

Sustainability of Fishing as a Caste-based Traditional Occupation: An Analysis of Studies on the Kaibartas of Assam, India

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ABSTRACT Caste-based traditional occupations like fishing have been under pressure due to the inability of people to enhance technology against the intrusion of well-organised caste as well as non-caste entrepreneurial groups of people in to the trade. Fishing has been a traditional occupation among the Kaibartas of Assam who are recognised as Scheduled Caste. The present paper tries to analyse the sustainability of fishing as a traditional occupation among the Kaibartas of Assam amidst the expansion of organised Pisciculture on commercial basis. Some 25 research studies conducted among Kaibartas have been analysed to assess the situation. Using the DFID's Sustainable Livelihood Framework, the paper shows that the traditional Kaibarta fishermen are not in a position to improve their livelihood through fishing activities due to lack of required livelihood assets as well as due to lack of reach to the development and welfare plans initiated by the state and the central government.

INTRODUCTION

Defining Traditional Occupation

Traditional occupations may be defined as occupations practiced by a particular society, generation after generation, which is attached to their customs and practices having a focus on subsistence economies and mostly started before the advent of monetary economy. The concept of traditional occupation is also based on a complex linkage between values and ideologies embedded in the society, their knowledge system and integration with capitalist modes of production and marketing. Except for a very few, most of the traditional occupations have been in decline in the face of modern technological advances and industrialization and aggressive global market infiltration. The report of Forest Peoples Programme (2016) gives a brief delineation on the factors responsible for their decline which include (i) Lack of valuation, respect, and understanding of traditional occupations, (ii)

Land conflicts and land tenure insecurity, (iii) Degradation of ecosystems due to mismanagement/ harmful projects, (iv) Prohibition of traditional practices is common and (v) Demographic transition, (vi) over-use of resources and (vii) Competition from non-traditional populations.

Scheduled Castes (SC) in India

Caste System has been a unique characteristic of Indian social system. Within the caste system, there have been various communities who did not get recognition within the four Varṇas¹. Considering their abysmal socio-economic and political situation, they were listed in the specific Schedule of the Indian Constitution and provisions were made to safeguard their interest. They are thus recognised as the Scheduled Caste communities of India. While Caste System primarily leads to social stratification, there are also certain occupations traditionally attached to a particular caste. Similarly, catching fish for selling purpose has been a caste based traditional occupation in various parts of India including in the state of Assam. Selling of fish has been viewed socially as an unclean business and people attached to this activity have been positioned in the lower strata of caste based societies. Thus, fishing as income generation traditional occupation has been in practice among the scheduled caste populations.

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The Scheduled Castes Population in Assam

As per 2011 census of India, there are 2,231,321 Scheduled caste (SC) people in the state of Assam. As per 2001 census of India, the SCs constitute 6.9 percent of the total population of the state. There are 16 SC communities recognised in the state of Assam and among them the Namsudras (mostly Bengali speaking) constitute 30.4 percent and the Kaibartas constitutes 31.8 percent of the total SCs in the state. It has also been found that about 85 percent of these two numerically dominant caste groups reside in rural areas resorting to traditional occupations. Fishing has been a traditional occupation of Scheduled Caste community, especially among the Kaibartas of Assam.

The Kaibartas of Assam

Contrary to the mongoloid origin of tribal population in the state, the Kaibartas have affinities with the Dravidian stock with some definite variation in physical features. It seems that Kaibarta is a generic term used to denote a composite population group. There is pan-Indian link to the term Kaibarta. The etymological analysis of the term Kaibarta indicates that these people used to live near water bodies, probably their livelihood was centering round the water resources. Deka (2013) has described with documentary evidence that all such name origins are attached to Hindu mythology and Sanskrit words indicating that the Kaibartas have come to Assam from the mainland India unlike the tribal population who are Mongoloids and came to India from east.

Objective

The objective of the paper is to analyse the livelihood situation of Kaibarta traditional fishermen by analysing the available research studies and reports using Sustainable Livelihood Framework developed by DFID².

Rationale

Despite being full of water resources and unmet demand for fish in the state, the traditional Kaibarta fishermen have not been able to adopt a sustained livelihood in fishing occupation.

There has been shift of occupation among these people due to uncertain and insufficient income. There have been state agencies as well to develop fishery resources and manage the same. Contrary to such opportunities, the condition of fishing as a traditional occupation among the Kaibartas remains insignificant. There have been lots of research papers and reports on fishery development and the socio-economic life of Kaibartas. Nevertheless, these studies hardly discuss the issues in an analytical manner using contemporary analytical framework. Thus, it is a need of the hour to relook at the available studies and find out the important aspects they have discussed and bridge the gap in information and analysis to enhance the understanding about this caste-based traditional occupation among the Kaibartas of Assam.

Theoretical Perspective of the Study

Sustainable Livelihood Framework

The livelihood practices and issues of the Kaibarta traditional fishermen may be investigated with the help of the Sustainable Livelihood Framework (SFL) developed by DFID (2001).

The basic premise of the framework is based on the perception that people in a society contain certain assets or capitals that help them utilize to seek for desired livelihood option and outcome for a better life. These assets or capitals are likely to be impacted by some vulnerability contexts. In such situation people use various strategies to cope with it. Further, assets influence and/or get influenced by the structures and process governed by certain institutions and policies. Such policies may also lead to better livelihood strategies and to mitigate vulnerability contexts. Desired livelihood outcome again help shape the livelihood assets or capital in the society. Thus the components of the framework are interrelated and a proper and detailed investigation of the nature and relationship of the components will give a better idea how people would be able to sustain their livelihood in a desired way.

Operational Definition of Concept and Terms

The operational definitions of the concepts/terminologies used in the framework may be explained as follows:

The Vulnerability Context

The vulnerability contexts are made up of certain factors which influence the asset status of people and the options that are open to them to opt for a beneficial livelihood outcome. Importantly, it is to be noted here that people have limited or no control over such factors. Fundamentally three factors constitute the vulnerability contexts. These are (i) critical trends, (ii) shocks and (iii) seasonality.

