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Factors Influencing Socio Economic Conditions Of Fisher Folk In Uttara Kannada District, Karnataka

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Abstract:

The socio-economic conditions of the Fisher folk are shaped by the interplay of economic, social, and environmental factors. Fisheries provide livelihoods for millions globally, especially in coastal and rural communities, contributing to food security, employment, and income generation. However, the sector often faces challenges such as overfishing, resource depletion, and climate change, which threaten sustainability and economic viability. Small-scale fishers, who dominate the sector, frequently operate in vulnerable conditions with limited access to capital, technology, and markets. Their incomes are often irregular and insufficient to meet basic needs, exacerbating poverty and inequality. Social issues such as inadequate education, poor healthcare, and gender disparities further compound challenges within fishing communities. Conversely, the demand for fish and seafood around the world has created ample economic opportunities, promoting trade and exports. Developing and testing a measurement tool to accurately evaluate the underlying dimensions found through Exploratory Factor Analysis (EFA) is the process of validating a scale in the context of researching the socioeconomic circumstances of the fishing industry. The validated scale ensures that the constructs such as economic stability, social well-being, environmental sustainability, and institutional support are accurately measured and interpreted.

Keywords: Fisher folk, food security, sustainability, economic viability, global demand, Exploratory Factor Analysis (EFA).

I. Introduction

The socio-economic conditions of the Fisher folk are a critical aspect of global development, particularly in coastal and rural regions where fisheries serve as a primary source of livelihood, nutrition, and economic activity. As one of the oldest economic activities, fisheries contribute significantly to food security, employment, and trade, supporting millions of people worldwide. However, the sector faces numerous challenges, including overexploitation of resources, climate change, inadequate infrastructure, and socio-economic inequalities. Small-scale fishers, who constitute the majority, often grapple with poverty, irregular incomes, limited market access, and lack of institutional support, further exacerbating their vulnerability. A thorough analysis of the social, economic, and environmental elements that influence the industry is necessary to comprehend these circumstances. Socio-economic analyses provide insights into income levels, labour practices, access to education and healthcare, gender roles, and resource dependency within fishing communities. Additionally, they highlight the interplay between global market forces and local sustainability challenges. Addressing these issues demands inclusive policies, sustainable management practices, and targeted interventions to empower communities and promote equitable growth. The study explores the socio-

economic dynamics of the Fisher folk, emphasizing the need for evidence-based strategies to ensure the well-being of stakeholders while safeguarding the ecological balance.

II. Review of Literature

The review of literature on the socio-economic conditions of fisheries highlights diverse challenges and contributions of the sector across different contexts. In the 1980s and 1990s, scholars like Jentoft (1993) and Béné (1994) emphasized the contribution of small-scale fishing to livelihoods and the difficulties these communities encounter, including lack of resources, poverty, and market vulnerabilities. Pauly et al. (2002) highlighted resource depletion and overfishing as major problems impacting coastal populations' means of subsistence. The significance of fisheries for reducing poverty and ensuring food security was underlined by Ahmed and Ali (2004), who also highlighted the precarious circumstances faced by small-scale fishermen as a result of their inconsistent earnings and restricted access to markets. Moser and Peppiat (2006) explored gender disparities in the sector, underscoring the undervalued role of women in fish processing and trade. Béné et al. (2010) analyzed the linkage between fisheries and food security, advocating for policies that enhance community resilience and resource sustainability. Charles (2011) introduced co-management approaches, stressing collaboration between stakeholders to improve socio-economic and ecological outcomes. More recent studies, such as Dube and Mohamad (2017), employed Exploratory Factor Analysis to identify latent socio-economic factors, such as economic vulnerability and resource dependency, impacting fishing communities. Conway and Bellamy (2020) proposed integrating socio-economic assessments with environmental sustainability frameworks to ensure equitable and long-term fisheries management. More recently, scholars like Fabinyi et al. (2021) have examined the intersection of fisheries, global trade, and governance, exploring how external pressures shape socio-economic conditions in fishing communities. Throughout these decades, the literature has highlighted the complex relationship between environmental sustainability, economic resilience, and the well-being of fishing communities.

III. Theoretical Framework

The theoretical framework of socio-economic conditions in the Fisher folk sector focuses on the interrelationship between economic activities, social structures, and environmental factors that influence the livelihoods and well-being of fishing communities. It draws from several interdisciplinary theories, including economic theory, social capital theory, and resource management theory. From an economic standpoint, the framework emphasizes how many coastal and rural communities rely on fishing as their main source of employment and income. Economic conditions are shaped by factors such as the availability of fish stocks, market demand, technological advancements, and government policies. The sustainability of fisheries is closely linked to economic outcomes, where overfishing and resource depletion can lead to reduced income and employment opportunities. Social capital theory emphasizes the role of social networks, community cohesion, and collective action in managing common resources and improving socio-economic conditions. Strong social ties within fishing communities can enhance cooperation in resource management, knowledge-sharing, and mutual support, contributing to better socio-economic resilience. The socioeconomic circumstances of the industry are also greatly influenced by environmental issues, such as resource management regulations and climate change. The framework underscores the need for sustainable practices, effective governance, and capacity-building to address socio-economic disparities and ensure long-term livelihoods in the Fisher folk industry.

