



GOVERNANCE ASSESSMENT OF MULTI- LEVEL FISHERIES COOPERATIVES IN BIHAR

Dissertation submitted in partial fulfillment
of the requirements
for the degree of

M.F.Sc. (Fisheries Extension)

By

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Date: 27.09.2024

CERTIFICATE

This is to certify that the dissertation entitled "**Governance Assessment of Multi-level Fisheries Cooperatives in Bihar**" is a bonafide record of independent research work carried out by **Ms. Khushboo Kumari (FEX-MB2-03)** at ICAR- Central Institute of Fisheries Education, Mumbai during the period of study from February, 2023 to September, 2024 under our supervision and guidance for the degree of **Master of Fisheries Science in Fisheries Extension** and that the dissertation has not previously formed the basis for the award of any degree, diploma, associateship, fellowship or any other similar title.

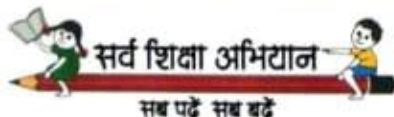
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DEDICATED

TO

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&

THE FISHERS

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I hereby declare that the dissertation entitled “**GOVERNANCE ASSESSMENT OF MULTI-LEVEL FISHERIES COOPERATIVES IN Bihar**” is an authentic record of the work done by me and that no part thereof has been presented for the award of any degree, diploma, associateship, fellowship or any other similar title.

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सारांश

सहकारी आंदोलन ने मछुआरों के सामाजिक-आर्थिक कल्याण को बढ़ाने में महत्वपूर्ण भूमिका निभाई है, जिससे उन्हें सरकारी स्वामित्व वाली जल निकायों तक पहुंच प्राप्त हुई है और आजीविका का एक विश्वसनीय स्रोत मिला है। यह अध्ययन बिहार में बहु-स्तरीय मत्स्य सहकारी समितियों के शासन मूल्यांकन पर केंद्रित है, जिसमें राज्य, क्षेत्रीय और जिला महासंघों का मूल्यांकन किया गया है। बिहार राज्य सहकारी मत्स्य महासंघ, साथ ही दो क्षेत्रीय सहकारी समितियाँ—पटना डिवीजन रीजनल फिशरीज कोऑपरेटिव फेडरेशन और तिरहुत दरभंगा रीजनल फिशरीज कोऑपरेटिव फेडरेशन—को उद्देश्यपूर्ण ढंग से चुना गया। जिला स्तर पर, पटना, दरभंगा और समस्तीपुर जिला महासंघों को अध्ययन में उद्देश्यपूर्ण ढंग से शामिल किया गया। इसके अलावा, पटना, समस्तीपुर और दरभंगा जिलों की 30 प्राथमिक मत्स्य सहकारी समितियों को यादृच्छिक रूप से नमूना चयन किया गया। इस अध्ययन का उद्देश्य शासन की गुणवत्ता, व्यापार करने में आसानी का आकलन करना और सहकारी संरचनाओं को मजबूत करने के लिए क्रियाशील रणनीतियों का प्रस्ताव करने के लिए बाधाओं की पहचान करना था। शासन का मूल्यांकन पांच प्रमुख मानकों का उपयोग करके किया गया: लोकतांत्रिक नियंत्रण, जवाबदेह सशक्तिकरण, नेतृत्व, टीमिंग और अभिसरण, और संपर्क। परिणामों से पता चला कि बिहार राज्य सहकारी मत्स्य महासंघ ने उच्चतम शासन स्कोर (0.71) प्रदर्शित किया, जो क्षेत्रीय (0.44), जिला (0.46), और प्राथमिक सहकारी समितियों (0.44) से बेहतर प्रदर्शन कर रहा था। एक चिंताजनक निष्कर्ष यह है कि 77% प्राथमिक मत्स्य सहकारी समितियों में निम्न शासन गुणवत्ता है, इसके बाद 17% में मध्यम शासन गुणवत्ता है, और केवल 6% में उच्च स्तर का शासन है। व्यापार संचालन वातावरण का मूल्यांकन करने के लिए, व्यापार करने में आसानी सूचकांक का उपयोग किया गया, जिसमें चार आयाम शामिल थे: व्यावसायिक मानव पूंजी, बुनियादी ढांचा, नेतृत्व और शासन। राज्य महासंघ ने 0.71 के स्कोर के साथ प्रदर्शन में नेतृत्व किया, इसके बाद जिला महासंघों (0.48) ने स्थान प्राप्त किया, जबकि क्षेत्रीय (0.41) और प्राथमिक सहकारी समितियां (0.37) पीछे रहीं। एक चिंताजनक निष्कर्ष यह है कि 87% प्राथमिक मत्स्य सहकारी समितियों व्यापार करने में कम आसानी प्रदर्शित करती हैं, 13% मध्यम श्रेणी में हैं, और कोई भी समाज उच्च स्तर की ईओडीबी नहीं रखता है। अध्ययन के अवरोध विश्लेषण ने सहकारी स्तरों में महत्वपूर्ण चुनौतियों की पहचान की, जैसे अपर्याप्त ऋण सुविधाएं, कमजोर वित्तीय क्षमताएं, अपर्याप्त तकनीकी सहायता, और खराब विपणन बुनियादी ढांचा। शासन और प्रदर्शन को बेहतर बनाने के लिए, अध्ययन एक बहुआयामी दृष्टिकोण का प्रस्ताव करता है: कृषि विज्ञान केंद्रों, अनुसंधान संस्थानों और प्रशिक्षण केंद्रों के साथ संपर्कों को सुदृढ़ करना; कौशल विकास कार्यक्रमों की शुरुआत करना; गतिशील नेतृत्व को बढ़ावा देना; सहकारी बुनियादी ढांचे में सुधार करना; आय-सृजन गतिविधियों में विविधता लाना। निष्कर्ष विशेष रूप से से जमीनी स्तर पर ध्यान केंद्रित हस्तक्षेप की तत्काल आवश्यकता को रेखांकित करते हैं, ताकि बिहार में मत्स्य सहकारी समितियों का सतत विकास सुनिश्चित किया जा सके।

मुख्य शब्द: मत्स्य पालन, मत्स्य सहकारी समितियाँ, शासन, व्यवसाय करने में आसानी, सहकारी समितियों में बाधाएँ।

ABSTRACT

The cooperative movement has played a pivotal role in enhancing the socio-economic welfare of fishers by providing access to government-owned water bodies and offering a reliable source of livelihood. This study focuses on the governance assessment of multi-level fisheries cooperatives in Bihar, evaluating state, regional, and district federations. The Bihar State Cooperative Fisheries Federation, along with two regional cooperatives—Patna Division Regional Fisheries Cooperative Federation and Tirhut Darbhanga Regional Fisheries Cooperative Federation—were purposively selected. At the district level, Patna, Darbhanga, and Samastipur district federations were purposively included in the study. Additionally, 30 primary fisheries cooperatives from Patna, Samastipur, and Darbhanga districts were randomly sampled. The objectives of this study were to assess governance quality, ease of doing business, and identify constraints to propose actionable strategies for strengthening cooperative structures. Governance assessment was conducted using five key parameters: democratic control, accountable empowerment, leadership, teaming and convergence, and linkages. The results revealed that the Bihar State Cooperative Fisheries Federation exhibited the highest governance score (0.71), outperforming regional (0.44), district (0.46), and primary cooperatives (0.44). A concerning finding is that 77% of Primary Fisheries Cooperative Societies exhibit low governance quality, followed by 17% having medium governance quality, and only 6% demonstrating a high level of governance. To evaluate the business operational environment, the Ease of Doing Business Index was employed, covering four dimensions: business human capital, infrastructure, leadership, and governance. The State Federation led in performance with a score of 0.71, followed by district federations (0.48), while regional (0.41) and primary cooperatives (0.37) lagged behind. A concerning finding is that 87% of Primary Fisheries Cooperative Societies exhibit the low Ease of Doing business, followed by 13% in the medium range, and none of the societies have high-level EODB. The study's constraint analysis identified critical challenges across the cooperative levels, such as insufficient credit facilities, weak financial capacities, inadequate technical support, and poor marketing infrastructure. To enhance governance and performance, the study proposes a multi-pronged approach: strengthening linkages with Krishi Vigyan Kendras, research institutes, and training centers; introducing skill development programs; promoting dynamic leadership; improving cooperative infrastructure; diversifying income-generating activities; The findings underscore the urgent need for focused interventions, particularly at the grassroots level, to ensure the sustainable development of fisheries cooperatives in Bihar.

Keywords: Fisheries, Fisheries Cooperatives, Governance, Ease of Doing Business, constraints in Cooperatives.

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1. INTRODUCTION

In India, fisheries is a key sector, providing food, nutrition, employment, income, and livelihood. Fishing is one of the oldest types of occupation in India. In terms of the national economy, the fishing industry takes pride. It emerged as a sunrise sector. The Indian fisheries industry has grown steadily over the years, becoming a significant socioeconomic asset for the country. The fisheries sector is a primary source of income for around 16 million fishermen and fish farmers. India is the world's third-largest fish producer, accounting for 8% of global production, and second in total aquaculture production. Specifically, 12.12 million metric tons come from the inland sector, while 4.13 million metric tons are from the marine sector (DoF Annual Report, 2022-23). Inland sectors contribute 75.20% of the overall fish production. In 2022–23, the fishing industry made up 6.72% of the country's agricultural GVA and 1.09% of the nation's Gross Value Added (GVA). India's whole inland water resource area, which includes brackish water (1.24 million ha), flood plain lakes (1.2 million ha), rivers & canals (0.28 million km), ponds & tanks (2.45 million ha), is 8.32 million hectares (DoF Annual Report, 2022-23).

Fish farming is a significant and rapidly increasing sector in Bihar. Bihar's economy is mostly based on agriculture, animal husbandry, and fishing. Bihar is India's 12th greatest fisheries resource, with 4th place in inland fish production and 6th place in freshwater seed production. The inland fish production of Bihar is 8.73 lakh tonne, and demand stands at 8.89 lakh tonne, with a 0.16 lakh tonne gap between supply and demand (DOF, 2022-2023, Bihar). There is a tremendous increase in fish production, from 7.62 lakh tonne in 2021-22 to 8.73 lakh tonne in 2023-24, indicating an annual growth rate of 3.17 %. Annual fish seed production in Bihar is 18095 lakhs. Bihar is among the few states with significant inland fishing and aquaculture resources. Bihar has been blessed with abundant natural resources. Therefore, maximum utilization of water resources can fetch the prosperity of Bihar. Capture and culture of fish are traditional activities in Bihar. Capture fisheries resources are evident in a vast span of aquatic ecosystems like rivers, reservoirs, and flood-prone wetlands in the form of oxbow lakes (mauns) and chours. The state of Bihar hosts 98420 number of ponds (Private and Govt.) that cover approximately 93000 hectares, rivers (3,200 km), reservoirs (63916.53 ha), oxbow lakes (9000 ha),

wetlands (9.41 lakh ha), and canals (18154 km). Reservoirs produce 8 kg/ha/year, a potential of 110 kg/ha/year, and Oxbow Lakes and Chaur produce 700 kg/ha/year and 170 kg/ha/year, respectively, while their potential is 2000 kg/ha/year and 500 kg/ha/year. The major portion of fish production in Bihar is from ponds and tanks with a potential of 13,000 kg/ha and actual production of 3000 kg/ha (Das *et.al.*, 2022). In Bihar, total fish imports are 69.96 TMT, while total fish exports are 44.80 TMT. Percentage share of fishing and aquaculture sector in GSDP (Gross State Domestic Product) in Bihar is 1.8 (2021-22) and 8.40% of total agriculture produce. Bihar is dominated by the carp fishery with a 5.06 lakh tonne share of total fish production, including major carps, minor carps, and exotic carps. The leading districts in terms of production of fish are Madhubani (0.88 lakh metric tons), Darbhanga (0.82 lakh metric tons), and East Champaran (0.71 lakh metric tons) during 2023-24 (DOF, Annual Report, 2022-2023, Bihar). The total fisher population of Bihar is about 60 lakhs, of which male and female populations are 31 lakh and 28 lakh, respectively. The state currently has a per capita fish consumption of 6.64 kg each year, whereas the national average is 11 kg per person.

