Socio-Economic Inequalities And Debt Dependence Among Inland Fishing Communities In The Ganga–Gomati Rivers

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Abstract
This study examines the socio-economic conditions and debt dependence of inland fishing communities residing along the Ganga–Gomati river system. Based on data from 1,330 respondents, the findings reveal that fishing and allied activities remain the primary source of livelihood for more than 80% of households, highlighting their heavy dependence on the river ecosystem. The income distribution shows that a majority of fishermen fall into low-income categories, with limited scope for alternative occupations. The analysis also indicates a significant reliance on informal credit systems, with nearly 57% of fishermen depending on moneylenders, often trapped in cycles of high-interest debt. Formal financial institutions such as cooperatives and banks remain underutilized due to procedural barriers and limited accessibility. These patterns of economic fragility, high indebtedness, and lack of livelihood diversification contribute to persistent socio-economic inequalities within the community. The study emphasizes the urgent need for financial inclusion, debt-relief mechanisms, sustainable fisheries management, and targeted government interventions to improve the living standards of inland fishermen and break the cycle of poverty.

Keywords: Socio-economic inequalities, Inland Fishermen, Financial Inclusion, Livelihood Vulnerability, Sustainable Fisheries.

1. INTRODUCTION

Fishing communities form an integral part of India's traditional riverine economy, particularly in the fertile plains of the Ganga–Gomati river basin. For centuries, these rivers have served as lifelines, providing food, employment, and cultural identity to inland fishermen. Despite their historical significance and contribution to local economies, fishing communities remain among the most socio-economically marginalized groups, struggling with poverty, limited livelihood opportunities, and debt dependence. Their vulnerability is further intensified by declining fish stocks, pollution, and encroachment on river ecosystems, which directly impact both their subsistence and economic stability.

The socio-economic profile of fishermen in the Ganga–Gomati region reflects deep inequalities in terms of income, education, access to institutional credit, and living standards. The majority of households rely primarily on fishing and allied activities for survival, yet their earnings remain meagre and inconsistent. Seasonal fluctuations, exploitative market structures dominated by middlemen, and lack of modern infrastructure limit their income security. Women and children in fishing households also face compounded disadvantages, with child labor and informal participation in fishing-related tasks further reflecting the precariousness of these communities.

Debt dependence has emerged as a critical dimension of their socio-economic challenges. With limited access to formal banking and credit institutions, fishermen are forced to rely heavily on moneylenders and merchants, often at exorbitant interest rates. This creates a vicious cycle of indebtedness, where loans taken for fishing gear, boats, or even basic household needs lead to long-term economic dependency. The dominance of informal credit networks not only perpetuates poverty but also undermines the bargaining power of fishermen in local markets.

Addressing the socio-economic inequalities and debt burden of fishing communities in the Ganga–Gomati basin requires a multidimensional approach that considers both structural and ecological factors. Understanding the interplay between income patterns, livelihood vulnerabilities, and indebtedness is crucial for designing policies that can improve financial inclusion, ensure sustainable fisheries management, and enhance the overall quality of life of inland fishermen. This study attempts to highlight these pressing issues and provide insights into the economic hardships and debt traps faced by one of the most vulnerable sections of riverine societies in India.

2. REVIEW OF LITERATURE

Manimaran, S et al., (2021). Coastal communities rely on fishing for their food supply, income, and employment opportunities; fishing has been around for a long time and is an essential part of many countries' economies. People living along the coast rely on it for their livelihood, as it provides them with important jobs. With a total export value of 129 billion USD in 2012, with 70 billion USD coming from developing nations' exports, international commerce accounted for 37% of the entire value of fish output. According to estimates, small-scale fisheries are responsible for around half of the world's fish catches. This is in addition to the direct and indirect benefits they provide to food security, such as providing affordable fish and jobs to people in poor nations. Any business or action involved in the capture, cultivation,

processing, reservation, storage, transportation, marketing, or sale of fish or fish products is considered part of this industry. Fishing and fish trading have historically been lucrative activities for millions of people around the world. Approximately 63% of the global population resides within 60 km of a coastline at any given time. As a result, fish is a highly traded food item, with a global trade value that surpasses that of all other animal proteins put together. But fishermen's socioeconomic situations are unique. A more nuanced understanding of the economic and social situations faced by fishermen in the Cuddalore district is provided in this article.

Roy, Ritabrata. (2019). Water, second only in value to air, is an invaluable resource. This resource is extremely scarce since, although water makes up the majority of Earth's surface, only a fraction of that water is actually useable. Careful use is required of this rare and valuable resource. There are many uses for water, so it's important to make sure it's suitable before using it. Additionally, water sources should be checked frequently to see if they are healthy. The ecology is threatened by water bodies that are in poor shape, which is an indicator of environmental degradation. Inadequate water quality in industrial settings can lead to serious risks and substantial financial losses. Therefore, from an economic and environmental perspective, water quality is crucial. Therefore, before using water for anything, its quality must be assessed. Water quality analysis today follows a set of established procedures developed over many years of study. Protocols for collecting, storing, and analyzing the samples are in place. For the benefit of analysts and researchers, this section provides a concise overview of the conventional chain of events.

