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Exploring the Socioeconomic Landscape of Dependent Communities in Hakaluki Haor

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ABSTRACT

The largest freshwater natural wetlands in Bangladesh, Hakaluki haor, is home to a variety of plant and animal species that have long supported reliant communities. The research aimed to identify the socioeconomic standing and biodiversity of the community by employing both qualitative and quantitative approaches. A six-month field research in three villages in Hakaluki haor, Bangladesh, assessed the status of the resource users and resources used by the haor-dependent community. The study reveals that 27% of respondents engage in full-time fishing, while 37.2% are agriculture-dependent. Most have primary-level education, leading to financial crises and poor housing conditions. The vast fisheries resources are their main livelihood, but economic crises and overexposure threaten wetland. The haor, a natural wetland, has experienced significant environmental degradation due to agricultural drainage, *Jalmohal* leasing systems, fishing pressure, overexploitation, siltation, soil erosion, habitat destruction, hunting, and increasing population. Human encroachment and inefficient enforcement have also led to a decline in floral and faunal diversity, increasing inhabitants' vulnerability. Effective management plans are crucial for sustainable livelihoods.

1. Introduction

Bangladesh, a country of over 140 million people spread across 147,570 km^2, is located in the riverine lap of Southeast Asia. Here, fish is not just food; it is an integral part of the culture (Nahar, et al., 2018; Sunny et al., 2020). This is especially true in Sylhet's northeastern sector, where freshwater catch fisheries have a great deal of potential. (Dey, et al., 2021; Sultana et al., 2022). Natural wonders abound in this area, which is home to more than 6,000 beels, most of which are seasonal, and about 47 major haors, including Hakaluki, Tanguar, and Hail haors (DoF, 2018; Alam et al., 2021). These riches, along with the entire Sylhet region, undergo a transformational flooding every monsoon season because of the powerful rivers that rise from the highlands of Assam and Meghalaya (Haque, et al., 2021; Sarker, et al., 2022; Sazzad et al., 2023).

Among these wetlands, Hakaluki haor, which covers 39,323 hectares during the monsoon and 18,386 hectares in the winter (Pandit et al., 2015). This is also the Bangladesh's largest natural wetland. Approximately 190,000 people who work as dependents are directly or indirectly supported by this refuge (Kuddus et al., 2020; Sazzad et al., 2023; Alam et al., 2023a).

Hakaluki Haor has long been praised as a hotspot for a wide variety of flora and wildlife due to its rich biodiversity dating back to antiquity. Its importance in terms of commerce, ecology, and economy cannot be emphasised. But in recent decades, the haor's environmental health has declined alarmingly, despite the region's wealth of natural wetlands (Sunny et al., 2021). There are several variables causing this deterioration (Chakma et al., 2022). Numerous factors have contributed to the decline in fishing, including siltation, soil erosion, habitat loss, overexploitation, high fishing pressure, *Jalmohal* leasing regimes that deprive fishermen of their property rights, hunting, and growing populations (Allison, 2005; Ali et al., 2009; Mohammed and Wahab, 2013; Rana et al., 2018; Alok et al., 2018). As a result, this wetland's once-vibrant floral and faunal tapestry has diminished, leaving it open to human invasion and ineffective governance.

Although this deterioration has been documented in previous research, the unique situation of the main stakeholders and the fishing population living along the banks of the haor has received little attention (Hossain et al., 2023; Sazzad et al., 2023). However, the livelihoods of these communities and the preservation of biodiversity must both be taken into account in any sustainable management plan. In light of this, our research attempts to close this knowledge gap by utilizing the DFID Sustainable Livelihood Approach (SLA) paradigm to offer a thorough insight of the way of life in the community (Narula, et al., 2017; Natarajan, et al., 2022; Guo et al., 2022). A comprehensive SWOT analysis, which examines the possibilities, threats, weaknesses, and strengths these communities face, is essential to our research. Our study aims to provide policymakers with the insights required for the sustainable management of these priceless wetland ecosystems by illuminating the nuances of their livelihood choices, poverty levels, vulnerabilities, and ambitions.