Critical Trends may include "Population trends", "Resource trends" (including conflict), "National/international economic trends", "Trends in governance" (including politics), "Technological trends" etc. Shocks may include human health shocks, natural shocks, economic shocks, conflict, crop/livestock health shocks etc. Further, seasonality may be in terms of prices, of production, of health, of employment opportunities etc.

Assets or Capital Endowments

The underlying principle of looking at the assets or capital endowments of people is based on the belief that people require a range of assets to achieve positive livelihood outcomes. The aim of dealing with assets is to gain an accurate and realistic understanding of people's strengths (assets or capital endowments) and how they endeavour to convert these into positive livelihood outcomes. The various assets are as follows:

Human Capital

Human capital represents the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives.

Social Capital

Social capital means the social resources upon which people draw in pursuit of their livelihood objectives. These are developed through:

- i) Networks and connectedness,
- ii) Membership of more formalized groups, and

- iii) Relationships of trust, reciprocity and exchanges.

Natural Capital

Natural capital is the term used for the natural resource stocks from which resource flows and services useful for livelihoods are derived.

Physical Capital

Physical capital comprises the basic infrastructure and producer goods needed to support livelihoods like affordable transport, secure shelter and buildings, clean, affordable energy, and access to information (communications).

Financial Capital

Financial capital denotes the financial resources that people use to achieve their livelihood objectives.

Transforming Structures and Processes

Structure

Structures in the framework comprised of the both private and public organisations which set and implement policy and legislation, deliver services that affect livelihoods. They make processes function.

Processes

Processes determine the way in which structures and the individuals operate and interact.

Livelihood Strategy

It denotes the range and combination of activities and choices that people make/undertake in order to achieve their livelihood goals (including productive activities, investment strategies, reproductive choices, etc.).

Livelihood Outcomes

These are the achievements or outputs of *Livelihood Strategies*. These outcomes can be inquired under the following components:

- a) More income
- b) Increased well-being
- c) Reduced vulnerability
- d) Improved food security
- e) More sustainable use of the natural resource base

MATERIAL AND METHODS

The paper has been developed on the basis of focused discussion of some available literature on the Kaibarta people involved in fishing activities as their traditional occupation and also some national and international level literature containing various aspects of fishing industry and peoples' life related to this occupation. A search for online available literatures and reports related to fishing and Kaibartas was made using the search key words like 'Kaibartas of Assam', 'fishing occupation among Kaibartas', 'occupation and livelihood among Kaibartas', 'education and economic condition among Kaibartas', 'climate change and fishery', 'fishery management'. After screening the downloaded literature a total of 25 researched based papers and reports were found relevant to admit for the discussion. Using Atlas-ti 7.1 software to a limited extent, the contents of the admitted literatures were coded using the components of sustainable livelihood framework illustrated in DFID sustainable livelihood framework guidance sheet namely, natural capital, financial capital, physical capital, social capital, human capital, vulnerability context (trend, shocks, and seasonality), policy and process, institution, livelihood strategies and livelihood outcome. After generating the query on the basis of set themes, discussion was done and the linkages between factors and emerging consequences were established.

RESULTS

The Capital Assets of the Kaibartas Fishermen in Assam

Natural Capitals

The state of Assam is gifted with abundance of water resources as a source of fish varieties. There are two primary rivers namely, the Brahmaputra and the Barak and there are nearly 53

tributaries to these two rivers. Besides, there are other water bodies like floodplains or beels, reservoirs and natural and artificial water bodies in the form of ponds (Jhingran and Pathak 1987). Besides, as per government sources show that there are 430 registered beels and 767 unregistered beels, there are 71 forest fisheries, 3882 derelict water bodies, nearly 4 lakh individual tanks with 6328 community tanks (Government of Assam, Department of Fisheries 2019; Gogoi et al. 2015).

Once, these beels were accessible for all for fishing for self-consumption as well as for selling purposes to the people in and around the water bodies. Over a period of time, the control on these water bodies got shifted to the state, and the state authorities, through its various organizations, rules and regulations, transformed these in to revenue generation entities. Nevertheless, there are still some water bodies where the control of state is not claimed as such. Further, due to non-demarcation of boundaries of several water bodies, the control over them is not absolute.

There are five major types of fish habitats based on the topography of the Brahmaputra river basin namely, fast flowing rivers, upstream pools, river meandering and confluence, beels (floodplain lakes), open rivers and the main rivers. Different varieties of fishes are harbored in these fish habitats (Baruah and Biswas 2002). The author further mention that the pre-monsoon rain experienced in April-May inundates the low-lying ground and recharges the wetlands, which provide an ideal habitat and breeding ground for a large number of fishes. Study conducted by Sarma (2013) in Kamrup district of Assam reveals that the beels and the Khanajan River are the natural capital for the fishermen communities though they do not have official rights or ownership on these water bodies. A study conducted in Sone Beel areas located in Barak valley of Assam (Das and Bhattacharyee 2015) reveals that it is the natural capital of 24 villages. The authors mention that the villagers are mostly poor and they do not own the rights over the water resources for fishing. In the winter season, the water level of Sone beel recedes and only the deeper areas contain water. Such deeper areas are mostly owned by the rich people. So, the poor fishermen do not have access

to them. But in the rainy season, the area is filled up with water and the beel becomes accessible to common people for fishing. The small beels fisheries are either government fisheries or private fisheries under possession of rich people. Government beel fisheries are under control of an organisation named as Sone Beel Fishermen Co-operative Society Limited (SFCSL). The registered members of this organisation can fish anywhere in the government beel fisheries. SFCSL takes lease of the beel fisheries from Assam Fishery Development Corporation, Government of Assam. Similarly, a study conducted among the Kaibartas in Nalbari district of Assam (Haque 2016) reveals that the region occupies diversified water bodies namely, beels like Behkuri, Dhansiri and Bouta and other water bodies like swamp, wasteland and tanks. In Baska district in Bodoland Territorial Autonomous Districts area, there are 8 unregistered beels, 24,078 ponds and tanks are there which forms the natural capital for the traditional fisher folk (Swargiary 2015). The nature of sharing or access to the water resources for fishing as an economic activity has been discussed in the study conducted by Chandra (2009). On the basis of uses and users, the author has classified them in five categories namely, Remote user communities (come from a distance to use the resources); Commercial direct users of wetland resources (purely commercial relationship with the resources), Suppliers and marketers (wetland resource users including middlemen for wetland products, suppliers of inputs such as fuel and equipment, providers of credit); Government agencies and Supporters of wetland communities (NGOs, development assistance organisations and concerned individuals, and End consumers of wetland products).