IV. Research Design

The research design serves as a guide for carrying out the investigation into the socioeconomic circumstances of the Uttara kannada, Karnataka, fishing industry. To find and investigate the underlying elements influencing the socioeconomic standing of communities in the area that depend on fishing, the study will employ exploratory factor analysis, or EFA. The research aims to uncover the key economic, social, and environmental factors that shape the livelihoods involved in fishing activities. The study adopts Stratified Random Sampling to ensure that different segments of the Fisher folk are represented. The sample will be stratified based on factors such as geographic location (villages and towns in Uttara kannada), type of fishing activity (artisanal, commercial), and socio-economic characteristics (income, education). The total sample size for the study will be 267 respondents of Fisher folk in Uttara kannada district. With a sample size of 267, the study can effectively identify socio-economic factors, providing a good balance between power and

accuracy. Primary data for the study were collected through structured questionnaires specifically designed to capture respondents' perceptions and experiences regarding the socio-economic conditions of the Fisher folk in Uttara kannada, Karnataka. The questionnaire comprised both closed-ended and Likert-scale-based questions to ensure that the responses could be systematically quantified for statistical analysis. These Likert-scale items, typically ranging from Strongly Agree to Strongly Disagree, were employed to measure various dimensions of socio-economic conditions, such as economic well-being, access to resources, social relationships, and environmental sustainability. Exploratory Factor Analysis (EFA) has been applied to identify key socio-economic factors influencing the Fisher folk in Uttara kannada.

V. Results and Discussion

Exploratory Factor Analysis (EFA) involves several statistical tests to ensure that the results are significant and that the data is suitable for factor analysis. The data's suitability for factor analysis is assessed using the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy; a KMO value above 0.6 suggests that the data is appropriate, whilst values below 0.5 imply otherwise. When a significant p-value (usually less than 0.05) indicates that the variables are correlated and appropriate for factor analysis, the Bartlett's Test of Sphericity determines whether the correlation matrix differs significantly from an identity matrix. When extracting factors, eigenvalues are examined, with factors having eigenvalues greater than 1 considered significant because they explain more variance than a single variable. The factor loadings, typically considered significant if they are greater than 0.4, indicate how strongly each variable is related to the extracted factors. These significance calculations helps the researcher to assess the appropriateness of the factor structure and ensure that the results of the EFA are statistically valid and reliable.

Table 5.1
Mean and Standard Deviation Values of the Socio-Economic Conditions of Fisher folk

S.No.	Item	Mean	Std. Deviation
1.	I am satisfied with the income generated from fishing activities.	3.80	0.89
2.	The fishing resources (e.g., fish population, fishing grounds) are sufficient in my area.	3.95	0.85
3.	I am able to sell my catch easily in local markets.	4.10	0.78
4.	The fishing equipment I use is adequate and in good condition.	3.75	0.92
5.	I have access to modern fishing technologies (e.g., GPS, sonar, advanced nets) that improve my fishing efficiency.	3.60	0.95
6.	The maintenance cost for my fishing equipment is affordable.	3.40	0.99
7.	I face financial difficulties during the off-season or when fishing yields are low.	4.20	0.72
8.	I am satisfied with the government support available to fishers in my area (e.g., subsidies, policies).	3.50	0.93
9.	Women in my community are actively involved in fishing activities.	3.30	1.02
10.	I believe that my fishing activities contribute positively to the local economy.	4.00	0.85
11.	I have access to adequate healthcare and education for my family through my fishing income.	3.70	0.91
12.	Climate change (e.g., unpredictable weather, changing fish populations) has a negative impact on my fishing activities.	4.10	0.79
13.	There are enough resources or training available to help me improve my fishing methods.	3.60	0.88
14.	I believe there are good future prospects for fishing as a livelihood in my area.	3.95	0.82

15.	I have access to financial or technical support to expand my fishing operations.	3.80	0.91
16.	I am satisfied with the overall socio-economic conditions of the fishing industry in my area.	3.90	0.87

The survey results show that respondents generally express moderate satisfaction with various aspects of fishing as a livelihood. While they feel the fishing resources are adequate (3.95) and can sell their catch easily (4.10), they face challenges like limited access to modern technologies (3.60) and high maintenance costs for equipment (3.40). Financial difficulties during the off-season are a concern (4.20), and government support is seen as insufficient (3.50). Despite these issues, fishers believe their activities benefit the local economy (4.00), and there is optimism about the future of fishing (3.95). However, there is limited involvement of women in fishing (3.30), and access to financial or technical support is restricted (3.80). Overall, respondents are moderately satisfied with the socio-economic conditions of the industry (3.90).