2. Research Methodology

The study was carried out in three communities within the Sylhet district of Fenchuganj Upazila over a six-month period beginning in January 2022 and ending in July 2022. Using participatory rural appraisal techniques, such as individual interviews, key informant interviews, physical observations, and focus group discussions (FGD) in accordance with the methodologies of, primary data were gathered through a series of field surveys. Thus far, 75 interviews have been conducted using semi-structured questionnaires (25 from each upazila) and 09 focus group discussions. A variety of networks, such as journals, the Google search engine, published papers, etc., were used to gather secondary data. The main information sources were websites about

wetlands and SWOT analysis, where keywords like "wetlands," "haor," "fisheries," "agriculture," "biodiversity," and "SWOT" were used to search the web.

2.1. Data Analysis

The sustainability and state of the community's livelihood were more thoroughly examined by combining their SWOT analysis with the Sustainable Livelihood Approach (SLA) framework from DFID (2000) (Fig. 2). Quantitative data that had been gathered was coded, recorded, and then added to an Excel data sheet to conduct the analysis, which were primarily provided in tabular and graphical form.

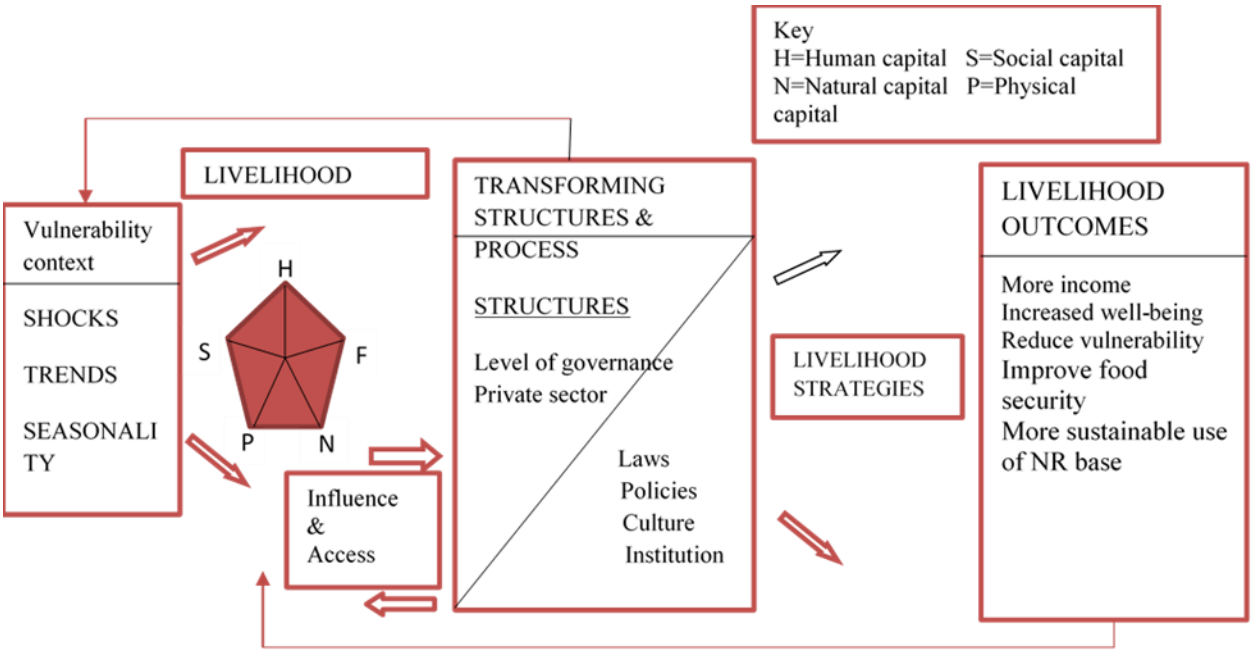

Figure 1: Sustainable Livelihood Framework

3. Results and Discussion

3.1. Socioeconomic profile

From the research locations, a variety of socioeconomic data were gathered. According to the current survey, 60.1% of people in the studied areas live in tin sheds. While 20.5% of people live in semi-pacca buildings, while 14.5% reside in thatched houses (Table 1). Relevant information was gathered regarding their living condition, age, sex, religion, educational background, number of family members, use of electricity, occupation, sanitation, agricultural land, monthly income and expenses, etc.