1.1 FISHERIES COOPERATIVES

In India, there are 8.54 lakh registered cooperatives with more than 29 core members, especially from the rural areas, engaged in activities related to agriculture and the allied sector (NCUI, 2018). Cooperative societies provide not just with livelihood opportunities but also provide financial safety with a community-based approach. The cooperative sector has always played a major role in the country's overall economic development due to its member-driven and inclusive approach. Fishery cooperatives accounted for 20.50% of the national economy of India (DoF Annual Report 2022-23). Cooperatives are people-centered enterprises jointly owned and democratically controlled by and for their members to realize their common economic, social, and cultural needs and aspirations (ICA, 1995). Fisheries cooperative society is formed for the promotion of thrift, self-help, and mutual assistance among the members. In India, fisheries co-operative societies are regulated by a separate set of rules for channeling the government assistance on the principle of self-help and management. Under the plan to strengthen the cooperative movement in the country and extend its reach to the grassroots, PMSSY and FIDF

schemes have been identified for convergence under the Department of Fisheries. Fisheries and Aquaculture Infrastructure Development Fund (FIDF) is a financing scheme initiated by the Government of India to promote the development of fisheries and aquaculture infrastructure in the country, and PMSSY seeks to boost fish production, enhance infrastructure, modernize the fishing industry, and create employment opportunities in the fisheries and aquaculture sector. It also aims to develop a cooperative-based economic model, streamline the process of doing business in cooperatives, and enable the development of multi-state cooperative societies (Ministry of Cooperation, 2021). Indian fisheries cooperative history can be traced to the introduction of the first fisheries cooperative society organized under the name of 'Karla Machhimar (fisher) Cooperative Society' in Ratnagiri district of Maharashtra in the year 1913. The state of West Bengal was the next to have a fisheries cooperative society in the year 1918. In the same year, Tamil Nadu also established one fishery cooperative society (Mishra, 1997). Today, in India, there is one national-level federation, 24 state-level federations, 138 district-level federations, 9 regional-level federations, and 27,906 primary societies, with a membership at the primary level of 3966 572 (FISHCOPFED, 2021).

Fisheries cooperatives in Bihar are organizations registered under the Bihar cooperative society act 1935 and Bihar self-supporting cooperative society act 1996. There is a government share in the 1935 Act but not in the 1996 Act. In Bihar, there are 477 primary fisheries cooperative societies: 2 regional fisheries cooperative federations, 5 district fisheries cooperative federations, and one state fisheries cooperative federation. Under the Cooperatives Act, only one cooperative is allowed per block. There are a total of 410007 members of Primary Fisheries Cooperatives, which represent 16% of the total number of fishers in the state. There are 27.40% female members and 72.60% male members among the 410007 members of the PFCS. Bihar's fisheries cooperatives primarily lease state-owned water bodies and engage in culture and capture fishing. Cooperatives lease water bodies from the government and sublet them to their members for a specific period. The primary objectives of fisheries cooperative society are considered to be culture, capture, and marketing of the fish (Directorate of Fisheries, Bihar, 2022-23). The short-term and long-term leasing policies of water bodies are defined by the Bihar Fish Jalkar Management Act 2006. (Bihar Fisheries Jalkar Management Bill, 2006)

1.2 STATEMENT OF THE PROBLEM

The cooperative society in Bihar is considered a link between government and fish farmers and plays a major role in getting the different benefits and subsidies from the government for both fish culture and socio-economic upliftment of the fishery community but most of them have become functionless. Fisheries cooperative federations and societies encounter significant challenges in operational, management, and financial aspects. It faces numerous issues such as poor management, lack of infrastructure facilities, conflicts over leasing water bodies, shortage of funds, unavailability of water bodies, inadequate mechanisms for skill development, low production, flawed organization, lack of linkage with different agencies, and weak connection among societies and federations (Sahani, 2016). A crucial component of cooperative societies is their governance; it is an indicator of decision-making processes and overall effectiveness in achieving their goals, managing resources efficiently, fostering trust among members, and ultimately determining the success or failure of the cooperative societies. This study aims to assess the quality of governance in multi-level fisheries cooperatives in Bihar, with a main focus on teaming, leadership, accountable empowerment, democratic control, convergence, and linkage. Additionally, the study aims to explore the ease of doing business activities in multi-level fisheries cooperatives to identify potential income-generating activities. Since a better business environment is directly correlated with better cooperative performance, and better cooperative performance is correlated with the quality of cooperative governance. Therefore, the current study, entitled ***"Governance Assessment of Multi-Level Fisheries Cooperatives in Bihar"***, is designed to address the following research questions and achieve the research objectives.

1.3 RESEARCH QUESTIONS

- What are the levels of democratic control, transparency, and accountability within multi - level fisheries cooperative societies?
- How are fisheries cooperatives in Bihar linked with the fisheries department, state government, and other relevant agencies?
- What is the level of involvement of multi-level fisheries cooperatives in income-generating activities in Bihar?

- What obstacles are involved in actually starting up a business for fisheries cooperatives?
- How does access to resources, such as credit, inputs, and markets, affect the business run by cooperative members?
- What is the degree of connectivity between societies and federations?
- What are the hurdles associated with the actual operationalization of business for fisheries cooperatives?
- What are the constraints faced by multi-level fisheries cooperatives in terms of governance, financial management, and operational efficiency?
- In what way the strengths of fisheries cooperatives may help in exploiting external opportunities?

1.4 RESEARCH OBJECTIVES

- To evaluate the governance quality of multi- level fisheries cooperatives in Bihar
- To assess the ease of doing business in multi-level fisheries cooperatives
- To identify the constraints and suggest strategies for strengthening multi-level fisheries cooperatives

1.5 SCOPE OF THE STUDY

The present study is an attempt to evaluate the governance quality in multi-level fisheries cooperatives in Bihar. It seeks to understand and evaluate various aspects of governance quality, including teaming, accountability, empowerment, democracy, and strategic leadership. Fisheries Cooperative Governance Quality Index (FCGQI) serve as a tool to systematically assess and measure the governance quality. By utilizing this index, the study aims to provide valuable information that may guide policy decisions and improve the efficiency of cooperative management techniques in the fisheries cooperative. Furthermore, the study aims to document an examination of the ease of doing business within multi-level fisheries cooperatives. The purpose of this research is to investigate the operational environment of fisheries cooperatives, with an emphasis on assessing the ease of conducting business activities. This assessment will involve evaluating a number of criteria, including market dynamics, administrative procedures, regulatory

frameworks, and resource accessibility. The Ease of Doing Cooperative Business Scale will serve as a structured tool to systematically analyse the ease or difficulty encountered by stakeholders in conducting business operations within the fisheries cooperative sector. Through this analysis, the study aims to identify areas for improvement, highlight best practices, and offer recommendations to enhance the business environment and promote economic growth within fisheries cooperatives. Moreover, cooperative societies will find great value in the insights gained from this research, which will allow them to modify and improve their operational procedures and governance frameworks. The ultimate goal of these studies is to enable cooperative societies in Bihar to enhance their operations and promote sustainable community-based management practices.

1.6 LIMITATIONS OF THE STUDY

While every effort has been made to ensure that this study is inclusive and systematic, it is still subject to certain limitations, as outlined below;

1. Achieving complete and accurate information is challenging due to potential personal biases among respondents. Nevertheless, considerable effort was made to develop effective tools aimed at obtaining authentic data for the study.
2. As this is a postgraduate research project, the researcher faced limitations related to time, money, and other resources.
3. The dimensions employed to assess governance in Multi-level primary fisheries cooperative societies in this study represent a pioneering effort in the field of fisheries extension. Consequently, these dimensions may require further refinement.

1.7 PRESENTATION OF THE STUDY

The study is structured into six chapters. The first chapter offers a concise **introduction** that outlines the study's objectives, scope, and limitations. The second chapter provides a **literature review** relevant to the issues discussed in the first chapter. The third chapter describes the **research methodology** employed throughout the investigation, including the selection of respondents, sampling

procedures, variables, data collection methods, and statistical tools used. The fourth chapter presents the **results and discussion** aligned with the study's objectives. The fifth chapter deals with the **Summary and Conclusion**, consisting of implications of the study and suggestions for further research. The sixth chapter deals with the **Bibliography**, which is presented by following the guidelines of ICAR-CIFE on thesis presentation. Annexures are provided at the end of the thesis.

2. REVIEW OF LITERATURE

The review of available relevant literature is presented under the following subheadings. A review of literature is the process of examining the past by "surveying the book," "reading the scholarly articles," "journals," "research papers," and any other resources relevant to the purpose of a study. In addition to assisting in applying earlier research findings, a quick review of the literature about a study helps lay the groundwork for the interpretation of the current work, examine essential parts of current knowledge, and discover methodological methods on a specific issue. It also ensures that the investigator is completely aware of the work area's defined objectives and problem discoveries. After thoroughly reviewing the relevant literature, it became clear that it was both noteworthy and had a direct & indirect bearing on this study. The review of available relevant literature is presented under the following subheadings.

2.1 Fisheries Cooperative Studies in World

2.2 Fisheries Cooperative Studies in India

2.3 Fisheries Cooperative Studies in Bihar

2.4 Governance quality in fisheries cooperative

2.5 Studies on Ease of Doing Business

2.6 Constraints and Strategies

2.7 Lesson Learnt from Reviews

2.1 FISHERIES COOPERATIVE STUDIES IN THE WORLD

Kyriakopoulos *et al.* (2004) investigated how cooperative structure and firm culture affect market orientation and performance. It indicated that innovative, growth-oriented beliefs and attitudes, as well as the quality of management and staff characteristics in entrepreneurial cultures, had a greater impact than the specific cooperative form. Notably, the research revealed that voting had no influence on market orientation and instead damaged market performance. Furthermore,

ownership was discovered to have a negative, but substantial connection with market orientation.

Wimalasena and Rupamoorthy (2005) studied the current state of fishermen's cooperatives in Sri Lanka, revealing low participation in decision-making, largely due to restrictive bylaws. These cooperatives, primarily established by the government, led to member dissatisfaction. A heavy debt burden further discouraged meeting attendance, and new subsidies that bypassed cooperatives diminished their significance.

Hartley (2006) studied stakeholder engagement, cooperative fisheries research and democratic science: The case of the Northeast Consortium. The study revealed that cooperative fisheries research has emerged within a contested political and social context. Stakeholders, particularly fishermen, have demanded greater industry involvement in New England fisheries management. Cooperative fisheries research has expanded in New England, as exhibited by the emergence of the Northeast Consortium, which funds and encourages cooperative fisheries research in the Gulf of Maine and on Georges Bank. It can be suggested that cooperative fisheries research is a form of democratic science. Consequently, specific propositions emerge from fisheries management and cooperative research, as well as the literature on democratic science, and these propositions can be used to assess cooperative fisheries research.

Bhuyan (2007) studied the members' attitudes and behaviours of cooperative members in the United States. It revealed that 56.66% of members held negative views towards cooperative management, largely due to discontent with the decision-making process and insufficient communication between management and members. In contrast, members who viewed themselves as co-owners and joined the cooperative to increase revenue were more inclined to express satisfaction with the management of the cooperative.

Unal et al. (2009) studied the success and failure of fishery cooperatives in the Aegean, Turkey. The study revealed that that 66% of cooperatives engaged in fish marketing, which accounted for 99% of cooperative revenue, was the reason for the cooperatives' success. It also discovered that 57% of members felt a lack of

subsidies, difficulty obtaining credit, and excessive interest rates when considering the cooperatives' overall challenges, and 53% of respondents noted issues with fishing grounds, and 50% of respondents mentioned issues with other fishermen.

Fujita *et al.* (2010) investigated cooperative strategies in fisheries management: Integrating across scales. The study concludes that collaborative efforts in fisheries can support existing rules by gathering data and integrating local knowledge, hence lowering stakeholder disputes. Cooperative strategies can enhance fishing management and profitability. The study suggests incorporating more cooperative strategies into the California nearshore fishery management framework, such as joint research and co-management.