It is important to note here that despite the presence of such vast water resources, the access to fishing by the traditional Kaibarta fishermen is restricted due to the fact that these resources are controlled by state agencies like fishery department, revenue department and forest department. Though during the rainy season fishing encounters lesser or no restriction, in winter, when water bodies shrink a lot, restriction surfaces as the deeper water bodies are under the control of state agencies or some rich people. This is also true that there are lots of unregistered beels and water bodies where the

traditional Kaibarta fishermen can catch fish. But, there is also issue of rights of locals and also uncontrolled extraction leading to scarcity of fishes which affects the income of the fishermen.

Financial Capital among the Kaibarta Fishermen

The financial capital of traditional fishermen Kaibartas in Assam is not satisfactory at all. Phukan et al. (2015) reveal that in Cachar district of Assam in fish farming business, the traditional fishermen do not find institutional finance due to lack of awareness about the probable source of finance. Das (2013) finds that in Kamrup district of Assam, the income pattern of the fishermen is not uniformly stable round the year. In the lean season, the people have to look for other income generating options. Their catch depends on the nature of the season and in case there is not good rain, especially during breeding season of fishes, the fisherman fall in heavy debts. Similar to the findings of some other researchers, the author also find that the institutional finance is hardly in practice and private sources like fish traders, relatives and friends and also professional money lenders from outside the community take the opportunity. In case finance is provided by the fish traders, the fishermen have to sell the produce at prefixed rates to the traders. The study also reveals that some of the villagers even have no homestead land. Thus they are devoid of land resources to utilize it as source of income through cultivation.

Study conducted in Sone Beel area in Cachar district (Das and Bhattacharyee 2015) reveals poor and illiterate condition of traditional Kaibarta fishermen. Due to poor socio-economic background, poor means of transportation and communication, they are not able to move forward in search of alternative means of livelihood. Majority of them are still engaged in fishing and wage earners in nearby areas and also as agricultural labourer in dry season. Nearly similar situation has been observed among the traditional Kaibarta fishermen in Nalbari district (Haque 2016). His study reveals that the economic condition of the people is not sound. He also observes that there is livelihood diversification among the Kaibarta people and lot of families is not solely dependent on fishing only. The poor economic condition of the traditional

fishermen is further established by the work of Swargiary (2015) through his study in Baska district in BTAD. He highlighted the absence of proper mechanism in the area which restricts the people availing institutional finance to enhance their occupation and product. There is also evidence that fishing no longer remains a primary cash earning occupation even among the Kaibarta people in several areas in Darang and Nagaon district (Goswami et al. 2002) due to lack of guarantee of steady and sufficient amount of earning from it.

There are nearly 17 percent people involved in fishing as their primary occupation whereas in Nagaon district there are 25 percent Kaibarta people opting for fishing as their primary occupation. Fishing provides them immediate cash though it is unsteady. As cultivation works are not round the year business, people opt for fishing during off-farm periods. The authors have found that the Kaibarta people are poor economically and they are thus unable to invest in Pisciculture. Bhattacharyya and Hazarika (2019) reveal that in their study area in the district of Nagaon, Sibsagar and Cachar district of Assam, majority of respondents depend solely on fishing as their main source of income. They also indicate a poorer income and economic condition of the traditional fishermen and thus 78 percent of the respondents borrow money from informal or non-institutional sources like money lenders and fish traders indicating lack of access to institutional finance. Further, there is lack of proper management and arrangement of access to registered fisheries as even non-shareholders of fisheries are also permitted to catch fish which ultimately curtail the share and income of the fishermen.

Human Capital among the Kaibarta Fishermen

Phukan et al. (2015) talks of lack of awareness among the Kaibarta people about the benefits from aqua culture among the people and thus fish farming does not appear to be an attractive entrepreneurial endeavour among them. Peoples' dependency on non-institutional finance sources has been attributed to their lack of knowledge on the institutional financial sources available. Sarma (2013) reveals the gender dis-

parity prevailing among the Kaibartas in terms of access to education favouring males. It has been indicated that girls leave school early to join their mother in household chores. The male literacy is also not encouraging as well. There has been a trend emerging recently to send girls to schools beyond primary level. In terms of sanitation, the amenities are far from better. There have been civil society organizations coming up like that of youth organizations which are taking initiatives to implement various welfare programmes in the villages sponsored by the government and non-government agencies as well. A nearly two decades old study conducted in Darang district (Goswami and Sathiadhas 2000) reveals lack of awareness about family planning, clean water supply, and adequate health facilities. The difficulty of accessing potable water and the long distance to the health center results in poor health. Most of them had thatched huts and soil toilets. The percentage of literacy was as low as 30 percent, with a high drop-out rate recorded at the primary and secondary levels. Revealing the poor rate and level of literacy among the Kaibarta fishermen in Nalbari district, Haque (2016) states that despite of having primary schools in and around the villages; many students have left schools without completing the primary education. The author finds that poor economic condition, lack of awareness of the guardians, etc are the main reasons for dropout. The causes of the low rate of illiteracy have been attached to the nature of occupation the parents of the children have and the lack of awareness of parents regarding the benefits of modern education. In such unfavourable condition, girl children are more vulnerable to discrimination and deprivation in terms of education and basic health care. Studies also reveal that Kaibarta people in Baska district are mostly lack of skill and also capability in using modern tools and techniques to be used in fishing which could enhance their catch and also their income (Swargiary 2015). He relates such shortcoming to the lack of education and training and awareness. The methods of fishing are still based on traditional and old outdated methods. It is affecting the fishing and its productivity. Bhattacharyya and Hazarika (2019) have highlighted the lack of skill and training for skill development among the fishermen as they found only 25 percent and 20 percent respondents re-

ceiving training in fishery activities in Darrang and Nagaon district respectively. A relatively higher level (up to High school) education was registered among majority of the fishermen in the two districts.