3.1.1. Respondent age

According to the current survey, a greater proportion of resource user were between the ages of 31 and 40 (45.1%), followed by those between the ages of 21 and 30 (30.2%), and those under the age of 20 (15.3%). A number of fishermen (5.2%) were discovered to be above 50 years old. (Table 1). Because of their physical prowess, the middle-aged fishermen group fished more than the other groups. The percentage of middle-aged farmer and fishermen was lower than the national average (45.3%). (Sazzad et al., 2023) recorded the largest age group of 25–50 years from the haor areas.

Table 1: Socio demographic features of haor dependent community

Parameter	Status	Mean (%)
Housing status	Tin shed	60.1
	Semi pacca	20.5
	Thatched	14.5
Age	<20	15.3
	21– 30	30.2
	31– 40	45.1
	>40	5.2
Religion	Muslim	91
	Hindu	9
Education	Illiterate	30.8
	Primary	55.3
	Secondary (SSC)	10.5
	HSC	4.3
Profession	Agriculture	39.2
	Fishing	30
	Day laborer	5.2
	Boatman	2.2
	Small trade	9.4
Income	>6000	62
	6000-12000	32
	<12000	6

3.1.2. Gender and religion:

Since a large portion of the survey was carried out at the field level, 90% of those surveyed on average were men and 10% were women. The majority of the time, the females in the study areas stayed at home and take care of household chores. On average, 91% of the individuals identified as Muslims, and 9% as Hindus. (Islam et al., 2018b) found that in wetland dependent community, there were roughly 94% Muslims and 6% Hindus.

3.1.3. Status of marriage

During the study, the participants' marital statuses were also noted. 80% of participants were married, and only 20% were single, according to the study's findings. The study did not include people who have been abused or divorced.

3.1.4 Status of education

The research areas' state of education was not very good. The majority of them (55.3%) just had a primary education. Merely 10.5% came from secondary education, and only 4.3% were from upper secondary education. The percentage of illiterates was 30.8% and only 1% of the graduates from were questioned.

3.1.5. Profession and monthly income

In addition to fishing and agriculture, they work in a variety of fields, including boatman (2.2%), labor (5.22%), agricultural labor (39.2%), and small trade (9.4%). Approximately 30% of them fished full-time (Table 1). Fishermen make a pitiful living. Fish sold at markets and other locations provides fishermen with their primary source of income. About 62% of the respondents make less than 6000 BDT (50 USD) per month. About 6% of the second income group have more than 12,000 BDT (100 USD), whereas 32% of them were in the 6,000–12,000 BDT (Table 1). Income status suggested that most of the people who earn daily basis lead a measurable life (Alam et al., 2023b).

3.1.6. Drinking water and sanitation status

The study revealed that 95% of fishermen use tube-well water for drinking, while 5% use well or Indira water. However, the sanitation conditions were poor, with 50 % using katcha toilets, 45% using sanitary latrines, and 5% using open hole latrines.

3.2. Strength, weakness, opportunity and threats of hoar dependent community

This study examined the livelihood-related opportunities, threats, weaknesses, and strengths of fishermen, summarizing them in a SWOT analysis. Strengths like inherent bravery, physical prowess, a strong work ethic, a modest lifestyle, an abundance of protein, and women's participation in the fishing community's economic operations were noted. On the other hand, deficiencies included extreme destitution, lack of education and work, poor infrastructure and relationships with both public and private institutions, insufficient funds, and little involvement in the decision-making process. Strength and weakness varies with the interaction of natural and anthropogenic factors (Milton, 2010; Islam et al., 2017; Islam et al., 2018b)

Rich water resources, the possibility of alternative income-generating activities (AIGAs), ecotourism, and the possibility of increasing awareness through co-management techniques were all opportunities for improving livelihood sustainability (Figure 3). Threats to fishermen, however, included low income, political pressure, overuse of resources, significant dependence on natural resources, regular natural disasters, and poor policy implementation. A brief synopsis of the main advantages, disadvantages, chances, and risks associated with the framework for sustainable livelihood is given below (Figure-2). Threats and opportunities heavily influence the livelihood sustainability of the wetland dependent community (Kuddus et al., 2021; Kuddus et al., 2022).