Allahyari (2010) investigated the social sustainability of fishery cooperatives in Guilan Province, Iran. The survey found that the number of new anglers entering the sector has been low over the last decade due to economic issues within cooperatives. Social conflicts between anglers and illegal fishermen were moderate, with fishers in more than 30% of households indicating social unsustainable behavior. Overall, the counties in Guilan Province had negative social sustainability conditions, with more than 70% classified as moderate to unsustainable.

Dorgi *et al.* (2016) examined the factors that influence members' participation in fishery cooperatives. According to the findings of this study, various issues impeded members' engagement in regional fishery cooperatives. Members' participation was limited by factors such as awareness of the cooperative's principles and values, access to training, leadership skills, participation in decision-making, conflicts, market access, fishing gear and transportation services, financial institution availability, and credit services.

Henock (2018) studied the financial sustainability and outreach performance of cooperatives in Ethiopia and revealed significant insights. According to this study, 37% of cooperative capital originated from donors. Operational sustainability was evident in 64.8% of the cooperatives examined, generating an average profit margin of 15% from their total assets. Furthermore, 26% of the cooperatives faced challenges securing financing due to limited loan demand.

Gosari et al. (2019) studied the economic consequences of cooperatives, with a particular focus on the Juku Lele Cooperative in Gowa Regency's Somba Opu District. Their research found that active participation in fisheries cooperatives has a major impact on economic development. Their studies demonstrated that fishers who are members of fishing cooperatives had superior economic advantages over their non-cooperative competitors.

Habib (2020) studied the learning indicators of cooperative management in the economic perspective review. Studies revealed that the decline of cooperatives is attributed to income drops, limited goods availability prompting transactions elsewhere, inadequate promotion hindering competitiveness, lack of professionalism in management undermining sustainability, trust issues and opaque profit distribution leading to dissolution, emphasizing the necessity of professional management for success and member benefits, and recognizing that cooperative failure often results from poor management practices and trust deficits, highlighting the importance of professionalism, transparency, and trust for sustainability and impact.

Yapanto et al. (2020) investigated the efficacy of fishing cooperative institutions. The study shows that fishery cooperatives play an important role in improving the lives of fishermen and their communities by providing critical services, fostering human resource development, and partnering with government efforts. These findings emphasize the significance of cooperatives in the fishing sector and their ability to address numerous socioeconomic concerns.

Elsler et al. (2022) studied that strong collective action enables valuable and sustainable fisheries for cooperatives. The study emphasizes the need of strong collective action within fishing cooperatives in achieving social and environmental advantages. Cooperatives with strong collective action protect their fisheries and receive economic benefits from international trade. It implies that small-scale fisheries strategies should focus improving collective action inside cooperatives. Policymakers can improve cooperative governance by investing in social capacity, such as creating trust and providing leadership training, resulting in improved outcomes for fishing communities.

Abiodun and Cookey (2023) examined the role of fisheries cooperative organizations in sustaining aquaculture in Nigeria, with a focus on 180 fishermen in Lagos. It highlighted several major obstacles, including restricted financing availability, poor record-keeping, water quality concerns, and political instability. The findings suggested that cooperative societies could help ease these challenges by providing credit facilities and other forms of assistance, hence increasing fishermen's income.

Jayasinghe et al. (2023) examined the eight fisheries cooperatives in Northern Sri Lanka, focusing on their role in managing small-scale fisheries. The report highlighted several major issues, including poaching by Indian trawlers, economic instability, and inadequate management. Although cooperatives attempted to promote sustainable fishing practices, the lack of adequate state intervention was questioned. The report proposed strengthening co-management organizations and resolving transboundary fishing challenges.

2.2 FISHERIES COOPERATIVE STUDIES IN INDIA

Rahim and Singh (1992) studied the cooperatives for marine fishermen in West Bengal. They concluded that cooperatives should do something to help their members market their fish and implement any human resource development activities. The cooperatives also failed to prevent non-member fishermen from fishing in waters reserved solely for its members. The cooperatives' principal benefit to their members was that they were granted fishing privileges on government-owned bodies of water, which provided them with a consistent source of revenue and employment.

Chauhan (1996) studied the role of inland fishermen's co-operatives in marketing reservoir fisheries in Himachal Pradesh. His study found that the fishermen's co-operatives had played a significant role in improving the socio-economic conditions of the fishermen in Himachal Pradesh. This was possible mainly due to the cooperatives securing the fishing rights in the reservoir for their members and getting them support (remunerative) price for their catch. The study revealed that the co-operatives suffered because of their inability to control the quality of fish and the market price.

Mishra (1997) studied fisheries cooperatives in India. The study revealed that cooperatives are considered a shield against weakness. The fisher community establishes cooperative societies to avoid exploitation and improve socio-economic conditions.

Baruah et al. (2000) investigated the "Beel fisheries of Assam: "Community-based co-management necessary." The study underlines the need of community-based co-management in safeguarding the long-term viability of Assam's beel fishery. It emphasizes the importance of local involvement and cooperative societies' ability to increase the effectiveness of fisheries management.

Nair et al. (2010) investigated the effectiveness of marine primary fishery cooperatives in Thane district, Maharashtra. According to the report, Thane district's fisheries cooperatives made a substantial contribution to fishery growth. Out of the 28 societies polled, 22 reported profits. Profit-making societies paid dividends ranging from 12% to 15% of their net profits to their members. Furthermore, cooperatives had an important role in improving fishermen's ability to successfully use fishing resources for their own well-being.

Sreeranganadhan (2012) investigated the function of cooperative organizations in marketing fish and fish products in Kerala. His research found that irregular and low revenue levels jeopardize fishermen's livelihoods. The only option to raise fishermen's income was to free them from the influence of intermediaries and financiers and properly sell their catch. As a result, cooperatives took over fish marketing, decreasing the need for intermediaries.

Tyagi et al. (2013) studied the functioning of fishermen's cooperative societies based on communication, leadership, decision-making, trust, participation and performance. The study included 58 fishermen co-operative groups from three states (MP, UP, and HP). Based on the average mean score value, the study found that the general functioning of fishing cooperative societies was good in H.P (43.57) and M.P (45.56). However, it was lower in U.P (25.61).

Chandrashekar (2014) investigated the development of fishermen's cooperatives in India from 2001 to 2010. He noticed a constant and positive expansion over the last seven years, notably since 2003. However, there is little fluctuation in the

membership growth rate (3.31% CAGR), and the number of societies (67.61% CAGR) is also increasing positively. As a result, he proposed that fishermen receive low-interest loans through cooperatives in order to alleviate poverty in fishing areas. He underlined the importance of successful collaboration between India's national and state administrations.

Ekramuddin (2017) studied fishermen cooperatives in the Birbhum district of West Bengal, recommending increased cooperative credit organizations and urging fishermen to take advantage of their benefits. Furthermore, he recommended that government officials take immediate action to solve challenges such as inadequate marketing and intermediary exploitation that these societies suffer.

Jeyanthi et al. (2017) studied In Njarakkal, Ernakulam district, Kerala, to investigate the perspectives of fishermen on cooperative services. According to the survey, more than half of respondents said cooperatives did not help to fisheries resource management. However, cooperatives were most concerned with supplying input supplies (94%), being nice to customers (92%), and having simple loan approval and repayment processes (89%). These characteristics were found as the primary influences on fishermen's perceptions.

Mathews (2018) studied the influence of fisheries cooperative societies on the livelihoods of marine fisher folk in Kollam District, Kerala. Despite their lack of education, the fishermen were aware of government subsidies. Fishers improved their livelihoods by efficiently utilizing fisheries cooperative services.

Thrishma and Veerakumaran (2020) studied the financial performance of Kerala state co-operative federation for fisheries development limited (MATSYAFED). The study found that MATSYAFED's substantial role in strengthening the fishing community through financial aid and different welfare schemes has helped fishermen's socioeconomic status. However, it also recognizes obstacles, including the growing problem of bad debts caused by issues with loan repayment. Addressing this issue is critical to ensuring MATSYAFED's long-term viability and the well-being of its membership.

Wasave et al. (2020) studied organizational roles performed by 39 marine fisheries cooperative societies in Maharashtra. The findings found that 70% of cooperatives were actively involved in social activities, 66% in facilitating services, and 30% in managing government initiatives. However, administrative, budgetary, and infrastructure problems limited the scope of these responsibilities. High interest rates on fishing loans, disagreements among cooperative members, and a paucity of cold storage facilities inside cooperatives were the main challenges that the cooperatives faced.

Mahanayak et al. (2021) studied the sustainable management of fishermen cooperative societies in India. Because of their low income, they frequently take out loans at high interest rates from fish sellers. As a result, there is a perpetual cycle of debt that encourages victimization. Fisheries cooperative organizations may be able to address the majority of these difficulties, and fishermen in several states have chosen collaborative approaches to improve their fisheries and socioeconomic conditions.

Nasar et al. (2021) examined the essential needs of West Bengal's fishing cooperative members, finding that the primary requirements were infrastructure support, financial aid, welfare measures, technical assistance, and policy interventions.

Kalpna and Elumalai (2022) investigated the involvement of primary fishermen and fisherwomen cooperative societies, district cooperative federations, and the Tamil Nadu State Apex Cooperative Federation in the fisheries supply chain. They noted that these cooperatives benefit their members and contribute to economic progress in Tamil Nadu and India by boosting the fishing sector.

Sanyal et al. (2023) investigated the operations of fisheries co-operative groups in India to improve and optimize farmers' resources and economies. The report emphasizes the critical roles that fishermen and fisheries cooperatives play in operations management. Despite the potential benefits, there are managerial variations that require expert administration to promote socioeconomic growth. Cooperatives can boost production and competitiveness, but resolving difficulties necessitates a comprehensive national research effort. Furthermore, policies are

critical for guaranteeing long-term management that is in line with technology improvements and environmental protection.

Bachu and Eunice (2024) analysed the fisherwomen cooperative organizations in Visakhapatnam, Andhra Pradesh, are focused on empowering underprivileged woman and promoting sustainable fishing techniques. The study identified various obstacles, including reliance on middlemen, a lack of technical understanding, financial constraints, and inadequate infrastructure. Although direct employment opportunities in cooperatives are limited, they have potential in marketing and exporting. The study proposes that tackling these difficulties through focused policy measures could improve the resilience and sustainability of fisherwomen cooperatives, thereby contributing to socioeconomic development.

2.3 FISHERIES COOPERATIVE STUDIES IN BIHAR

Singh *et al.* (1968) studied the Fishermen Cooperative Society in the District of Darbhanga, Bihar. According to the study, fishery cooperatives require greater support and better structures, as well as defective organization, limited money, late payments, and recurring losses. No money has been granted as a subsidy or assistance to improve the operations of fisheries cooperatives. Society's performance is inadequate.

Sahani (2016) studied fishermen's cooperative societies in the Darbhanga district. According to the study, there are poor marketing facilities, low literacy levels among farmers (76.3%), a low budget for infrastructure and mobility (74.8%), siltation of ponds/tanks (82.2%), a lack of linkage among different agencies for promoting cooperative society members (65.9%), a poor financial status to adopt latest technology (63.7%), poor government assistance (58.5%), and a lack of interest among youth in fish culture practice (71.8%).

Kumar (2018) studied The Present Status and Prospects of Fisheries Development in Bihar, with Special Reference to Some Selected Oxbow Lakes in Muzaffarpur District. According to the study, the Co-operative Society in Bihar is regarded as a link between the government and fish farmers, and it plays a significant role in obtaining various government benefits and subsidies for both fish culture and socioeconomic upliftment of the fishing community. The vast majority of them are no

longer functional. Fisheries cooperative federations and societies face numerous operational, management, and financial issues.

Sahani (2020) studied the agribusiness potential in north Bihar. According to the study, taking a community-based approach to integrated development will help aquaculture expand in the ponds. In addition, weak marketing infrastructure in the fisheries sector has diminished fishermen's incentives and incomes. As a result, a comprehensive strategy should be devised, including stocking, monitoring, fair and equitable royalty arrangements, market interventions through cooperatives or businesses, and the establishment of efficient transport and distribution networks.

