of the North Salimpur Fishing Village shift from full-time to seasonal fishing. 60% of respondents from South Dhurung Fishing Village work as labourers on big fishing boats. They become de facto waged labourers, working under conditions similar to bonded slavery. Community development and empowerment theory highly emphasises decent employment with dignity. Unfortunately, this study finds that the working environment of fishing labourers falls short of this theory.

From a political perspective, the Ministry of Labour and Employment (MoLE) in Bangladesh has developed the Labour Act. However, the specific issues and concerns of fishing labourers have yet to be addressed, despite the increasing number of such labourers due to capital expansion in the fishing sector. Studies by Habib (1992) and Alam (1996) have indicated that Jaladas had a culture-led psychological barrier to switch from the fishing profession. This study proves that the mindset and inertia among youths of Jaladas villages have undergone moderate transformation and they express a desire to pursue new jobs.

The monthly income of most households in both study villages (74% of North Salimpur and 98% of South Dhurung) is lower than the national average, which is Taka 15,984/-. Skill development opportunities among youths, higher education, low-categorised government service, private jobs, and working abroad contribute to household income in the North Salimpur Fishing Village. Regrettably, children in South Dhurung Fishing Village are forced to engage in hazardous work to support their families. Marginalised fishermen face the double burden of decreasing real income. Although the price of fish has increased, the quantity of catch has dramatically decreased.

Furthermore, the prices of basic utilities and essential commodities have risen rapidly. For example, Habib (1992) described one Hindu fisherman in Chittagong, who had to pay Taka 50/- to consult with a doctor. Currently, the payment is Taka 1,000/-. Homesteads have become smaller. A total of 92% of respondents from North Salimpur and 98% of respondents from South Dhurung are functionally landless. The trend of landlessness in both fishing villages has increased. The housing conditions in South Dhurung Fishing Village are very miserable. From a policy perspective, the National Housing Policy 2016 in Bangladesh recognises housing as a human right. This study finds that fishing families are deprived of their rights and are living in a hidden humanitarian crisis due to the failure of state initiatives. Therefore, they immediately need support from global humanitarian and development agencies.

Andriesse *et al*. (2021) found that climate changepollution, illegal fishing, population pressure, and overfishing by commercial entrepreneurs intensify marginalisation among SSFg communities in the Philippines and Thailand. The fishers' ownership of assets has declined. By adopting the recall method and present value criteria, this study proves that the monetary value of fishing assets and its ownership have decreased. This is an alarming sign for their natural resource-based sustainable livelihoods.

It has been proven by Alam (1996) that the infant mortality rate is higher in Jaladas village. In one fishing village in Chittagong, the Infant Mortality Rate (per 1,000) was 171, whereas the national average was 113.2. Government and NGO-led health services have not reached the fisherfolk to satisfactory levels. Fieldwork findings show that the Community Clinic (CC) and Union Health and Family Welfare Centre (UH & FWC) are moderately far from both fishing villages.

Providentially, health workers regularly come to the fishing village and all children receive vaccines such as BCG, Pentavalent, PCV, OPV, IPV, and MR. This is largely due to state-led intervention, i.e., political capital. However, health services provided by state institutions are not free from corruption and limitations. The United Nations Children's Fund (UNICEF, 2019) revealed that the mortality rate (under five years) in Bangladesh is 31 (per 1,000 live births), whereas it is 67 in Pakistan. The World Bank (WB, 2017) revealed that the Maternal Mortality Ratio (MMR) was 434 (per 100,000 live births) in 2000 and declined to 173 in 2017. Though the national scenario is commendably progressive, the death of a mother due to complications during childbirth is a very serious issue in South Dhurung Fishing Village. Therefore, all contributing actors should focus on remote coastal islands/pockets to reduce the disparity.