Hossain, Faishal et al., (2015). From January to August 2013, researchers in the Punorvaba River Upazila sought to assess the fishing community's ability to make a living. Age distribution, family composition, employment, level of education, housing, access to clean water and sanitary facilities, health care, financial resources, and monthly income were all factors in the study of fishermen's livelihood status. The majority of the fisherman (40%) were between the ages of 36 and 45, and 90% identified as Muslims. The typical number of members in a fishing family is from five to seven. Fishing was the main occupation of more than 45 percent of the fishermen. Half were illiterate, while seven percent belonged to the SSC and higher category. Forty percent of the fisherman sought medical attention from village doctors, twenty-three percent from the upazila health complex, and seven percent from MBBS physicians. To reverse the declining trend in fish catches and increase productivity, fishermen have proposed several management measures, such as banning the capture of brood fish, regulating damaging gears, creating fish sanctuaries, and releasing fish fry.

Alfieri, Lorenzo et al., (2016). The socio-economic impact of weather-driven hazards is largely produced by river floods on a global scale. It is of the utmost importance that governments, international organizations, reinsurance firms, and first responders accurately estimate their impact. However, there are omissions and contradictions in reported estimates in the current databases of flood losses over wide domains. The economic damage and people affected by river floods at the continental scale are reconstructed using a framework in this work. The high-resolution impact assessment framework is based on 2-D inundation modeling and is combined with pan-European river flow simulations. Here, we evaluate two techniques that work well together to determine the impact of floods in Europe from 1990 to 2013 and the average impact of floods based on climate data. The event-based approach exposes important characteristics, namely the capacity to account for changes over time in all three aspects of risk: exposure, vulnerability, and hazard. Not only that, but it expertly recreates the societal and economic effects of big floods that have occurred in the previous 20 years, such as the devastating floods that swept through central Europe in June 2013. In contrast, the integral technique can replicate the mean flood damage that happened in Europe from 1998 to 2009. The potential for the proposed model to fill in the gaps of existing flood effect datasets is highlighted by discussing its strengths and limitations.

Pandey et., al. (2010). investigated the mid-stream water quality of Ganga river as influenced by aerially - driven heavy metals at Varanasi, India. Twelve sampling stations were selected alonga 20 km long stretch of the river. Mid-stream sub-surface water samples collected at fortnightly intervals from all the sites were acid digested and analyzed for Cd, Cr, Cu, Ni, Pb and Zn. The data revealed that the mid-stream water of river Ganga at Varanasi is invariably contaminated by heavy metals. Highest concentrations of Cd, Cr, Cu, Ni and Pb were recorded during winter and that of Zn during summer season. The overall concentration of heavy metals in water showed the trend: Zn > Ni > Cr >Pb> Cu > Cd. Concentrations of all the heavy metals were high in down - stream sampling stations.. Although the concentrations of these metals in water remained below the permissible limits of Indian standards for drinking water, levels of Cd, Ni and Pb at three stations, were above the internationally recommended (WHO) maximum admissible concentrations (MAC). These observations suggest that use of such water for drinking may lead to potential health risk in long-run. The study has further relevance in understanding the atmosphere - water interaction in polluted environment and for management of water bodies even those situated away from direct anthropogenic discharge.

Srivastava et., al. (2010). conducted an ecological study of river Varuna in Varanasi and river Gomti in Jaunpur with special reference to physicochemical characteristics and planktonic algae. Diversity in relation to river pollution has also been studied. The members of Bacillariophyceae were most dominant and Cyanophyceae dominated in winter months. Euglenophyceae members were poorly represented but members of Chlorophyceae were not much significant. Desmids also occurred in fairly good numbers. The comparative study of physicochemical factors indicate that river Varuna is more

polluted in comparison to river Gomti, as Varuna is althrough facing anthropogenic activities along river course in Varanasi. The algal population was also higher in the river Varuna as compared to river Gomti.

3. RESEARCH METHODOLOGY

The present study is based on a descriptive survey method to examine the socio-economic conditions, income patterns, and indebtedness of inland fishing communities in the Ganga and Gomati rivers. A total of 1,330 fishermen households were selected as respondents through stratified random sampling to ensure adequate representation of both rivers and gender categories. Primary data were collected using a structured questionnaire and personal interviews, covering demographic details, fishing areas, income sources, indebtedness, and living standards. Secondary data were also obtained from government reports, cooperative societies, and existing literature on inland fisheries. Statistical tools such as frequency distribution, percentages, and cross-tabulations were applied to analyze the data. The methodology allowed for a comprehensive understanding of the fishermen's socio-economic profile, their dependence on fishing for livelihood, income variations, and the extent of debt dependence on formal and informal credit sources.