Chand et al. (2023) studied the current socioeconomic position of the fisherman community in Patna district, Bihar, was investigated, as well as potential reform initiatives. The study found that cooperative societies and non-governmental organizations (NGOs) must create and expedite numerous grassroots plans to improve the socioeconomic position of fishermen. The fishermen's community is mostly uninformed of the government projects, policies, and activities carried out by cooperative societies such as COFFED. Fishermen's cooperative societies should be powerful, free of corruption and factionalism.

Kumar and Kumar (2023) studied the comparative economics of several chaur fishery management regimes in Bihar's Koshi-Gandak River Basin. The study mentioned that government chaur are leased exclusively to fishermen's cooperatives in Bihar, yet fishers continue to face exploitation. According to Bihar Jalkar Adhiniyam (2006), cooperative societies must develop the chaur within two years of leasing the water bodies, assist fishers in obtaining inputs, and provide essential financial support. However, no such development has been observed in any of the chaur, and fishers managed the fisheries activities independently. However, society also suffers from other operational issues, which renders the fishers vulnerable.

2.4 GOVERNANCE STUDIES IN FISHERIES COOPERATIVES

Motamed et al. (2011) reported that there is a significant and positive relationship between involvement and various criteria, including literacy, enrollment in educational-extensional classes, satisfaction with cooperative management

practices, awareness of cooperative principles and elements, and understanding of its economic operations. Furthermore, their research demonstrated that participation had a considerable impact on the socioeconomic level of beach seine members. Specifically, participation resulted in lower labour expenses, lower anxiety levels, and reduced possible hazards linked with their profession.

Pencavel (2013) studied that worker cooperatives and democratic governance. According to the study, firms that mix participatory governance and revenue-sharing may see increased productivity. However, co-ops suffer governance issues, and assertions that they require assistance with technological transition, employing unemployed workers, and funding must yet be investigated.

Kaswan (2014) studied Cooperatives and democratic theory were researched as part of the development of democracy. The study highlighted the interdependence between the economic and political worlds, highlighting cooperatives as critical institutions for promoting democratic government and combating wealth inequality. To improve democratic involvement and address governance weaknesses, the study suggests multi-stakeholder cooperatives as feasible alternatives to traditional institutions.

Ravichandran (2015) studied the Governance System in Primary Agricultural Cooperative Credit Societies in Tamil Nadu, India. The study found that good governance is essential for long-term development. PACS management has no interaction with its members; the political system's influence defines the operating style. Sustainable development requires a balance of democratic control and competent management.

Hakelius & Hansson (2016) examined Members' views toward cooperatives and perceptions of agency difficulties. The results showed that a high trust score suggested more negative attitude dimensions among farmers. Increased agency problems reduced trust, although perceived agency problems had less of an impact on commitment.

Tripathy et al. (2021) analysed the business activities of selected Primary Agricultural Credit Societies (PACS) in Kerala and investigated the relationship between governance practices and competitiveness. It concluded that involvement,

accountability, and openness are critical pillars of cooperative governance, particularly when linked with a diversification strategy, which improves Kerala's PACS' competitiveness. According to the report, excellent governance is an important factor promoting cooperative growth and development.

Dinesh (2023) evaluated governance in inland primary fisheries cooperative societies of Tamil Nadu. The study's findings show that 80% of Tiruvallur Fishermen Cooperative Societies exhibit moderate governance quality, while 75% of Cuddalore FCS show limited governance quality. This suggests that inland fisheries cooperative societies, regardless of where they are situated, have yet to realize their intended potential and purpose of establishment fully.

Rujan (2023) evaluated governance in marine primary fisheries cooperative societies of Tamil Nadu. The study revealed that the Fishermen Cooperative Governance Quality Index (FCGQI) predominantly fell within the medium (66.67%) to high (19.05%) range, while for Fisherwomen cooperatives, it varied from low (23.81%) to medium (71.43%). The study noted a higher governance quality index for fishermen's cooperatives than fisherwomen's.

Thavai (2023) evaluated governance in Maharashtra's Inland primary fisheries cooperative societies. According to the governance quality index, the study's findings are that the majority of societies (51.2%) are of medium quality. However, strong leadership improves governance quality in IPFCS, as evidenced by the low leadership level of 82.93%, indicating poor governance quality.

2.5 STUDIES ON EASE OF DOING BUSINESS

Birchall and Simmons (2004) investigated what encourages members to participate in cooperative and mutual businesses. According to the study, the "Participation Chain" emphasizes the importance of each link—motivation, resources, and mobilization—being strong and interrelated in order to increase participation. Training members is insufficient without opportunities to utilize their talents. Furthermore, recruitment attempts should coincide with members' goals, particularly their collective incentives.

Novkovic (2006) studied the cooperative business model, with a focus on cooperative ideals and values. The study discovered that most respondents believe cooperative enterprises are superior to investor-owned businesses, owing to their social purpose and strong community links. However, many managers in large cooperatives prioritize profit as the primary goal, creating worries about the connection of cooperative values with business operations.

Esther (2012) investigated the co-operative difference: the impact and function of research in the development of long-term cooperative firms. According to the report, enhanced co-operatives as sustainable companies require more assistance from governments, development partners, and the private sector to ensure responsible resource use to fulfill current and future demands. Many people choose co-operatives because they can solve common needs through economies of scale and collaborative action. However, ongoing study is critical for building sustainable cooperative firms.

Ani (2015) found that Singapore ranks highest in ease of doing business among selected Asian economies. The findings reveal a strong positive correlation between ease of doing business and economic growth. Notably, indicators such as dealing with construction permits, obtaining credit, registering property, and facilitating cross-border trade account for 83% of the total variation in economic growth. Interestingly, while indicators like dealing with construction permits and accessing credit show a negative impact on Gross Domestic Product (GDP), registering property and engaging in cross-border trade have positive effects.

Krishnan et al. (2021) studied the Ease of Doing Research (EoDR): A Methodological Framework for Agricultural Research Organizations. The study highlighted several key factors, including a Human Resource Strategy that stressed the importance of competencies, timely career advancements, and recognition through awards and rewards. It also underscored the significance of research infrastructure, such as lab facilities, field resources, and library access, in boosting research productivity. The framework further emphasized the importance of research leadership, where the ability to inspire teams and elevate the institution's visibility played a crucial role in achieving success. In terms of governance, the delegation of powers and ease of access to funding and research inputs were identified as critical

to streamlining research processes. Finally, fostering a positive research culture through peer collaboration and mentoring was shown to significantly enhance the research environment. This framework offers valuable insights and could be adapted to assess the Ease of Doing Business in Cooperatives, focusing on similar aspects like human resources, infrastructure, leadership, and governance for cooperative success.

2.6 CONSTRAINTS AND STRATEGIES

Vallathan *et al.* (2005) proposed that funding for the fisheries sector be increased to reflect its important economic impact. As a result, there is an urgent need to expand money in plans significantly. Landing centers must include basic infrastructure including shelters, cold storage, and refrigeration facilities. Fishermen's cooperative societies are also encouraged to establish processing units at these facilities.

Bhaumik *et al.* (2005) investigated the limitations of increasing fish production by fishermen's cooperatives. The study identified severe obstacles for these cooperative organizations, including as high levels of pollution, particularly in urban areas from untreated domestic sewage and in rural regions from chemical fertilizers and pesticides. Other issues noted included fish disease outbreaks, illicit fishing or poaching, a lack of financial support from government institutions, and a significant weed infestation in water bodies.

De *et al.* (2006) examined the limitations of community-based aquaculture. Their research found that vital constraints included a few individuals dominating decision-making and policy formation, as well as a lack of community participation and cooperation. They also found conflicts over benefit sharing among fishery cooperative members, a lack of technical skills among fish farmers, and the participation of market middlemen as further restrictions.

Loera and Zulawska (2013) researched cooperative fisheries and rural community sustainability. Their findings revealed that a fishing cooperative faces issues such as overfishing, rising fishing populations, and poaching, as well as better definitions of fishing property rights and fisheries management. The current problem has evolved into a larger social issue requiring the active participation of all parties.

Jadhav (2020) investigated the effects of fishermen's cooperative societies in Ratnagiri district. The steady support offered by these societies contributed to the increase in membership. Membership of these groups increased by 16% as they addressed fishermen's previous concerns or apprehensions through positive help.

2.7 LESSONS LEARNED FROM REVIEWS

Most research focuses on cooperative performance and management, financial sustainability and marketing, member participation and perceptions of cooperatives, socioeconomic analysis of cooperative members, and the successes and challenges cooperatives face. Most studies emphasize management and performance, along with the socioeconomic growth of cooperative members. Successful cooperatives are thought to depend on several factors, including diversified economic activities, leadership, managerial competency, and gender mainstreaming. However, only a few studies have explored cooperative governance involving teamwork, accountable empowerment, democracy, and leadership. Similarly, ease of doing business within cooperatives encompassing human capital, infrastructure, leadership, and governance has received limited attention. Studies have revealed no standardized tool for measuring the quality of cooperative governance and ease of doing business.

3. RESEARCH METHODOLOGY

The methodology and processes used in the study are briefly described in this chapter. This chapter details the different phases of the research process, from pilot study to sampling procedure, data collection, processing, and analysis. This chapter deals with research design, empirical measurement of variables, data collection and statistical tools used. The research methodology followed has been discussed under the following subheadings.

- 3.1 Research Design
- 3.2 Sampling Procedure
- 3.3 Selection of Variables and Their Measurements
- 3.4 Tools and Techniques Used for Data Collection
- 3.5 Statistical Tools Used for Analysis of Data

3.1 RESEARCH DESIGN

A systematic empirical investigation known as "ex post facto research design" occurs when independent variables are not directly under the scientist's control because their manifestations have already happened (Kerlinger, 1983). An ex post facto research design was used to conduct the study based on the study's objectives and address specific research questions because all of the variables were pre-existing, and there was no scope for manipulation of any variable.

3.2 SAMPLING PROCEDURE

3.2.1 Locale of the study

Bihar state has been purposively selected for the study because Bihar is one of the few states with large inland fisheries and aquaculture resources. The state has the 12th greatest fisheries resources and fourth place in inland fish production (Directorate of Fisheries, Bihar). It has large, untapped water resources for fisheries and according to the 'Bihar Jalkar Adhiniyam, 2006', government water

bodies must be leased out to only fisheries co-operatives (Bihar Fisheries Jalkar Management Bill, 2006).



Fig. 3.1 Selected Multi-level Fisheries Cooperatives in Bihar State

- ★ State Apex Federation
- Regional Federation
- ▲ District Federation
- Primary Fisheries Cooperatives

3.3.2 Selection of Multi-level Fisheries Cooperative Societies

COFFED was purposely selected because it is the only fisheries cooperative operating at the state level. At the regional level, only two regional fisheries federations exist the Patna and Tirhut-Darbhanga regional fishery federations, which were included in the study. At the district level, five fisheries cooperatives exist, of which three districts, Patna, Darbhanga, and Samastipur, were included in the study, which comes under the above-mentioned regional federation. At the primary level, 30 active societies were randomly selected from the three districts mentioned above

federations using convenience sampling due to time, financial, and resource constraints. In total, 36 fisheries cooperatives were included in the study.