Physical Capitals of Kaibarta Fishermen

The studies incorporated in this discussion have said very little about the physical capital of the people under study. Amidst the limited discussion on physical capitals, Gogoi et al. (2015) and Sarma (2013) have discussed about some common and important aspects. These aspects include the lack of proper transportation and carriage facility among the fishermen, especially for those who sell fish in market. Further, storage facility is another concern for the fishermen as fishes get spoiled very fast. Few researchers have mentioned about the lack of ownership of fishing equipments among the traditional fishermen. Sharing and renting of fishing nets, hooks, boats etc. compel the fishermen to compromise with their catch as well as their earning as they have to surrender a definite part of their catch with the owner of the equipments. Poor financial capital is directly related to their poor physical capitals except common infrastructure.

Social Capitals of Kaibarta Fishermen of Assam

The literatures discussed here have not delved extensively about the social capital of the Kaibartas. Contrary to the popular belief that there is no caste hierarchy and caste related discrimination in Assam, experiences from field reveals that the social interaction of Kaibartas with other Assamese communities is not cordial. Sarma (2013) reveals that no other caste prefers to have marital alliance with them. But the Kaibartas can accept other castes as affinal kin. Fishing as occupation is considered to be polluting and the Kaibartas who practice it, are accorded a low status in the caste hierarchy among the Hindus. Similarly, Das and Bhattacharya (2015) have found that the Kaibarta people in Sone Beel area of Barak valley have migrated from Bangladesh during partition of India. They were not welcomed by the local people who were mostly Muslims. Nevertheless, the Hindu people helped them settle in the area, particularly by

the Patni and Namasudra communities residing in surrounding villages.

Amidst the scanty information on social capital through the literature admitted for the analysis, the indirect observation and the experiences of the author reveals that the social capitals of the traditional Kaibarta fishermen and fish farmers are not very congenial. This is mostly due to their affiliation to a social identity. They are still perceived as 'Dom' community by the significant others, a terminology laden with the perception of unclean jobs and social practices. They are not allowed to enter houses of non-SC population in the state at equal tune. There have been records and literatures that show how this specific community has tried to improve their social status over a period of time, by identifying themselves as the 'Kaibarta', a social entity having their spatial and temporal existence in pan-Indian domain since epic period. Nevertheless, the terms like Kaibarta, Nadiyal etc did not help uplift their social status in the state because people simply equated these two seemingly 'clean' terms with that of derogatory term 'Dom'.

Being Scheduled Caste, the Kaibarta people are in advantage position in terms of availing distributive privileges. For instance, being recognised as traditional fishermen, they are given first preference in allotting registered fisheries and access to fishing rights. There are also financial assistance provisions institutionally for them. Further, as per constitutional safeguard, they are eligible for reservation in jobs, welfare schemes, educational institute etc. Other than these, they have their informal social groups or units centering round the act of fishing and fish farming. They have also fishermen cooperatives as well.

Vulnerability Contexts of Kaibarta Fishermen

Shocks Encountered by Kaibarta Fishermen in Assam

Shock is included under the vulnerability contexts of livelihood domain. Shocks may be natural, as well as human made at various levels. The fishery industry in Assam is also grappled with various shock components. There has been brief discussion on the various natures of

shocks encountered by the Kaibarta fishermen in the literature discussed here. Though the delineations are not classified as shocks by these researchers, they have tried to link them to the hardship encountered by the fishermen. To start with, we can talk of impact of climate change on resources related to fishing occupation.

Referring to climate change and its impact on inland fresh water ecosystem as an worldwide phenomenon, Harrod et al. (2018) state that inland fisheries are subject to a variety of anthropogenic pressures including over-extraction of water, over-exploitation of fish, introduction of non-native species, pollution, habitat degradation (including fragmentation) and increases in human populations. Karmakar et al. (2018) support this view by reiterating that the effect of climate change ranges from cellular level to ecosystem level and it can significantly influence the inland fisheries with its effect on water resources, biodiversity, productivity and sustainability. The Assam State Action Plan on Climate Change (2015-2020) has revealed that the growth of fisheries in the State is affected by indiscriminate harvesting of fish species from their natural habitat, damage and degradation of river systems due to catchment land use change such as deforestation in the catchment area, river corridor engineering and stream impacts, sand mining, urbanization, tourism, construction of residence on both side of river bank, pollution from industries, agriculture activities and sewage disposal. The report also states that besides the above factor, overfishing, dynamiting, rampant killing of adult fish, brood fishes, spawn, fry, fingerlings and juveniles are violating Fishery Laws and Act.

Discussing about the ecological degradation of fishery resources, Barua et al. (2000) have stated that the rampant growth of water hyacinth, a fast-growing weed obstructs the penetration of sunlight, inhibiting planktonic growth and contributing to eutrophication by slowing down water currents and depositing debris at the bottom. The construction of embankments along almost the entire length of the river Brahmaputra and many of its tributaries after the devastating earthquake of 1950 reduced the periodic flushing by monsoon floods. These have resulted in further siltation and damage to the micro-flora and water quality. The injudicious use

of pesticides in farming activities has resulted in the accumulation of residue through surface runoff, leading to the problem of bio-magnification.

Sarma (2013) furthers the statement on shocks when she opines that the wetlands and its different species of flora and fauna are being threatened mainly due to accelerated drainage, land reclamation, deforestation, dumping of untreated effluents and sewage disposal, pollution, over-exploitation of wetland species, etc. The author also mentions the lack of access to resources by the traditional Kaibarta fishermen due to government's takeover of the fisheries, influx of fish traders, shortage of capital, and malfunctioning of the fishery co-operative societies.