All households of the North Salimpur Fishing Village use electricity. A total of 82% of them have a television and dish-line. Worth mentioning, 98% of households in this village use a sanitary latrine (water-sealed). This is an outstanding development in the Bangladesh context. Festinger (1954) proved the correlation between income level and relative standards in Social Comparison Theory. However, the existing study disagrees with the aforementioned theory. Study findings show that the real income of families does not enhance, but their relative standards like having a sanitary latrine (water-sealed), connectivity with information, owning an Android phone, having a television and dish-line, practising family planning, and using sanitary napkins have increased. The support from external players and awareness-building, particularly by NGOs, education, electronic media, social mobility, and mingling of youths with other communities have increased relative standards.

This study also finds a gloomy picture in the South Dhurung Fishing Village. 24% of households still use unsafe and non-sanitary latrines. A total of 68% of households do not have a small solar panel. They live with some superstitions caused by a lack of proper education and awareness, as well as lagging behind in information flows. Both study villages are in

coastal areas. The conditions of the embankments are dilapidated and villagers live at extreme risk of storm surges and cyclones. Volunteers of the Cyclone Preparedness Programme (CPP) are very active in disseminating early warning messages in South Dhurung Fishing Village. In North Salimpur Fishing Village, dwellers are regularly made aware through the media and emergency preparedness actions by the NGO.

This study shows that the people of fishing villages at least know that they should go to a shelter before a cyclone. The roles of CPP, youth volunteers, field workers of the NGO, and the media are vital in disseminating warning messages and building awareness. Coastal areas of Bangladesh are vulnerable to climate change. Lázár *et al*. (2020) described natural catastrophes on the coasts of Bangladesh as increasing because of climate change. Though the level of awareness of natural catastrophes has increased among the general public, interventions for climate-smart livelihoods are less focused in both study areas. However, opportunities for climate-sensitive livelihood promotion and options are very limited in North Salimpur Fishing Village. Study findings show that communication from South Dhurung Fishing Village is very challenging because of its geographical setting and remoteness. Roksana and Farjana (2020) revealed that the number of mobile phone users has sharply increased since the 1980s in Bangladesh.

Existing studies find that members of all surveyed households use mobile phones, but they have no significant and strategic use for fish marketing. Fishermen of the two villages usually sell fish to the *Paikers*, who have their own strong fish marketing structure by adopting different modes of transportation. Members of fishing families are severely dependent on relatives, neighbours, and friends for loans. In North Salimpur Fishing Village, Muslim *Dadandars* have ceased granting loans to fishermen because such investments are not profitable to them, especially due to declining catches. In this situation, fishers depend on solvent neighbours, relatives, and friends as a new economic class has formed within the Jaladas communities. Disadvantaged fishermen are extremely exploited by Hindu moneylenders.

The financial facilities provided by NGOs are not sufficient to meet the needs of fishing families. Scully (2004) identified that microfinance was not reaching the real disadvantaged people in Bangladesh. In addition, Khan (2009) claimed that some leading microfinance institutions (MFIs) avoid serving the poorest of the poor. Quotations from Scully (2004) and Khan (2009) are similar to the study findings in South Dhurung Fishing Village. By and large, conventional banks avoid poor fishermen and other underprivileged groups due to a lack of collateral. These marginalised groups are characterised as being at risk of becoming loan defaulters. The Financial Express (2021) reported that six banks (state-owned) have defaulted loans worth Taka 422.74 billion and that most of the defaulters are rich people. The Department of Fisheries (DoF, 2019) noted that 314,333 metric tons of rice were given to poor fishermen from 2008-09 to 2018-19. A total of 395,709 fishermen received 7,914 metric tons of rice during the fishing ban meant to boost hilsa stocks. Fortunately, hilsa production increased from 299,000 metric tons to 517,000 metric tons. Different kinds of support such as sewing machines, rickshaw-vans, small businesses, livestock, etc. were also provided to poor fishing families. This study proves that the distribution of 86 kg of rice is limited compared to the number of family members. Fishermen have requested a cash transfer of Taka 6,000/- to each family through "Mobile Banking" for other daily expenses, particularly for medicines.