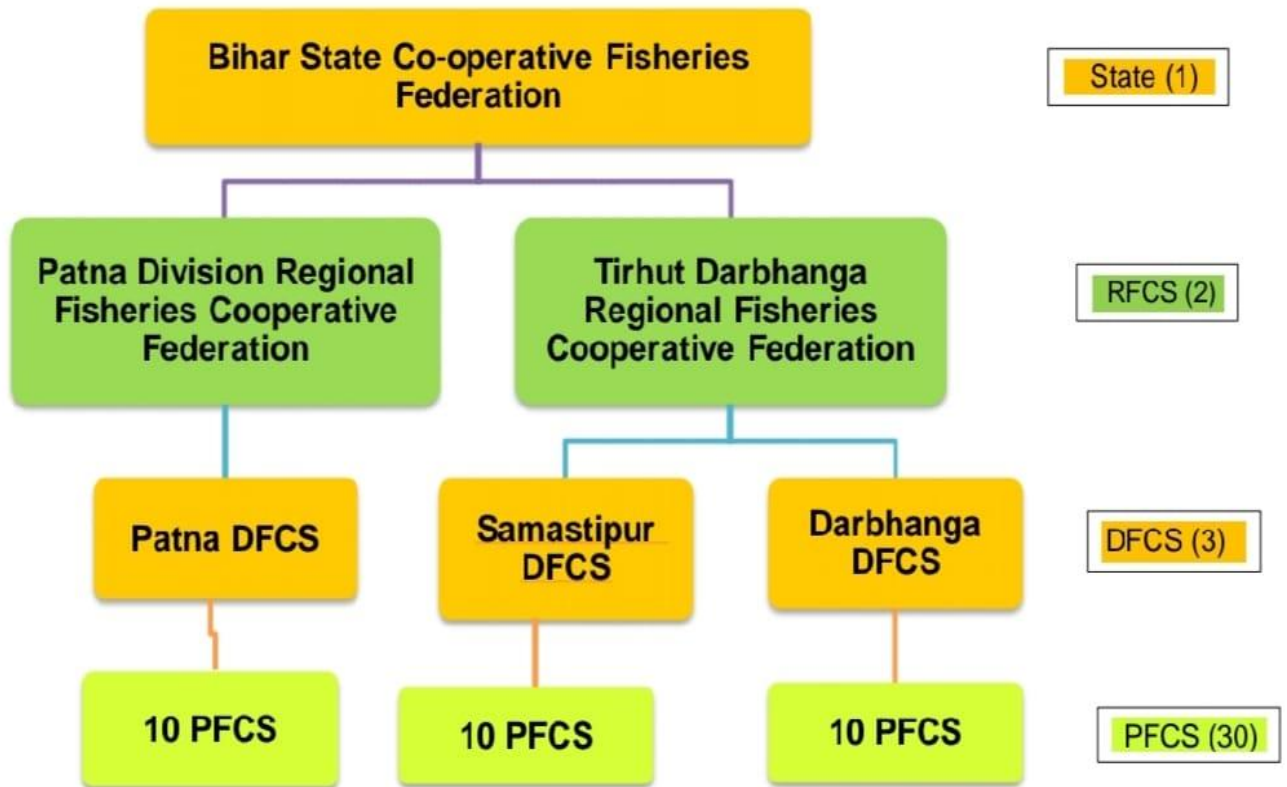


Fig. 3.2 Flow diagram of sampling procedure

3.3 SELECTION OF VARIABLES AND THEIR MEASUREMENTS

In the current research, relevant variables were selected following a comprehensive review of related literature and consultations with experts, considering the theoretical framework and objectives of the study. The initial set of variables focused on the profile characteristics of multi-level fisheries cooperative societies, followed by variables indicating governance, the ease of doing business constraints and strategies within these societies. Details regarding these variables and their measurements can be found in Table 3.1.

Table 3.1 List of selected variables and their measurements

Variables	Measurements
Bye-Laws of the society	Structured interview schedule
Society registration status	
Staff position in society	
Membership status & fee	
Net profit & debt	
Authorized share capital, Working capital & Paid up capital	
Audit grade of society	
Society meeting pattern	
Profile of executive body members	
Contact with other organizations	
Infrastructure facilities of society	
Welfare & income generating activities of society	
Women Empowerment	
Governance	Fisheries Cooperative Governance Quality Index was followed with suitable modification
Ease of doing business	Ease of doing business index was developed
Constraints	Constraint Analysis Index
Strategies	Content analysis of all selected variables

3.3.1 Operationalization and Measurement of Profile Variables

3.3.1.1 Bye-Laws of the society

In operational terms, it refers to the rules of cooperative society for its internal management. Working/internal management of the society is to be carried out as per the bye-laws.

3.3.1.2 Society registration status

In operational terms, it referred to the specific date of official registration and the allocation of a registration number to the cooperative society. The relevant staff members of these societies were approached to provide the accurate registration date and number for their respective cooperative societies.

3.3.1.3 Staff position in society

In operational terms, it refers to the number of individuals formally hired or involved by the cooperative society to oversee daily operations. The cooperative society staff members were requested to provide the present count of individuals employed in permanent or temporary roles.

3.3.1.4 Membership status & fee

Operationally, it was defined as the overall count of full-time registered members, comprising fishermen and fisherwomen, in the multi-level fisheries cooperative societies. The membership fee denotes the predetermined amount the society sets for individuals to become registered members of a cooperative society.

3.3.1.5 Net profit & debt

Net profit was that part of the revenue left after deducting total expenses from the total revenue. Debt represents the amount borrowed by the respective cooperative society from government lending agencies for its members' welfare or for the cooperative society's functioning.

3.3.1.6 Authorised Share Capital, Paid-up Share Capital & Working Capital

Authorised Share Capital is the number of shares that a cooperative society can issue as stated in its memorandum of association or its articles of incorporation, and Paid-up share capital is defined as the collective sum generated from the accumulated share money (membership fee) contributed by each registered member. Working capital represents short-term finance for the cooperatives to run their day-to-day operations.

3.3.1.7 Audit grade of society

It referred to the specific criteria or standards utilized to assess and evaluate all the cooperative records, including membership details, meetings, accounting documentation, operational and inventory registers, and bank passbooks, and every financial transaction is subject to a thorough review by internal and

government auditors. Cooperative societies that maintain accurate and complete records and financial documentation are given an "A" grade. A "B" Grade is given to cooperative societies that maintain adequate records, while a "C" Grade is given to those that only keep the minimum essential financial record.

3.3.1. 8 Society meeting pattern

It was operationalized to determine the frequency and conduct of executive and general body meetings, including their scheduling (fortnightly, monthly, quarterly, half-yearly, and yearly), timing (morning/afternoon/evening), and venue (society office, temple, school, etc.). The average attendance percentage at these meetings held by cooperative societies over the past year was documented.

3.3.1.9 Profile of executive body members

It was assessed based on factors such as chronological age (population census categories), educational attainment, training/skill level, occupational status, and membership experience of the executive body members of the Multi-level Fisheries Cooperative Society during the investigation period.

3.3.1.10 Contact with other organizations

The extent of the contact was characterized as the level of engagement of cooperative societies in the meetings or activities of other institutions such as the Department of Fisheries, research and training centres, KVKs, regional cooperative federations, district cooperative federations, other primary cooperatives, state cooperative federations, etc. The extent of contact of the Multi-level Fisheries Cooperative Society was assessed across three levels: Always, Sometimes, and Never, with corresponding scores of 2, 1, and 0, respectively. Based on the index score, cooperative societies were classified into low (<0.55), medium (0.55-0.70), and high (>0.70) categories.

3.3.1.11 Infrastructure facilities of society

Operationally, it was defined as the level of facilities and services provided by cooperative societies, including office buildings, water and electricity supply, computer systems, sanitation facilities, fish storage and transportation facilities, fish marketing facilities, emergency services, etc., for the benefit of their members. The extent of infrastructure facilities in the society was assessed across two levels: Available and Not available, with scores of 1 and 0, respectively. Based on the index score, cooperative societies were classified into low (<0.55), medium (0.55-0.70), and high (>0.70) categories.

3.3.1.12 Welfare and income-generating activities of society

The welfare activities and services provided by the cooperative society were assessed based on factors such as organized training sessions, the number of members benefiting from these activities, credit supply, insurance, welfare schemes, and the amount of expenditure allocated through these schemes. Additionally, the income-generating activities of the cooperative society were documented and described. The extent of welfare and income-generating activities of the society was evaluated across two levels: Available and Not available, with scores of 1 and 0, respectively. Cooperative societies were then categorized into low (<0.55), medium (0.55-0.70), and high (>0.70) categories based on the index score.

3.4.1.13 Women empowerment

Empowerment is an evolving process that enables individuals to think and act autonomously, access resources, exercise choices, and unlock their potential to enhance their overall well-being. The indicators and statements about empowerment were derived from available literature and evaluated using a three-point scale: always, sometimes, and never (with scores of 2, 1, and 0, respectively). Using the index score, cooperative societies were classified into low (<0.55), medium (0.56-0.70), and high (>0.70) categories levels of empowerment.

Some other terminologies

- 1. Executive Body:** In a cooperative society, the executive body comprises members elected or selected by the general body members through an election process, which takes place once every five years. These individuals hold executive powers and are responsible for making key societal decisions.
- 2. General Body:** The general body includes all the cooperative society members who do not have executive powers. These members are responsible for electing the executive body members during elections held periodically, ensuring the democratic functioning of the cooperative.
- 3. Ad hoc Body:** The temporary governing group manages the cooperatives without elected officials. These members are typically appointed or selected from among the cooperative's shareholders, ensuring that various interests are represented. Its primary role is to ensure that the cooperative continues operating effectively and fulfilling its functions.

4. Administrative Body: This body governs the cooperative society during the last six months of the elected period, known as the administrative period. Members of the administrative body are officials from the Department of Fisheries, including the Managing Director, General Manager, and other designated officials.

3.3.2 Governance

Governance is the system by which fisheries cooperatives are managed, ensuring democratic participation, accountable empowerment, and strong leadership. It promotes teamwork and collaboration while integrating activities and resources through effective convergence and linkages for cooperative success.

A) Selection of dimensions: Cooperative governance provides answers to critical business problems, defines roles and responsibilities, sets mechanisms for setting expectations and ensuring responsibility, and guides community-owned businesses towards socioeconomic and cultural success. Good cooperative governance promotes long-term cooperative growth and competitive advantage, provides opportunities to minimize risks, and adds value to successful business monitoring (Tripathy *et al.*, 2021). Cooperative governance has multidimensional aspects. It includes democratic control, accountable empowerment, leadership, teaming, convergence and linkage. Therefore, it was important to select dimensions that were representative indicators of all these governance dimensions. The availability of authenticated literature and discussion with experts in relevant fields played an important role in identifying these dimensions. The identified dimensions were operationalized as given below:

a) Democratic control: It was enacted by how well cooperative societies practice, protect, promote, and maintain members' participation. Members make sure their representatives make good decisions by choosing and supporting elected officials who collaborate to serve the members' needs.

b) Accountable empowerment: It was defined by the degree to which members are effectively empowered while also being held accountable for the authority they're given. It involves establishing an environment of trust and transparency in which members are at ease taking risks and making decisions.

c) Leadership: It was defined by how well the cooperative articulates its direction and purpose and prepares the organization to move in that direction. The cooperative is responsible for setting the direction and enabling progress towards it by selecting management, ensuring sufficient resources, and monitoring advancement.

d) Teaming: It was defined by the degree of successful collaboration towards a shared goal. The cooperative society must collaborate effectively, which involves reaching a common agreement on tasks, setting clear expectations for members and the group, establishing an efficient decision-making process, and providing effective leadership.

e) Convergence and Linkages: It encompasses the integration of cooperative activities, facilitating the flow of information among members, efficient allocation of resources, establishing market linkages, and coordinating various cooperative activities. This dimension emphasizes the interconnectedness and alignment of cooperative efforts towards common goals, ensuring effective collaboration and coordination among stakeholders.

B) Collection, editing and selection of indicators: By referring to the available literature on relevant subjects, a total of 110 indicators/statements were collected. The researchers consulted with cooperative and extension experts for the selection of indicators. The indicators were edited according to 14 informal criteria suggested by Edwards (1957), eliminating 60 indicators. From this, 50 indicators were retained after editing and considered for further assessment of governance quality in fisheries cooperatives. Thus, a total of 50 indicators were selected for index construction. The final dimensions of the Fisheries Cooperative Governance Quality Index (FCGQI) and their respective indicators are presented in Annexure - I.

5. Computation of the Composite Index: Each dimension of FCGQI consists of an equal number of indicators. The final index, composed of 50 statements, was administered to the group of executive body members and general body members by conducting focus group discussions in each fisheries' cooperative society separately on three continuums, viz., *To a great extent*, *To some extent*, and *Not at all*, with a score of 2, 1 and 0, respectively. The overall possible

maximum and minimum score ranges between 100 to 0. Scores were summed up to get the total score for governance quality for each cooperative society at different levels. The obtained score was converted into an unit index score using the following formula;

$$U_{ij} = \frac{Y_{ij} - \text{Min } Y_{ij}}{\text{Max } Y_j - \text{Min } Y_j}$$

Where,

U_{ij} = Unit score of the i^{th} cooperative society on the j^{th} dimension

Y_{ij} = Obtained score of the i^{th} cooperative society on the j^{th} dimension

$\text{Max } Y_j$ = Maximum possible score on the j^{th} dimension

$\text{Min } Y_j$ = Minimum possible score on the j^{th} dimension

Thus, the governance quality index score ranges from 0 to 1, *i.e.*, when U_{ij} is minimum, the score is 0; when U_{ij} is maximum, the score is 1. Based on the index score, cooperative societies were categorized into low (<0.55), medium (0.55-0.70), and high (>0.70) quality of governance using the human development index categorical range values.