Das and Bhattacharyee (2015) have discussed the effect of climate change on fish population in Assam. The authors have revealed that significant change in seasonal rainfall is observed in different parts of North-East India including Assam. Wetlands of Assam are drying up due to global warming and shortage of rainfall. For them, human action related to economic activities like cultivation and other development activities pose threat to aqua fauna. There is a vertical and a horizontal increase in river beds and increasing frequency and intensity of floods is the perennial problems of plains of north east. There is an overall depletion in the quantity and quality of aquatic life due to depletion of natural water quality due to human action and its consequences. Being specific about the impact of ecological factors, the authors mention the situation in Sone Beel of Barak valley in Cachar district. They have mentioned the decreasing depth of Sone beel due to siltation as a result of human activity like cultivation and construction of embankment and river action of Singla River. Different variety of fish, for which Sone beel was popular in the locality earlier, is not available now a days. Variety as well as the quantity of fish is gradually decreasing. Baruah and Biswas (2002) blames siltation as a severe problem which leads to poor fish production. The great earth tremor of 1950 in the upper Brahmaputra basin and the consequent erosion during 1954-55 has effected heavy siltation. Swargiary (2015) reveals the shocks in fishing occupation attributing to increase in fish diseases. Frequent flood has been mentioned by the au-

thor as another significant factor for loss of fishery. Further, several other studies discuss the crisis factors in fish trade. These include the loss of free sources of fishing, influx of non-fishermen in to the fish trade, lack of sophisticated tools to use in fishing and fish farming, shortage of capital and defective management of co-operative system.

A Department of Fishery Report, government of Assam, shows that there is also issue of availability of fish seed on proper time for the fish farmers. The Department of Fisheries is mostly unable to provide fish farmers the required fish seed on time. Delayed acquisition of fish seeds does not contribute to any substantial increase in production. The lack of extension machinery has affected the promotion of new technology and identification of existing limitations, among fish farmers who would otherwise be willing to embrace new models to boost growth.

Seasonality

In fishing activities, seasonality is mainly related to the health of water bodies in and around the people under study. Most of the tributaries and floodplains in the state are rain-fed ones and due to this reason the water level varies at different point of time in the year. Such variation has both positive and negative impact on the production and catch of fishes. While receding of water level in winter concentrate the fishes in lesser areas on water bodies making it easier for the fishermen to catch more fishes in lesser surface coverage, it also amounts to competition, over extraction trespassing of rightful boundary of operation. Contrarily, water overflow and flood are the common annual natural calamities in the state. Though increased water level and its extent to otherwise shallow plans favour breeding of fishes, it also results in to the uncontrolled movement of fishes, increase the area of operation with lesser density of fishes. Further, overflowing water bodies also results in to loss of artificial fisheries as fishes comes out of those fisheries. Erratic rainfall has been the recent trend in the state due to climate change and lack of rain during breeding season hampers the increase of fish populations to a great extent.

Critical Trend

From its long standing traditional nature, fishing as an occupation has become a trade domain, lucrative in nature. The demand for fish in the state is unable to meet by the local producers, and a significant part of fish consumed by the people in the state are imported from other states of the country. There have been emerging trend of Pisciculture in artificial fisheries which are mostly owned by non-traditional fishermen. Thus, the concentration of fishery development by government agencies have been more on such artificial and personally owned fisheries. This has put the traditional fishermen Kaibartas in a disadvantaged situation. This is because; they lack the skill, resources and enthusiasm in such fish farming business.

Moreover, within the natural fishery resources like rivers and floodplains, influx of non-traditional fishermen as traders and middlemen has become quite evident. The policies implemented by the government agencies to award lease of registered beels and other water bodies through Fishermen cooperatives and individual registered fishermen etc. have been infested with irregularities and the common and poor and unorganized Kaibarta fishermen have been suffering constraints and losses affecting their livelihood. There has been emergence of rich and elite class within the Kaibartas, who, with the financial and political support of non-fishermen community people act against the interest of the traditional Kaibarta fishermen. Increasing literacy and level of education among the new generation of the Kaibartas have not attracted them towards the enhancement of Pisciculture at all. Rather, the new generation is seen more inclined towards non-fishing occupations like service sectors, jobs, business etc.

Policies and Institutions Related to Fishery Industry in Assam

Policies and institutions become functional through structure and process. When structures are like the hardware of the system, the processes are the software within that system. The importance of deliberating the policies and institutions through these two components lies in the fact that they influence both the capitals and

the vulnerability context of the livelihood issues of a community. The literatures discussed here have deliberated to certain extent the various issues related to policies and institutions.

Transforming Structure and Process

Institutional Structures Related to Fishery Industry in Assam

It has been found that the commercial fishing industry is roughly divided in to government and private institutional control and authority. While the government institutions come directly under the directorate of fisheries along with its several subsidiaries, private domains are divided into co-operatives and groups of fishermen.

Government-run Structures

The department of fishery of government of Assam has two major organizations – the directorate of fisheries and the Assam Fisheries Development Corporation Ltd. (AFDC). While the directorate looks after the administrative and planning part of the fishery domain, the AFDC is entrusted with mostly the implementation of schemes. As per rule, all natural water bodies are the property of the state and thereby, resources related to fishery are also state property. The rivers, beels and lakes are thus becomes the state property which are under the jurisdiction of multiple departments like revenue department, forest department and the fishery department of the state. Nevertheless, when it comes to the issue of fishermen and fishing etc., more emphasis have been put on the activities of the AFDC as this institution is directly related to the fishermen and the development of resources etc.

Fish Farmers Development Agency (FFDA) is another institution which usually takes on the domain of training logistics for fishermen. It was established in Assam in 1974-75 in Kamrup District. Later on, the Scheme has been gradually extended to other districts of the state. During these years, the FFDAs in Assam have been providing training in Pisciculture to selected persons in their own training centers, arranging loan from banks for the fish farmers and also providing subsidies along with the bank loans to excavate new ponds or expand and renovate

the old ones. The scheme also provides necessary technical guidance to the fish farmers whenever it is required. The Assam Apex Co-operative Fish Marketing and Processing Federation Limited (FISHFED) under Co-operative Department of the state is an apex cooperative federation helping the state's fishermen for their socio-economic development through primary fisheries cooperative societies by increasing production of fish through member societies and through its own project. The FISHFED's mandate is to organize the marketing of fish through developing necessary infrastructure. But at present, it is more or less defunct.