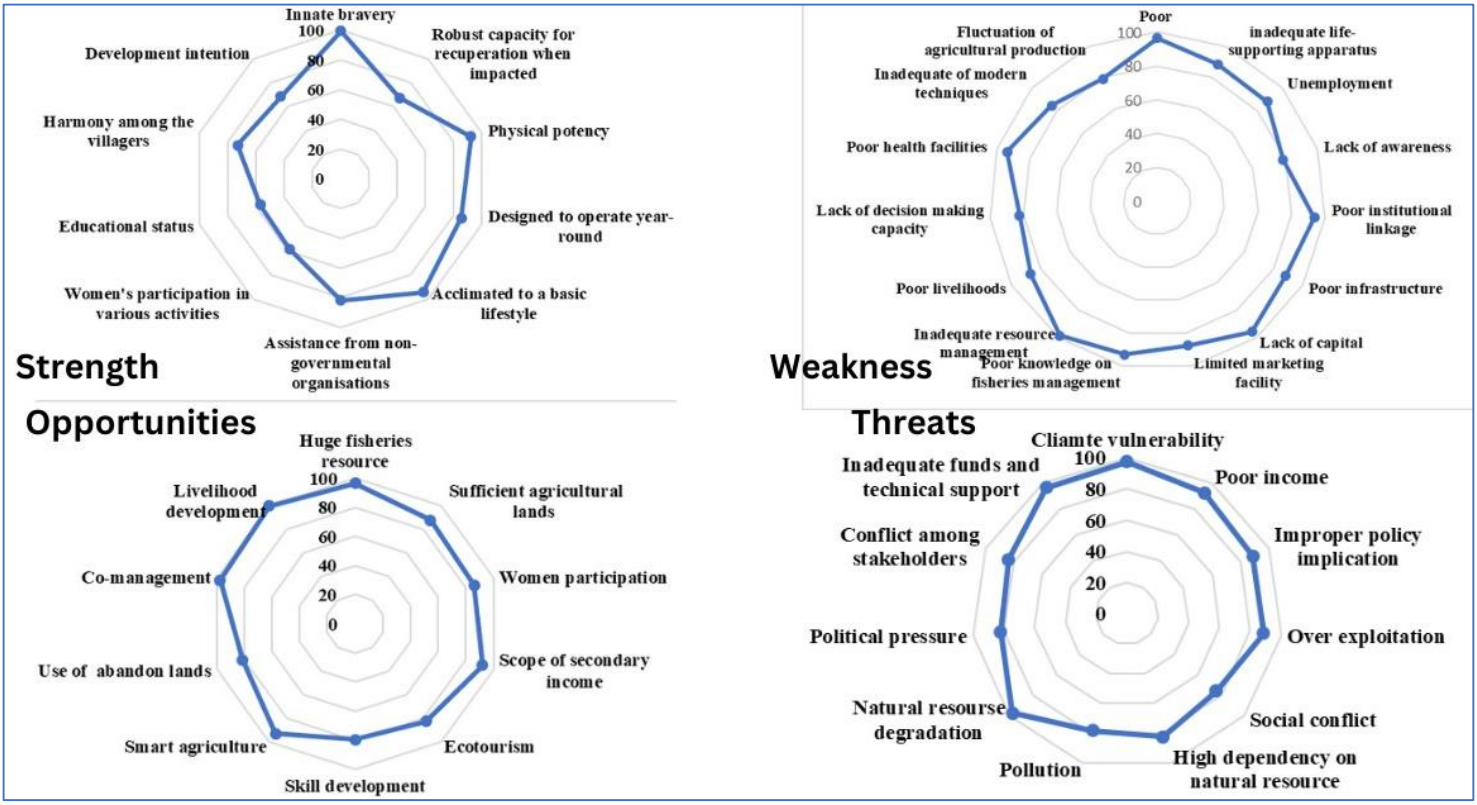

Figure 2: Strength, weakness, opportunity and threats of hoar dependent community

4. Conclusion

People who depend on haors for their subsistence mostly earn a living through farming and fishing. However, a number of social, economic, and technological difficulties mean that their socioeconomic situation is still unacceptable. Understanding the complexities of their livelihoods is essential for efficient growth, yet there is a conspicuous lack of information in this area. The implementation of co-management methodologies, legal frameworks, and policies for wetland management has the potential to improve their circumstances and increase fish yield. The lives of families depending on haor could significantly improve as a result of these actions.

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Author Contribution
Each author took involved in the creation of the study design, data analysis, fieldwork, and execution stages. Every writer gave their consent after seeing the final work.

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A statement of conflicting interests
The authors declare that none of the work reported in this study could have been impacted by any known competing financial interests or personal relationships.

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