3.3.3 Ease of Doing Business

Ease of doing business pertains to the degree of challenge or simplicity associated with initiating and managing a business within a specific entity. It involves various elements, including regulatory conditions, legal structures, administrative processes, infrastructure, financial accessibility, and the overall business environment. A greater ease of doing business generally suggests that entrepreneurs and businesses encounter fewer hurdles in establishing, running, and growing their enterprises, thereby stimulating economic progress and advancement.

A. Selection of dimensions: The ease of doing business was assessed using the Ease of Doing Research framework (Krishnan et al., 2021). From this framework, four dimensions were selected and adjusted to focus on cooperative business aspects. The availability of authenticated literature and discussions with experts in relevant fields significantly influenced identifying these dimensions. The identified dimensions were operationalized as follows:

a) Business Human Capital: This parameter measures the cooperative's ability to maintain a skilled workforce, provide training, promote members' well-being, and recognize contributions. Effective human capital fosters a motivated team that drives business success.

- b) Business Infrastructure:** This parameter assesses the cooperative's access to essential facilities and resources, such as office space, utilities, and supply sources. Adequate infrastructure is crucial for efficient business operations and income generation.
- c) Business Leadership:** This parameter focuses on the cooperative's ability to articulate a clear vision, seize business opportunities, and maintain an active online presence. It also includes supporting members in starting business ventures and fostering a culture of entrepreneurship.
- d) Business Governance:** This parameter evaluates the cooperative's effectiveness in establishing linkages with institutions, managing political challenges, and ensuring proper budget allocation. It also includes monitoring mechanisms to maintain accountability and quality.

B. Collection, editing and selection of indicators: As per Ease of Doing Business Research Framework, a total of 22 indicators were selected, and then indicators were scrutinized using Edwards (1957), criteria. After editing, 17 indicators/statements were retained for further assessment. Consequently, a total of 17 indicators were selected under four dimensions for index construction. The final dimensions of the Ease of Doing Business in Cooperatives and their respective indicators are presented in Annexure -I.

C. Computation of the Composite Index: The final index, consisting of 17 statements, was administered to the group of executive body members and general body members by conducting focus group discussions in each fisheries' cooperative society separately on three continuums, viz., To great extent, to some extent, and not at all, with scores of 2, 1, and 0, respectively. The overall possible maximum and minimum score ranges between 34 to 0. Scores were summed up to get the total score for Ease of doing business for each level of cooperative society. The obtained score was converted into an unit index score using the following formula;

$$U_{ij} = \frac{Y_{ij} - \text{Min } Y_{ij}}{\text{Max } Y_j - \text{Min } Y_j}$$

Where,

U_{ij} = Unit score of the i^{th} cooperative society on the j^{th} dimension

Y_{ij} = Obtained score of the i^{th} cooperative society on the j^{th} dimension

Max Y_j = Maximum possible score on the j^{th} dimension

Min Y_j = Minimum possible score on the j^{th} dimension

Thus, the Ease of Doing Cooperative Business score ranges from 0 to 1, *i.e.*, when U_{ij} is minimum, the score is 0, and when U_{ij} is maximum, the score is 1. Based on the index score, cooperative societies were categorized into low (<0.55), medium (0.55-0.70), and high (>0.70) using human development index categorical range values.

3.3.4 Constraints Analysis

In the context of fisheries cooperatives, constraints refer to the various challenges or limitations cooperatives face in their operations. These may include financial, technical, infrastructural, and governance-related difficulties that hinder the effective functioning and growth of the cooperatives. The Constraint Analysis Index (CAI) was primarily used to quantify the constraints experienced by members of fisheries cooperatives. While Patil and Kokate (2011) originally applied this formula for assessing training needs, it has been adapted here to evaluate cooperative constraints. Based on a pilot study, 15 constraints were identified and administered to executive and general body members through focus group discussions conducted separately for each fisheries cooperative society. Responses were rated on a three-point scale: Severe (3), Moderate (2), and Minor (1). The possible score for each society ranged from a minimum of 15 to a maximum of 45. The scores were summed to calculate the total score for the Constraint Analysis Index for each cooperative society. The total score was then converted into an index score using the following formula:

$$CAI = \frac{\text{Sum Score of constraint}}{\text{Total Number of Samples} * \text{Maximum Score}} * 100$$

3.4 TOOLS AND TECHNIQUES USED FOR DATA COLLECTION

Primary data were collected using the following procedures/methods.

3.4.1 Pilot Study

After locating the area of the study and based on the nature of objectives before the preparation of the information-collecting device, a pilot study was conducted to find relevant information about the tract of the study. The interview schedule was developed in the light of experiences and information gained from the pilot study conducted in Purnia, Nalanda and Vaishali districts.

3.4.2 Instruments and Techniques Used for Collecting Data

The instrument is the device used to collect the data. The instrument used for collecting data in the present study was a structured interview schedule. Based on the understanding of facts, related reviews, and expert consultations, a structured interview schedule was developed to investigate selected variables. Data collection tools were prepared considering selected objectives, variables, and respondents. The developed interview schedule pre-testing was done in non-sampling areas with 10% of the sample size of fisheries cooperatives (4). Based on pre-testing experiences, the necessary modifications were made to the interview schedule.

The final interview schedule consists of three parts (ANNEXURE-I). The first part dealt with the profile variables of the selected cooperative societies. The second part contains the Fisheries Cooperative Governance Quality Index (FCGQI), which measures the governance quality of multi-level fisheries' cooperative societies. The third part dealt with variables measuring the Ease of Doing business (EODB) in multi-level fisheries cooperative societies. The fourth part dealt with constraints analysis with the help of the Constraints Analysis Index (CAI) for multi-level fisheries cooperative societies.

Using the developed interview schedule, data were collected from multi-level i.e., the state apex federation (n=1), regional federation (n=2), district federation (n=3) and primary fisheries cooperative societies (n=30). Thus data were collected from 36 fisheries cooperatives from four levels in the month of June and July 2024 by personal interview and focus group discussion (FGD) methods using interview schedule. Two focus group discussions in each cooperative society were conducted to gather information on different aspects of governance quality in cooperative management, ease of doing business within cooperatives and constraints faced by fisheries cooperatives at multi-level. First FGD was conducted

with the executive body members, while the second FGD conducted with the general body members of selected cooperative societies to reduce personal biases and ensure quality information. Thus, a total 72 FGDs were conducted.

3.5 STATISTICAL TOOLS USED FOR ANALYSIS OF DATA

The data collected from the executive body and general body members from selected cooperative societies were tabulated item-wise concerning each variable of the study. Master sheets containing the pooled scores of all variables were prepared separately for multi-level fisheries cooperative societies. The collected data was subjected to various appropriate statistical tools to draw meaningful results and logical interpretations. The statistical techniques used in this study include average, frequency, percentage, mean, standard deviation, etc. The statistical analysis was done with the help of computer software, namely MS Excel Spread sheet and Statistical Package for the Social Sciences (SPSS).

4. RESULT AND DISCUSSION

The purpose of the current study was to evaluate the governance quality of selected primary cooperatives, district federations, regional federations, and state federations of fisheries cooperatives in Bihar. The empirical data gathered for each objective was examined using appropriate statistical techniques. The results and their interpretations are presented and discussed under the following sub-headings.

4.1 Profile of Selected Multi-level Fisheries Cooperatives Societies

4.2 Status of Existing Fisheries Resources in Multi-level Fisheries Cooperatives

4.3 Extent of Governance Quality in Multi-level Fisheries Cooperative Societies

4.4 Extent of Ease of Doing Business in Multi-level Fisheries Cooperative Societies

4.5 Constraints Faced by Multi-level Fisheries Cooperative Societies

4.6 Strategies for Strengthening Multi-level Fisheries Cooperative Societies

4.1 PROFILE OF SELECTED MULTI-LEVEL FISHERIES COOPERATIVES

4.1.1 Profile of State Federation of Fisheries Cooperatives

4.1.1.1 Bylaws of COFFED

Bihar State Cooperative Fisher's Federation Limited (COFFED) is an apex Fisheries Cooperative Federation established on April 24, 1951, under the Bihar Cooperative Society Act of 1935. Membership is open to both societies and individual fishers. The Board of Directors consists of 21 members, categorized into four groups: 1 Chairman, 15 elected members, 4 nominated members, and 1 Functional Director (Managing Director) of the federation. In addition to promoting fish production and marketing, COFFED also engages in insurance, fish scale, and fox nut marketing and welfare program implementation for the fishing community.

4.1.1.2 Staff Positions in COFFED

COFFED has six permanent and two temporary posts, supporting its cooperative efforts within the state apex federation. This staffing arrangement plays a crucial role in sustaining routine operations and improving the overall performance of COFFED. Adequate staffing ensures that the federation can efficiently manage its responsibilities and contribute positively to the development of fisheries in Bihar.

4.1.1.3 Membership Status and Fee

The total number of votes required to govern the federation is 811. COFFED has a membership of approximately 16 lakh individual members and 428 societies out of the 477 existing primary societies, which means that 90% of cooperatives are affiliated with the state apex federation. COFFED also has a membership of 2 regional and 5 district federations. To become a member of COFFED, must pay a membership fee of ₹100. Each member society shall pay a subscription to the Federation for the promotion of fisheries cooperatives as under: Regional/District Federations - ₹ 5,000 per year, Primary cooperative Society - ₹ 1,000 per year.

Table 4.1 Membership status of COFFED

Members	Executive Body	General Body
Male	16 (76.10%)	880000 (55.00%)
Female	5 (23.80%)	720000 (45.00%)
Total	21(100%)	1600000(100%)

4.1.1.4 Authorized Share Capital, Paid-up Share Capital, and Number of Shares

The authorized share capital of COFFED is ₹ 50 crores, made of 5 lakh shares of ₹ 1,000 each. The total paid-up share capital of ₹ 887,000 includes contributions from the state government and members. COFFED has enormous potential to grow and expand given its authorized share capital, but its existing paid-up capital indicates that it is still in its early stages. The cooperative can raise funds for enhanced cooperative activities by gradually selling more shares.

Table 4.2 Total share capital and number of shares of COFFED

Shares from	Total share capital (lakh)	No of Shares
Members shares	7.47	747
Government shares	1.40	140

4.1.1.5 Total Working Capital and Net Profit

The working capital of COFFED was ₹ 16 crores, 74 lakh, providing sufficient liquidity for operational expenses and short-term liabilities. Net profit during 2022-23 was ₹ 35 lakh, 60 thousand, indicating a good but moderate profit. This shows that COFFED is in a stable financial position with the potential to improve profits through initiatives such as generating income or improving operational efficiency.

.4.1.1.6 Audit Grade of Society

COFFED holds an audit grade of “A,” indicating that cooperative societies maintain accurate and complete records that comply with financial regulations and operate efficiently. This grade indicates that COFFED has strong internal controls and economic stability and manages its funds responsibly.

4.1.1.7 Society Meeting Pattern

COFFED's general body meetings are held annually, while the executive body meets quarterly. The executive and general body attendance rates ranged from 75% to 100%. Meetings are scheduled at 12:00 p.m., with the executive and general body meetings taking place at the Federation office.

4.1.1.8 Profile of Executive Body Members

The executive members of COFFED have the following profile: the president is 45 years old, the vice president is 43, and the average age of the executive members is 45. The average education level of these members is higher secondary. All the members have over ten years of experience with the cooperative federation.