Fishermen Cooperatives

There are Fishermen cooperatives formed by 100 percent scheduled caste people to be eligible to get access to the registered beels under AFDC.

Informal Institutions

There are other forms of non-governmental organizations working among the fishermen. Village community organizations, NGOs, self-help groups are some of such institutions. These are mostly based on social relationships with time tested flexible rules and regulations and accountability etc.

Process vs. Fishery Development

There are fishery development schemes at both state and central government levels. In Assam, both state sponsored and central sponsored schemes are implemented under the Assam fishery Development Corporation Limited (AFDC). In general, the development of existing beels (river lakes), construction of rearing tanks, Pen culture and Releasing of Fingerlings etc. are implemented under centrally sponsored schemes under National Fishery Development Board. Rashtriya Krishi Vikas Yojana (RKVY) is a State Plan Scheme of special additional Central Assistance launched by the Ministry of Agriculture & Farmer Welfare, Government of India and National Development Council (NDC). Under state sponsored schemes, the AFDC implements the "States Own Priority Development Programme".

Under the AFDC Ltd, all the fisheries are leased for certain years (usually 5 years) to fishermen under the following conditions:

- ♦ The person or the organization must belong to the district where the fishery resource is located.
- ♦ The fishermen cooperative societies formed by 100 percent scheduled Caste traditional fishermen can submit tenders.
- ♦ Any fish farmer belonging to Scheduled Caste community.
- ♦ Commercial fishermen belonging to SC community
- ♦ Maimal community

Community Based Fisheries Management has been the recent trend among government agencies and NGOs which involves local communities in beel management and conservation. Government of Assam under World Bank financed 'Assam Agricultural Competitiveness Project (AACP)' has initiated community based fisheries management in several beels under the aegis of Department of fisheries. In these wetlands, beel development committee has been formed with the membership of fishermen and women of adjoining village among 20-500 individuals. The beel development committee forms their executive committee. The fisheries department becomes a facilitator in community based fisheries management. In case of unregistered beels the access is open to all. Nevertheless, the rights of the local fishermen have always been respected.

Livelihood Strategies among the Kaibarta Fishermen in Assam

Livelihood strategies are the various options people take up to earn their living considering the changing situation in and around their physical and social domain. These situations can be clubbed under the various components described in the Sustainable Livelihood Framework discussed here. Fishermen communities, including the Kaibartas of Assam also are seen adopting various livelihood options. In fishing itself, they adapt traditional as well as some modern strategies.

Sarma (2013) has observed that among the Kaibartas, besides the individual family fishing units, groups of fishermen form a unit called *Thora* and they perform joint trips to catch fish. A *thora* comprises of eight members, who are

drawn from a cross-section of the family fishing units of the whole village. This enhances the catch in a larger area of water bodies. Such need based informal arrangement indicates a strong social capital among the Kaibartas. As a strategy for livelihood, they not simply depend on catching fish only. Rather, they also buy fishes at the source and sell them. Women of Kaibarta fishermen families also get involved in the fish trade and sell fishes bought from market in the nearby villages with profitable margins.

It has been stated in the vulnerability context that traditional fishing practices are mostly seasonal and during winter the access to resources and quantity of catch decreases to a great extent. To mitigate such shock, they have diversified their livelihood option to other economic activities like cultivation, trade, and industry, contract, service, etc. While mostly the illiterate and low literate Kaibarta men are stick to age-old traditional occupation of fishing, the relatively more literates tend to come out of this traditional closet and catch non-fishing occupations. In most of the cases, the relatively higher educated people perceive fishing as an occupation unsuitable for educated persons like them. Even the parents of the educated children feel that being brought up in relatively less harsh condition; the educated children are not suitable for such hard and laborious work to adapt. It is also noted that availability and accessibility to non-traditional work in urban locality made the fishermen youngsters inclined towards non-traditional occupations. Das and Das (2020) have also observed similar strategies adapted by the Kaibarta fishermen in Majuli, the biggest river island in the world. Das Kalita et al. (2019) have observed that though there is a law called Assam Fishery Rules, 1958 which prohibits catching of certain sized fees and to catch fish on certain time period to avoid killing of premature and breeding fishes, due to scarcity of fishes, even the traditional fishermen also defy such rules and involve in illegal manner of catching fishes. Barik and Kathiha (2003) have elaborately described the various adaptive ways in sharing products in fishing trade. They have mentioned that depending on the possession of required fishing implements, and also on the range of difficulty to catch fish, there are various arrangements followed by the fishermen and the

lessee while sharing the catches. Sarma and Ali (2005) have extensively described the occupational pattern and livelihood activities of Kaibartas in Kamrup district of Assam and the livelihood strategy among the people. The authors find that when fish community become scarce, there requires coordinated strategy and activities. So, the Kaibarta people form fishing units with some likeminded fellow fishermen and go for fishing trips. They usually do not possess individual fisheries. Regarding the shift of occupation, the authors find that the occupations of the earliest generation (father's father's) was centered on fishing followed by labourers (both wage and casual). The next generation (fathers) was a mixed one, majority being fishermen followed by agriculturists, casual labourers and wage labourers. The present generation shows a shift in occupation with wide variation including business, driving, office assistants, nurses/dresser etc. Lahkar and Datta (2013) have found that there is evidence of occupational shift from fishing to agriculture, service, daily wage labour etc. owing to the unstable and low income from their traditional occupation fishing and also unavailability of local fishing ground and utter dependence of the *mahaldars* (the contractors).