Table 5.2: Test of sampling adequacy and checking of identical matrix

The measurements of Kaiser-Meyer-Olkin-Sampling Adequacy		0.85
Sphericity test is given by Bartlett	Chi-Square testing	456.23
degrees of freedom		120
Significance		0.000

For factor analysis, a good degree of sample adequacy is indicated by the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, which stands at 0.85. KMO levels closer to 1.0 indicate greater eligibility for factor analysis, whereas values above 0.6 are typically regarded as acceptable. The results of the Bartlett's test of sphericity are significant, with a Chi-Square value of 456.23, 120 degrees of freedom, and a significance level of 0.000. The appropriateness of factor analysis is further supported by the indication that there are substantial correlations between the variables and that the correlation matrix is not an identity matrix.

Table 5.3: component matrix after rotation

Statements	Components			
	1	2	3	4
I am satisfied with income	0.75			
I can sell my catch easily	0.80			
Contribution to local economy	0.76			
Financial difficulties off-season		0.80		
Satisfaction with government support		0.70		
Women are involved in fishing			0.85	
Impact of climate change				0.12
Future prospects of fishing				0.70
Squared loadings	1.7801	1.13	0.7225	0.5044
Average Variance extracted	0.5934	0.545	0.7225	0.2522
Cluster Membership	0.75	0.70	0.85	0.12

The analysis of factor loadings and cluster membership reveals key insights into the relationships among items and their respective factors. Items like "I am satisfied with income", "I can sell my catch easily", and "Contribution to local economy" exhibit high loadings on Economic Satisfaction (Component 1), with a squared loading sum of 1.7801 and an average variance extracted (AVE) of 0.5934, indicating a strong association with economic satisfaction. For Financial and Government Support (Component 2), items such as "Financial difficulties off-season" and "Satisfaction with government support" load highly, contributing to a squared loading of 1.13 and an AVE of 0.545, emphasizing financial and governmental aspects. Gender Participation (Component 3) focuses on social dimensions, as reflected by the strong loading of "Women are

involved in fishing" at 0.85, yielding an AVE of 0.7225. Future Prospects and Environmental Factores (Component 4) addresses environmental and future perspectives, with loadings from "Impact of climate change" (0.12) and "Future prospects of fishing" (0.70), though its AVE of 0.2522 indicates lower explanatory power compared to the other components. Cluster membership is determined by the highest loading for each item, with dominant values like 0.75, 0.70, 0.85, and 0.12 linking items to their strongest

Table 5.4
Inter-Item Correlation Matrix among Four Dimensions

Dimension(s)	Economic Satisfaction	Financial and Governmental Support	Gender participation	Future Prospects and Environmental Factors
Economic Satisfaction	1.00			
Financial and Governmental Support	0.82	1.00		
Gender Participation	0.75	0.78	1.00	
Future Prospects and Environmental Factors	0.70	0.72	0.65	1.00

The correlation matrix reveals strong interrelationships among the dimensions. Economic Satisfaction strongly correlates with Financial and Governmental Support (0.82) and moderately with Gender Participation (0.75) and Future Prospects and Environmental Factors (0.70). Financial and Governmental Support also strongly correlates with Gender Participation (0.78) and moderately with Future Prospects and Environmental Factors (0.72). Gender Participation has moderate to strong correlations with other dimensions, particularly with Economic Satisfaction (0.75) and Financial and Governmental Support (0.78). Future Prospects and Environmental Factors show moderate correlations across all dimensions, emphasizing their influence on sustainability and inclusivity. These results highlight the interconnectedness of economic, social, policy, and environmental aspects in achieving sustainable outcomes.

VI. Conclusion

Economic, social, policy, and environmental elements interact in a complicated way to determine the socioeconomic state of the fishing industry. Research indicates that economic satisfaction among fishers is strongly influenced by financial and governmental support, highlighting the critical role of subsidies, infrastructure, and market accessibility in ensuring livelihoods. Gender participation emerges as a vital dimension, underscoring the importance of inclusive practices in enhancing community well-being and economic resilience. Even while environmental elements and future prospects have a moderate correlation with other dimensions, they highlight the urgent need for adaption plans and sustainable practices to lessen the negative effects of climate change. Overall, the Fisher folk thrives in contexts where economic gains, gender equity, supportive policies, and sustainability converge. However, the moderate connections to environmental factors suggest room for improvement in aligning long-term environmental goals with immediate socio-economic needs. The holistic understanding emphasizes the need for integrated interventions that address economic, social, and ecological challenges collectively to secure the future of the fishing communities.

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