4.1.1.9 Organization wise Extent of Contact

COFFED scores 0.66 on the Extent of contact scale, indicating a medium extent of engagement with various organizations. It maintains consistent

contact with the Department of Fisheries, Department of Cooperatives, primary cooperatives, and the FISHCOPFED. Additionally, COFFED occasionally interacts with district and regional cooperative federations, KVKs, and other state federations.

Table 4.3 Organization wise extent of contact of COFFED

Organizations	Unit Score
State Department of Fisheries	1.00
State Department of Cooperatives	1.00
Primary Cooperatives	1.00
FISHCOPFED	1.00
KVK	0.50
District Cooperative Federation	0.50
Regional Cooperative Federation	0.50
Other State Cooperative Federation	0.50
Fisheries Colleges	0.00
Mean Extent of Contact Score	0.66

4.1.1.10 Extent of Infrastructure Facilities

COFFED has a society office, meeting hall, water and electricity supply, toilet facilities, computer accessories, and fish transportation facilities. The scale score of 1 for infrastructure indicates a high level of availability.

Table 4.4 Extent of infrastructure facilities of COFFED

Infrastructure Facilities	Unit Score
Society Office	1
Meeting Hall	1
Water supply	1
Fish retail outlet	1
Electricity Supply	1
Computer related accessories	1
Fish transportation facilities	1
Toilet facilities	1
Mobile fish retail van	1
Mean Extent of Infrastructure Facilities	1

4.1.2 Profile of Regional Federation of Fisheries Cooperative

4.1.2.1 Bylaws of RFCS Federation

In Bihar, two regional fisheries cooperatives exist: the Patna Division Regional Fisheries Cooperative Federation Limited and Tirhut-Darbhanga Regional Fisheries Cooperative Federation Limited, established on Aug 10, 1983, and Aug 28, 1981, respectively, under the Bihar Cooperative Society Act 1935. These federations are set up to oversee and support primary cooperatives and district cooperative federations within a specific region, ensuring they are well-managed and accountable. Their functions include providing water bodies on lease, a market platform, storage facilities, and collective fish transport facilities for members of cooperatives, facilitating the distribution of inputs to members at nominal rates, and providing assistance.

4.1.2.2 Staff Positions in RFCS

In Bihar's RFCS, staff has yet to be appointed to manage and maintain cooperative activities.

4.1.2.3 Membership Status and Fee

The Patna Regional Cooperative Federation has membership of one district federation (Patna district federation) and 74 primary fisheries cooperatives,

which include cooperatives from 6 districts under the Patna division, which are Patna, Nalanda, Bhojpur, Buxer, and Rohtas. Whereas Tirhut -Darbhanga Regional Fisheries Cooperative Federation has a membership of two district federations (Muzaffarpur and Darbhanga district federation) and 83 primary fisheries cooperative societies from 9 districts, which are Darbhanga, Samastipur, Madhubani, Muzaffarpur, east and west Champaran, Sheohar, Sitamarhi, and Vaishali. To become a member of these federations, cooperatives must pay a fee of 125 rupees. In both regional fisheries cooperatives, ad hoc bodies are currently in place instead of elected executive bodies because elections have not been conducted for the past five years. In an ad hoc body, there are 15 members. Operating under an ad hoc body leads to challenges, such as reduced member engagement and decision-making processes compared to an elected executive body.

Table 4.5 Membership status of RFCS

Members	Ad hoc Body	General Body
Male	28 (93.00%)	30054 (93.00%)
Female	2 (7.00%)	2300 (7.00%)
Total	30 (100%)	32354 (100%)

4.1.2.4 Authorized Share Capital, Paid-up Share Capital, and Number of Shares

The authorized share capital of both RFCS is ₹ 60 lakh made of 6000 shares of ₹ 1,000 each. In the Tirhut RFCS, the total paid-up share capital amounts to ₹ 1,05,000, representing a total of 105 shares that the members have paid. whereas, the Patna RFCS has a total paid-up share capital of only ₹ 74,000, corresponding to 74 shares that have been paid by its members. There is no share of government and other organizations. Overall, it indicates that both RFCs have not fully capitalized on their ability to raise funds through share issuance.

4.1.2.5 Audit Grade of Society

There has been no audit conducted for 5 years in both RFCS. The five-year absence of audits in both RFCS raises a number of problems. It indicates a lack

of financial transparency, making it difficult to verify the accuracy of financial records or identify any potential mismanagement.

4.1.2.6 Society Meeting Pattern

Both the Regional cooperative federation hold their meetings at the community hall. The attendance rate for these meetings ranges from 50% to 75%. Ad hoc body meetings are held half-yearly, and general body meetings are held yearly. The meeting generally started after 11 a.m.

4.1.2.7 Profile of Executive Body Members

Table 4.6 Profile of executive body members of RFCS

Profile Variables	Categories	President (n=2)	Vice President (n=2)	Members (n=11)
Age	Below 35 years	0	0	0 (0.00%).
	35-50 years	2	1	7 (64.00%)
	Above 50 years	0	1	4 (36.00%)
Education	Primary school	0	0	5 (46.00%)
	Middle school	0	2	3 (27.00%)
	Higher secondary	0	0	3 (27.00%)
	Graduation	2	0	0 (0.00%)
Membership Experience	Above 10 years	2	2	6 (54.00%)
	5 -10 years	0	0	5 (46.00%)
Major occupation	Fisheries +Marketing	1	2	4 (36.00%)
	Fisheries + Marketing + Agriculture	1	0	2 (18.00%)
	Only fish culture		0	2 (18.00%)
	Only fish marketing		0	3 (28.00%)

In both federations, the presidents are between 35 and 50 years old. The vice presidents vary in age: one is between 35 and 50, and the other is over 50. The rest of the 70% ad hoc body is between 35 and 50 years old, and 30% are

above 50 years old, none of the members are under 35, highlighting the importance of experience and field knowledge in this field. The education level of the president is graduation, and that of the vice president is middle school; 46% of members have a primary school, and 54% of members have education ranging from middle school to higher secondary school, emphasizing that educational qualifications are valued in these roles. The work experience with the cooperative federation of the president, vice president, and other 54% members is over 10 years, and 46% of members have between 5 and 10 years. The members' occupations are fish culture and marketing of fish and agriculture, which are secondary occupations.

4.1.2.8 Extent of Contact with Other Organizations

The RFCS in Bihar has a medium level of contact with the primary cooperatives, district federations, other regional federations, state federations, and FISHCOPFED. However, RFCS has no contact with KVKs, fisheries colleges, NGOs, and other organizations. The overall extent of contact scale for RFCS shows a score of 0.44 among the given organizations, which highlights the need for RFCS to build stronger and more diverse networks to enhance their operational capabilities, access to resources, and overall impact.

Table 4.7 Extent of contact with other organizations of RFCS

Organizations	Unit Score
State department of Fisheries	1.00
Department of Cooperatives	0.50
Primary Cooperatives	0.50
District Cooperative Federation	0.50
Regional Cooperative Federation	0.50
State Cooperatives Federation	0.50
FISHCOPFED	0.50
Fisheries Colleges	0.00
KVK	0.00
Mean Extent of Contact Score	0.44

4.1.2.9 Extent of Infrastructure Facilities

The Patna RFCS is equipped with a meeting hall, society office, water facilities, electricity, and toilet facilities. In contrast, the Tirhut RFCS lacks these amenities. However, both RFCS have transportation vehicles. But both the society does not have a fish retail outlet or a mobile fish retail van. The overall score for infrastructure facilities in the RFCS is 0.38, indicating low-level infrastructure facilities. The inadequate infrastructure, especially the lack of retail outlets, combined with the gaps in basic facilities, negatively affects operational efficiency, market reach, member engagement, and the long-term growth potential of RFCS.

Table 4.8 Extent of infrastructure facilities of RFCS

Infrastructure Facilities	Unit Score
Fish transportation facilities	1.00
Society Office	0.50
Meeting Hall	0.50
Water supply	0.50
Electricity Supply	0.50
Toilet facilities	0.50
fish retail outlet	0.00
mobile fish retail van	0.00
Computer related accessories	0.00
Mean Extent of infrastructure facilities	0.38

4.1.3 Profile of District Federation of Fisheries Cooperative

4.1.3.1 Bylaws of Selected District Fisheries Federation

In Bihar, five district federations exist. Three district federations were selected for study one Patna Matsya Vikas and Kray-Vikray Sangh Limited district federations come under Patna RFCS and Darbhanga Matsyajivi Swalambi Sahkari Samiti and Samastipur Jankalyan Kendriya Matsyajivi Swalambi Sahkari Samiti district federations come under Tirhut –Darbhanga RFCS. The Patna Federation was established in 1969 under the Bihar Society Act of 1935, while the Samastipur and Darbhanga Matsyajivi societies were formed in 1998 and 2009, respectively, under

the Bihar Cooperative Society Act of 1996. These federations are set up to oversee and support primary cooperatives, ensuring they are well-managed and accountable. Their functions include coordinating between primary cooperatives and regional and state federations, providing a market platform and collective fish transport facilities for member cooperatives, and facilitating the distribution of inputs to members at nominal rates along with providing assistance.

4.1.3.2 Staff Positions in Selected DFCSs

In the selected District Fisheries Cooperative Societies of Bihar, each federation employs 3 temporary staff to manage and maintain cooperative activities.

4.1.3.3 Membership Status and Fee

The Patna Federation has a total of 20 primary cooperatives. The Samastipur federation consists of 13 primary cooperative societies, while the Darbhanga federation has 11 primary cooperative societies. Unlike the Patna district federation, no elections have been held for the Darbhanga and Samastipur district federations. As a result, both the Darbhanga and Samastipur federations are currently being managed by ad hoc bodies instead of elected executive bodies. To become a member of these district federations, primary cooperatives must pay a fee of 125 rupees.

Table 4.9 Membership status of selected DFCSs

Members	Executive Body	General Body
Male	33 (84.00%)	27012 (97.00%)
Female	6 (16.00%)	741 (3.00%)
Total	39 (100%)	27753 (100%)

4.1.3.4 Total Authorised Share Capital, Paid up share capital, No of shares and Working Capital

The authorized share capital of DFCSs is ₹ 60 lakh made of 6000 shares of ₹1,000 each. In the Patna DFCSs, the total paid-up share capital amounts to ₹ 21450, representing a total of 21 shares that have been paid by the members (₹11420) and govt. (₹ 10000) whereas, the Samastipur DFCSs has a total paid-up share capital of ₹13000, corresponding to 13 shares that have been paid by its members and Darbhanga DFCSs has total paid-up capital ₹ 9000, representing a total

of 9 shares that have been paid by its members. Overall, DFCSs have not fully capitalized on their ability to raise funds through share issuance.

Table 4.10 Total paid up share capital and no of shares of DFCSs

Shares from	Paid up share capital (in ₹)	No of share
Patna DFCS	21450	21
Darbhanga DFCS	9000	9
Samastipur DFCS	13000	13

4.1.3.5 Audit Grade of Society

The Patna District Federation has been assigned an audit grade of “C”, which indicates poor financial management, operational inefficiency, or regulatory non-compliance in rest, two district federation audits have not been done for 4 years, indicating a lack of financial transparency, making it difficult to verify the accuracy of financial records or identify any potential mismanagement or fraud.

4.1.3.6 Society Meeting Pattern

Patna district federation holds their meeting in the society office, and Darbhanga and Samastipur, both District Federations (DFCSs), hold their meetings at the community hall. The attendance rate for these meetings ranges from 75% to 100%. Executive body meetings are held half-yearly, while general body meetings are held annually. The meetings typically start at 12 p.m.

4.1.3.7 Profile of Executive Body Members

All three federations and vice presidents are between 35 and 50 years old. The rest of the 82% of executive body members are also between 35 and 50 years old, 15% are above 50 years old, and 3% of the members are under 35, highlighting the importance of experience and field knowledge in this field. The education level of the president and the vice president is from middle school to higher secondary; the other 36% of members have primary school, 39% have middle school, and 18% have higher secondary school, emphasizing that educational qualifications are valued in these roles. The work experience with the cooperative federation of the president, vice president, and other 66% members is over 10 years, and 34% of members have between 5 and 10 years. Occupations of the members

are the fish culture and marketing of the fish and agriculture as a secondary occupation.