Livelihood Outcome among the Kaibartas in Assam

Livelihood is assessed on the basis of the following parameters. The research papers discussed here have, to some extent, delineated some of these parameters with limited extent. Most of the livelihood outcome aspects are centering round the extent of income generation. The derivatives of the discussion may be described as follows:

More Income

There is no denying fact that fishing remains one of the primary sources of cash income option for the Kaibarta fishermen. There is also no lack of demand of fish in the market of the state. Despite such demand, the traditional Kaibarta fishermen encounter uncertain and irregular cash income due to vulnerability contexts like shocks of various kinds as discussed elsewhere in this paper. Thus, the livelihood outcome in

terms of enhanced income is not at all satisfactory. This also explains why the financial capital of the people is poor in extent. Financial capital is severely affected by the low and insufficient income of the people. It has also been revealed that due to inability to provide desired and required nature of livelihood outcome, Kaibarta people have been on move to non-fishing occupational domains for cash income. Nevertheless, due to low level of human capital and social capital, they are also not able to enhance their income sufficiently to increase the status of life as well as to increase the asset base.

Increased Well-being

The studies have revealed to some extent that there has been improvement in health care and sanitation among the rural Kaibarta villages. Nevertheless, such improvement cannot be credited to their traditional occupation or their shift to non-fishing occupations. This is because; a lot of such facilities are the outcome of constant endeavour of government agencies in health and housing sector. People are getting various facilities under the welfare schemes as being the members of Scheduled Caste community as well as common poorer people mostly below poverty line. Availing health care facilities, higher education etc. are still hampered by lack of physical assets like infrastructure.

Reduced Vulnerability

There has been evidence that the vulnerability factors are still prominent there. Despite the presence of programmes and policies for the betterment of the traditional Kaibarta fishermen and fish farmers, the vulnerability contexts have not been diminished yet. In fact competition, discrimination, mismanagement and natural causes have been compounding the vulnerability contexts of these people.

Improved Food Security

There has been constant shrinking of resources that provide food materials directly to these people — land, forest and water resources. There is no denying fact that diversification of livelihood options have equipped people with

the capability to cope with lean seasons encountered in fishing activity. Further, the government welfare schemes under Public Distribution System complements the gap between what is earned and what is required to be consumed.

More Sustainable Use of the Natural Resource Base

Although there has been mention of community participation in natural resource management, in reality, it is far and few. Over population and indiscriminate extraction of resources and the issue of ownership of water bodies and rights exercises on those entities are some of the issues negatively impact the regime of sustainable use of natural resources. There has been a sense of otherness between the fishermen and the resources due to such factors.

Beyond these parameters, it can be observed that skill development, creation of entrepreneurial aspiration among the Kaibarta youth and the technology transfer and community ownership etc. has not been developed up to the mark. All these factors have put the life of traditional Kaibarta fishermen in a disadvantaged position. Very importantly, the traditional Kaibarta fishermen are far lagging behind in terms of fish farming, which could have been an easy livelihood option to improve their life situation and capital asset endowment

Gender Aspects in Fishing Domain

Studies on the relation between women and fishing occupation reveal a lot of important aspects to be discussed. Due to existing gender based norms and practices, women encounter problems in possessing control over key assets like land, ponds, capital, skills, technologies and extension services. Further, women's exclusion from community decision making, leadership etc. has direct negative effect on women's meaningful role in fishery domain. Women in developing countries are further, burdened with unavoidable household duties as normative gender roles which further restrict them from participation in public domain.

Turning our attention to the Kaibarta fishermen families, Sarma (2013) opines that the nature and extent of involvement of Kaibarta wom-

en in fishing activities has been decreasing over a period of time. The author forwards various factors responsible for such situations. She mentions that women usually catch fish in nearby water resources. But due to ecological factors, nearby marshy lands have become unfit for fishing. The local fish auction market has been dominated by men folk where the women cannot compete. Due to social stigma attached to the catching and selling of fish, especially house to house, the educated children of fisherwomen do not allow them to do it. The author's observation reveals that buying fish from markets and selling them house to house is mostly a compelling work for women as widows are primarily seen involved here. Otherwise, women do sorting of fishes based on types and sizes at home and keep them ready to be taken to market by men folk of the family.

Kalita and others (2019) reveal that in the absence of men-folk from home for a long time due to fishing activity, the women have to take charge of the extra-domestic activities as well over and above their usual domestic works. Thus while taking children to school, visiting health centers, running errands, the women come in contact with other women of same or other communities. They exchange experiences and ideas and thereby they become aware of many necessary things, they can shed-off their traditional inhibition and become self-aware.

DISCUSSION

The findings and views of researchers and contents of the reports analysed under the previous heading may be discussed here for a better understanding and logical as well as empirical delineation. The discussion will be focused on the cause-effect relations between the one or more components of the Sustainable Livelihood Framework as described in this paper.

Vulnerability Contexts vs. Capital Endowments

Natural Capital

Vulnerability contexts like shocks which include natural and human induced consequences like siltation, contamination, spread of water hyacinth, indiscriminate and over extraction of

fish population, fish diseases, frequent flood and erratic rain during fish breeding seasons hampers the richness of natural capital of the people. Critical trends like ownership and authority over registered water resources by the state and private parties have definite impact on the access to natural resources by traditional Kaibarta fishermen.

Human Capital

Lack of education, skill and awareness about the various schemes and opportunities and lack of capability and enthusiasm towards fish farming on commercial basis reveal the weak human capital among the Kaibarta people. Climate based seasonality of fish trade has compelled people to shift their occupation or adopt multiple livelihood options resulting into lesser importance on fishing. Further, critical trends like increased population pressure on their traditional trade also negatively impact the livelihood of the people. The perception of educated Kaibarta people towards fish trade has been proved to be detrimental to this livelihood option.

Financial Capital

For obvious reasons, the vulnerability contexts described in this discussion have definite impact on the financial capital of the traditional Kaibarta fishermen. Depletion of natural assets, lack of ownership and authority over the resources, uncertain and irregular and insufficient income have made Kaibarta fishermen poor in financial capital. There is also lack of awareness about, and access to institutional finance for investment to enhance productivity. Poorer financial capital has also internal linkage with other assets endowments as well. The people often fall in trap of private moneylenders, fish traders and middlemen and thereby incur loss and face discrimination.