Shafi (1985) specified that the country boat (i.e., made of wood) was the main vessel of traditional Hindu fishermen in Bangladesh for a long time. The present study provides evidence that Jaladas have limited ability to adopt new technologies mainly due to a lack of financial capital. Now, the majority of respondents in North Salimpur Fishing Village use 12 H.P. to 18 H.P. engined fibreglass boat. However, commercial entrepreneurs use high-powered

engine boats ranging from 300 H.P. to 350 H.P. In a study by Ghosh *et al*. (2016), it was identified that fishing activities among marginalised fishermen in Cox's Bazar have changed very little. Over the last two decades, there has been limited adoption of new technologies and the continued use of common fishing methods. The findings of the existing study are similar to findings by Ghosh *et al*. (2016), particularly for South Dhurung Fishing Village. Technological changes and their expansion are very low in this fishing village.

This study also finds that Jaladas perceive the fishing occupation as their lives, not just a segregated part of their livelihood. They have respect for boats, nets, and fishing gear. In parallel, Rashid (2016) quoted that the culture of Jaladas is more conservative than that of Muslim communities and they are aware of the need to conserve fishery resources. Weak governance and poor execution of existing laws are major causes for the destruction of fishery resources and ecological problems, threatening sustainability. Participants from both fishing villages were excited about the remarkable reduction in piracy due to the combined efforts of law enforcement agencies. However, piracy remains a dominant issue in the mid-sea and is mostly unreported to the general public.

Jentoft *et al*. (2011) revealed that poor fishers are defenceless and lack bargaining power. The findings from this study suggest that the bargaining power of people and fishermen in the North Salimpur Fishing Village has moderately increased. Factors such as foreign employment, access to education, social mobility, affiliation with political parties, and improving living standards all contribute to enhancing bargaining power. Unfortunately, the bargaining power and social dignity of fishermen in the South Dhurung Fishing Village are limited due to extreme poverty, religious minority status, and long-term oppression by certain vested individuals within the Muslim community. These adversative factors place them in a psychosocially vulnerable position. The claim by Jentoft *et al*. (2011) is both similar and different for the two study villages. Sen (1979) argued that the status of Hindus in India is determined by their caste.

This study recognises that in the case of the North Salimpur Fishing Village, the rigidity of the caste system becomes less rigid due to the infiltration of various forms of capital. Access to formal education, interacting with Muslim friends, an identity crisis among some educated youths, the emergence of a new economic class within the non-fishing group, affiliations with political parties, the influence of media and misuse of social platforms, the rise of ill-intentioned mediators, and individuals resorting to the courts and police stations, as well as suspicions towards vested traditional leaders, and the harassment of innocent fishermen are all major reasons for the decay of unity within the Jaladas. In contrast, the Jaladas of the South Dhurung Fishing Village have long been troubled by the surrounding vested individuals within the Muslim community. They have endured many hardships and struggles with structural poverty passed from one generation to the next. Nevertheless, they maintain strong social ties and mutual trust and respect.

Conclusions

Penetration of diversified capitals (e.g., human, physical, natural, financial, social, cultural, and political) has positive and negative immediate results and impact. It has two faces: (1) Innovation and (2) destruction. Donor-driven assistance significantly improves human development, particularly in the realms of health and sanitation, education, awareness building, self-employment, and leadership development in one fishing village (e.g., North Salimpur Fishing Village). At the same time, traditional social institutions become dysfunctional and there is a decaying of community belonging and bonds due to adversative behaviour of some capitals.

Activities of capital expansionists in the fisheries sector, innovation of technologies and fishing methods, profit-centric attitude of

commercial entrepreneurs, and apathy towards ecological conservation have pushed away traditional Jaladas in South Dhurung Fishing Village from their birth ascribed occupation. They are also trapped in or on the threshold of structural poverty. Most of the fishermen have been poor for a long time and face capital management issues. The paradigms of poverty have changed multi-dimensionally in the two Jaladas communities and they follow different coping strategies by using elements of diversified capitals. This study urges bringing the Jaladas communities into the mainstream and sustainable development process, considering them under the lens of a "society as a whole" approach.

Ethics Statement

Ethical approval was obtained from the Human Research Ethics Committee, Universiti Sains Malaysia (USM/JEPeM/20020135).

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Conflict of Interest Statement

The authors reported no conflict of interests.

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