4. DATA ANALYSIS AND INTERPRETATION

Table 1 Gender of the respondents

Particulars	Frequency	Percentage
Male	798	60
Female	532	40
Total	**1330**	**100%**

The table shows the breakdown of the population by gender. There are 1,330 people in all, with 798 being men (or 60% of the total). Also, 40% of the people are female, totaling 532 people. This distribution shows that there are more men than women in the sample.

Table 2 Fishing Area of the respondents

Particulars	Frequency	Percentage
Ganga River	532	40
Gomati River	665	50
Both	133	10
Total	**1330**	**100%**

You can see how many people in a given sample are associated with the Ganga River, the Gomati River, or both rivers in the table. Among the 1,330 people counted, 532 are identified with the Ganga River, accounting for 40% of the overall population. The Gomati River is related with a bigger portion, making up 665 persons or 50% of the total. On top of that, 133 people, or 10% of the total population, are somehow connected to both rivers. According to this distribution, the greatest numbers of people in the sample are associated with the Gomati River, followed by the Ganga River, and a smaller number are associated with both rivers.

Table 3 –Source of annual income:

Status	No. of People engaged	Percentage
Fishing and fish allied activities	3897	81.72
Nonfishing	872	18.28
Total	4769	100

A household's annual income can be estimated to be 81.72% of total income if all sources of revenue are fishing and fish-related. Earnings from sources other than fishing account for just 18.28% of the total yearly income. You may see the breakdown of fishermen's homes by their yearly income in Table 4.38.

Table 4– Distribution of fishermen households on annual income.

Annual income (Rs)	No.of households	Percentage
Lessthan 10,000	39	2.93
10000-15000	235	17.44
15000-20000	370	27.82
20000-25000	201	15.11
25000-30000	142	10.68
30000-35000	138	10.38
35000-40000	93	6.99
40000-45000	75	5.64
45000-50000	40	3.01
> 50000	1330	100

The table shows that 65.3% of households fall into the income bracket of Rs 20,000–25,000/-, 10.68% between Rs 25,000–30,000/-, 10.38% between Rs 30,000–35,000/-, 6.99% above Rs 35,000–, 5.64 percent above Rs 45,000–, and 3.01 percent above Rs 50,000/-.

Table 4.43 displays the origin of the inland fishermen's debt.

Table 5-Source of in debtedness by the fishermen:

Source	**No.of households**	**%**
Co-operative societies	231	17.37
Commercial Banks	75	5.63
Private Banks	107	8.05
Money Lenders	758	56.99
Merchants	97	7.29
Friends and Relatives	62	4.67
Total	1330	100

Of the fisherman in the research region who take out loans, 56.99 percent use moneylenders, who demand exorbitant interest rates in exchange for the lack of collateral they require; 17.37% use co-ops, 5.663% use commercial banks, 8.05 percent use private banks, 7.29% use local merchants, and 4.67% use friends and relatives, who typically do not charge interest. Based on their current indebtedness, Table 4.44 shows how the fishermen are distributed.

Table 6: Distribution of fishermen households on their debts

Debt	No.of household	Percentage
Below Rs 3000	127	9.55
3001 – 6000	216	16.24
6001 – 9000	241	18.12
9001 – 12000	303	22.78
12001 - 15000	250	18.80
15001 and above	193	14.51
	1330	100

5. CONCLUSION

The study highlights that inland fishing communities along the Ganga–Gomati rivers face deep-rooted socio-economic inequalities, where fishing remains the primary livelihood but offers limited and uncertain returns. A large share of households depend heavily on low and irregular incomes, with little opportunity for occupational diversification. This economic fragility not only keeps fishermen at the margins of society but also undermines their standard of living and social status.

Debt dependence further intensifies these challenges. The findings show that fishermen overwhelmingly rely on informal credit sources, particularly moneylenders, due to easy access and lack of collateral requirements. However, high interest rates create a vicious cycle of indebtedness, trapping households in long-term financial distress. Formal credit systems, though more affordable, remain inaccessible because of bureaucratic barriers, low awareness, and poor institutional reach. Overall, the socio-economic vulnerabilities of these fishing communities are interlinked with their financial dependence, creating a cycle of poverty and debt. Breaking this cycle requires inclusive financial policies, improved access to institutional credit, capacity-building programs, and sustainable fisheries management. Strengthening cooperative societies, promoting alternative livelihood opportunities, and ensuring the effective implementation of government schemes are essential steps for improving the economic resilience and social well-being of inland fishermen in the Ganga–Gomati region.

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