Physical Capital

All the three components within the vulnerability contexts have direct as well as indirect impact on the physical capital domain of the Kaibarta fishermen. While the status of common physical capitals is dependent on infrastruc-

ture development initiatives of the state agencies, the family and community level physical capital directly depend on the financial, human and social capitals, which again are influenced by the vulnerability contexts in various ways.

Social Capital

Social capital is primarily influenced by those vulnerability contexts that have direct bearing on financial and human capital. Further, critical trends like stigma related to the fishing occupation, ethnic identity issues, increasing education and perception and worldview of the new generation towards their traditional occupation as well the perception of the significant others to the Kaibarta people have considerable impact on social capital.

Policies and Institutions vs. Vulnerability Contexts

Government agencies are the apex bodies responsible for planning policies and implement the same for the development of fishery resources. It has been revealed that the fishery development activities are primarily focused on artificial fisheries mostly developed by the non-traditional fishermen. The AFDC deals with managing registered fisheries, both natural and artificial. Further, training of registered fishermen, providing fishing equipment, financial assistance to fishermen etc. are also taken up by the organization. It also monitors the implementation of rules regarding awarding of access to fisheries to the eligible SC people and fishermen cooperatives. The department of fishery also takes certain activities in hand to address the issue of fish seed scarcity, community participation in fish farming and maintaining ecological balance etc. Thus, the department tries to mitigate the impact of vulnerability context on the capital endowments of the Fishermen community. Despite of these processes, there is a wide gap between what the reality is and what to be done.

Capital Assets and Policies and Institutions vs. Livelihood Strategies of the People

There are certain linkages between livelihood strategies adapted by the Kaibarta fishermen and

the capital assets they have and the policies and institutions related to the fishing industry. Natural capital is formed by the available water bodies registered and unregistered under the government agencies. Nevertheless, there are constraints as well as privileges experienced by Kaibarta people when these natural capitals are controlled and managed by state and private agencies. To get the access to rich resources, the Kaibarta fishermen register their names under the AFDC. They also form fishermen cooperatives. They form some informal local level fishing group consisting of certain number of like-minded fishermen. The women are also involved at various stages of fishing activities or selling. There are Self-help groups formed among them to whom government agencies provide financial assistance and training and equipments etc.

The studies have revealed that the traditional Kaibarta fishermen are mostly devoid of fishing implements of their own. Thus they are poorer in physical capital to a great extent. In the event of lack of physical capital, the fishermen have to share their catch with the provider of equipments. The poor financial capital also leads to poor physical capital among the people. There is no denying fact that the department of fishery of the state government has been providing fishing implements to the fishermen. But the scheme may not reach all. It is also important to note that such implements are perishable and fishermen are not self-sufficient to procure these of their own in subsequent years. Policies and processes initiated by the government also have helped Kaibarta people acquire education, health care, housing etc. through reservation as well as assistance in required areas. These have helped people enhance human capital to some extent.

Expansion of urban localities, improved road and transportation and spread of education to some extent, have enabled the new generation people among the Kaibartas to opt for diverse occupation to mitigate vulnerability contexts like seasonality. Such shift in occupation has also helped Kaibarta people keep themselves out of fishing occupation, which otherwise was looked down as an unclean job.

Livelihood Outcome vs. Capital Asset Enhancement

The discussion made above clearly reveals that the livelihood outcome is not very encour-

aging among the Kaibarta fishermen of Assam. Traditional Kaibarta fishermen could not enhance income in significant way for which their financial capital is also insignificant. Lack of training and skill development, lower literacy rate and lack of awareness and enthusiasm for entrepreneurial activities among the Kaibarta traditional fishermen have kept the human capital a low profile. People have adapted few strategies to receive the privileges offered by government agencies and cooperatives etc. they have been able to create some sort of social capital as such. In totality, it has been observed that more than their livelihood outcome, it has been the government welfare and development schemes that have enhanced few of their capital domains. There is no significant capital enhancement based on the livelihood outcome. This indicates an urgent need for change in policy and process to drive the traditional fishermen towards scientific fish farming, management skill development and financial and marketing network with proper and effective security towards losses due to vulnerability contexts.

CONCLUSION

The discussion and interpretation made above have clearly suggested that the traditional fishermen among the Kaibartas are not in a good position in their livelihood domain by continuing their traditional occupation – fishing. The reasons for such a situation are both internal as well as external. While there are ample scopes for development of fishermen by including them in fish farming activities, there is also need for action from within and without. While the traditional fishermen among the Kaibartas have to imbibe the interest and enthusiasm to enter in to this domain meaningfully, they also require lots of support and assistance on every relevant aspect – skill and training, technical input, financial capital, improvement of physical assets and most importantly mitigation of the vulnerabilities they encounter with.

RECOMMENDATIONS

Considering the emerging livelihood situation of traditional fishermen among the Kaibartas, the following recommendation may be forwarded:

- i) There is a need to relook at the free accessibility of traditional fishermen among the Kaibartas to resources and initiate structural arrangement in this issue.
- ii) The local level community organization formed for fishing activities may be enhanced with formal support from government and development agencies.
- iii) There is a need to assess the nature of agreement, interaction and relations between lessee of fisheries and the fishermen who catch fish in the leased water bodies.
- iv) There is a need to enhance the physical capital of traditional fishermen to make them free from the discrimination of owners of such capitals
- v) Very importantly, considering the fact the Kaibarta fishermen are adept with fishing and fish farming, they should be provided with advanced training and finance and logistic support so that they can engage in fish farming trade and cope with the challenge of influx of non-traditional fish-farmers.
- vi) Livelihood diversification must be popularized to ease the poor socio-economic condition of the people.

NOTES

- ¹ There are four broad social divisions among the Hindu society namely, Brahman, Kshatriya, Vaisyas and Sudra.
- ² The Department for International Development (DFID) is the British government department responsible for promoting development and the reduction of poverty.

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