Table 4.11 Profile of executive body members of DFCSs

Profile Variables	Categories	President (n=3)	Vice President (n=3)	Members (n=33)
Age	Below 35 years	0	0	1 (3.00%)
	35-50 years	3	3	27 (82.00%)
	Above 50 years	0	0	5 (15.00%)
Education	Primary school	0	0	12 (36.00%)
	Middle school	2	2	13 (39.00%)
	Higher secondary	1	1	6 (18.00%)
	Graduation	0	0	2 (6.00%)
Membership Experience	Above 10 years	3	2	22 (66.00%)
	5 -10 years	0	1	11(34.00%)
Major occupation	Fisheries +Marketing	1	1	4 (12.00%)
	Fisheries + Marketing + Agriculture	0	0	19 (57.00%)
	Only fish culture	0	0	8 (24.00%)
	Only fish marketing	2	2	2 (6.00%)

4.1.3.8 Extent of Contact with Other Organizations

The DFCSs in Bihar has a high level of contact with the PFCS and the Department of Fisheries and a medium level of contact with other district federations, regional federations, state federations, and FISHCOPFED. However, DFCSs has no contact with KVKs, fisheries colleges, NGOs, and other organizations. The overall extent of the contact scale for DFCSs shows a score of 0.5 among the given organizations, highlighting the need for DFCSs to build more robust and more diverse networks to enhance their operational capabilities, access to resources, and overall impact.

Table 4.12 Extent of contact with other organizations of DFCSs

Organizations	Unit Score
District department of Fisheries	1.00
Primary Cooperatives	1.00
District department of Cooperatives	0.50
Other district Cooperative Federation	0.50
Regional Cooperative Federation	0.50
State Cooperatives Federation	0.50
FISHCOPFED	0.50
Fisheries Colleges	0.00
KVK	0.00
Mean Extent of Contact Score	0.50

4.1.3.9 Extent of Infrastructure Facilities of DFCSs

The Patna DFCS has a meeting hall, society office, water, electricity, and toilet facilities. In contrast, the Darbhanga and Samastipur DFCS lacks these amenities. However, all DFCS have vehicles and fish retail outlets. The overall score for infrastructure facilities is 0.40, indicating low-level infrastructure facilities. The inadequate infrastructure, negatively affects operational efficiency, market reach, members engagement, and the long-term growth potential of DFCS.

Table 4.13 Extent of infrastructure facilities of DFCSs

Infrastructure Facilities	Unit Score
Fish transportation facilities	1.00
Fish retail outlet	1.00
Society Office	0.33
Meeting Hall	0.33
Water supply	0.33
Electricity Supply	0.33
Toilet facilities	0.33
Mobile fish retail van	0.00
Computer related accessories	0.00
Mean Extent of Infrastructure Facilities Score	0.40

4.1.4 Profile of Selected PFCSs

4.1.4.1 Bylaws of Selected PFCSs

In Bihar, Primary Fisheries Cooperative Societies (PFCSs) are registered under the Bihar Cooperative Societies Act of 1935 and 1996. A study was conducted on 30 PFCSs selected from the district federations of Patna, Samastipur, and Darbhanga. These societies function according to bylaws established under the 1935 act, approved by the Registrar of Cooperatives. Each society comprises two types of board members: the Executive Body and the General Body. The Executive Body, consisting of thirteen boards of directors including the president and secretary, is elected every five years through cooperative elections. Separate elections are held for the positions of secretary and chairman of the cooperatives.

To be a member of a cooperative society, individuals must be involved in fishing communities or fisheries-related activities and be over 18 years old. The primary source of capital for these societies is revenue generated from the auctioning of water bodies. These water bodies could be Chaur, Maun, Reservoirs, Ponds, or sections of rivers where fishing is permitted. The societies act as agents to deliver schemes and subsidies from the central and state governments to the fishermen. This means that any schemes, subsidies or assistance from central and state governments, such as loans, grants for equipment, or insurance schemes, are distributed to the fishermen through the cooperatives. The income and capital of the society are deposited in banks as fixed deposits.

4.1.4.2 Society Registration Status

In Bihar, there were two types of society: one comes under the Bihar cooperative society act 1935, and another one is the Bihar self-supporting cooperative society act 1996. In 2010, both societies were amalgamated and run under the Cooperative Societies Act 1935 to encourage cooperative formation under a unified legal framework. Here, 17% of societies registered before 2010 and 83% of societies registered after 2010.

Table 4.14 Registration status of selected PFCSs

Average year of registration	Frequency (n=30)
Before 2010	5 (17.00%)
After 2010	25 (83.00%)

4.1.4.3 Staff Positions in Selected PFCSs

PFCS has neither permanent nor temporary staff positions in place. This might be affecting the routine activities of cooperative societies. Without dedicated personnel, key tasks such as management, record-keeping, and service delivery may be neglected or poorly executed. The essential staff positions need to be filled to improve the functioning and governance quality of fisheries cooperative societies. Having the right personnel in place would enhance the overall functioning, ensuring better coordination, accountability, and sustainable growth within the cooperative societies.

4.1.4.4 Membership Status and Fee

In the PFCS, the total number of members across the selected societies is 33755 who are formally registered as members across the selected cooperative societies, and the total active members are only 12988 (38%), who are attending meetings, voting, or using services provided by the cooperative. Participation of men is higher in both the executive (59%) and general body (83%) compared to women. Participation is higher in the executive body (41%) compared to the general body (17%), showing that women face certain difficulties in participating in cooperative activities. The membership fee for PFCS is eleven rupees.

Table 4.15 Membership status of selected PFCSs

Members	Executive Body	General Body
Male	218 (59.07%)	27992 (82.92%)
Female	151 (40.92%)	5763 (17.07%)
Total	369 (100%)	33755 (100%)

4.1.4.5 Total Share Capital, Number of Shares, Paid-up Capital, and Working Capital

The study reported that the authorised share capital varies between ₹50000 to 100000, made of 5000 and 10000 shares of ₹10 each. The price of each share is ₹10, and a member can purchase up to a maximum of 1/10th of the paid-up share capital. The majority, 23 societies (77%), have an authorized share capital of ₹ 50,000.

Table 4.16 Total authorised share capital of selected PFCSs

Total Authorised share capital (₹)	Frequency (n=30)
100000	4 (13.00%)
55000	3 (10.00%)
50000	23 (77.00%)

Paid-up capital refers to the total amount of money that shareholders have actually paid for their shares. 19 societies (63%) have a paid-up capital of less than ₹ 13,000, meaning most of these societies have small investments. These societies operate on small investments and limited financial resources, which may restrict their capacity for growth and expansion, and only 7 societies (23%) have a paid-up capital between ₹ 26,000 and ₹ 39,000, indicating a higher investment compared to the others. Working capital is the amount of money available for day-to-day operations. 16 societies (53%) have less than ₹ 150,000 in working capital, meaning the majority have a smaller financial capacity for operational needs, which may restrict their ability to manage regular activities effectively.

Table 4.17 Total paid-up capital and working capital of selected PFCSs

Total Paid up capital (in ₹)	Frequency (n=30)	Working Capital (in ₹)	Frequency (n=30)
<13000	19 (63.00%)	<150000	16 (53.00%)
13000 – 26000	4 (14.00%)	150000-300000	2 (7.00%)
26000 – 39000	7(23.00%)	300000-450000	3 (10.00%)
		>450000	9 (30.00%)

4.1.4.6 Net Profit of the Societies

Societies are grouped based on the amount of net profit they have earned. Net profit is the total earnings after all expenses are deducted. **14 societies (47%)** earned a **net profit of less than ₹ 20,000**, in one year meaning almost half of the societies have relatively low profits, which may limit their ability to reinvest or grow.

Table 4.18 Net profit of the selected PFCSS

Net profit (in ₹)	Frequency (n=30)
<20000	14 (47.00%)
20000-40000	2 (7.00%)
40000-60000	2 (7.00%)
>60000	5 (16.00%)
No profit	7(23.00%)

4.1.4.7 Audit Grade of Selected PFCSS

All the societies achieved audit grade "C". None of the cooperative societies had "A" and "B" grade which demonstrates that the PFCSS need to improve their record maintenance for improving their governance quality.

4.1.4.8 Society Meeting Pattern

The majority of PFCSS hold executive body meetings quarterly (57%) and general body meetings annually (86.6%). Attendance is notably higher in executive body meetings, with an 83% participation rate, compared to 53% for general body meetings. Most executive body meetings (53%) are scheduled in the morning after 10 a.m., while general body meetings (75.61%) typically occur in the afternoon.

Regarding meeting locations, executive body meetings are most often held at the secretary's home (50%), followed by the society office (27%) and the Panchayat Bhawan (7%). In contrast, general body meetings are primarily conducted at the Panchayat Bhawan (37%) or the society office (27%).

Table 4.19 Society meeting pattern of selected PFCSS

Society Meeting Pattern (n=30)	Categories	Executive Body	General Body
Frequency	Quarterly	17 (57.00%)	0 (0.00%)
	Every 6 month	13 (43.00%)	4 (13.00%)
	yearly	0 (0.00%)	26 (87.00%)
Attendance	25-50%	0 (0.00%)	17 (57.00%)
	50-75%	5 (17.00%)	13 (43.00%)
	75-100%	25 (83.00%)	0 (0.00%)
Time session	Morning (after 10 am)	16(53.00%)	3 (10.00%)
	Afternoon	14(47.00%)	18 (60.00%)
	Evening	0 (0.00%)	9 (30.00%)
Places	Society office	8 (27.00%)	8 (27.00%)
	Secretary home	15 (50.00%)	6 (20.00%)
	Panchayat Bhawan	7 (23.00%)	16 (53.00%)

4.1.4.9 Profile of Executive Body Members

Among the chairpersons of societies, 53.33% were middle aged followed by old aged (40%) and young aged (6.60%). In the case of secretaries of the societies, 53.33% were old-aged, followed by middle-aged (43.33%) and young-aged (3.33%). In the case of members, 41% were old aged, followed by middle-aged (50%) and young-aged (9.33%). Regarding education, the chairpersons exhibit a distribution of 33.33% with illiterate, 16.66% with primary school, 10% with middle school, 20% with higher secondary school education, and 20% with graduation. For secretary, 20% had illiterate, 23.33% had primary school education, followed by 10% with middle school, 20% with higher secondary school education, and 26.66% with graduation. The executive body members were distributed as 4% illiterate, 20% with primary school education, 28% with middle school, 32% with higher secondary school level, 4% with graduation, and 4% illiterate. Overall, the study highlights that most leadership positions are occupied by middle-aged and older individuals with a broad range of educational backgrounds. This is especially notable among

chairpersons and secretaries, where both illiteracy and higher education are common.

Table 4.20 Represents profile of executive body members of selected PFCs

Profile Variables	Categories	Chairman (n=30)	Secretary (n=30)	Members (n=330)
Average Age	Below 35 years	2 (6.60%)	1 (3.33%)	38 (12.00%)
	35-50 years	16 (53.33%)	13 (43.33%)	180 (54.00%)
	Above 50 years	12 (40.00%)	16 (53.33%)	112 (34.00%)
Average Literacy level	Illiterate	10 (33.33%)	6 (20.00%)	34 (10.00%)
	Primary school	5 (16.66%)	7 (23.33%)	68 (21.00%)
	Middle school	3 (10.00%)	3 (10.00%)	95 (29.00%)
	Higher secondary	6 (20.00%)	6 (20.00%)	118 (36.00%)
	Graduation	6 (20.00%)	8 (26.66%)	15 (4.00%)
Average Membership Experience	< 5 years	13 (43.33%)	5 (16.66%)	70 (21.00%)
	5 to 10 years	6 (20.00%)	9 (30.00%)	146 (44.00%)
	Above 10 years	11 (36.66%)	16 (53.33%)	114 (35.00%)
Major occupation	Fisheries	8 (26.66%)	9 (30.00%)	60 (18.00%)
	Fisheries+ Marketing	2 (6.66%)	1 (3.33%)	8 (3.00%)
	Fisheries+ Agriculture	14 (46.66%)	16 (53.33%)	164 (49.00%)
	Fisheries+ Makhana	6 (20.00%)	4 (13.33%)	38 (12.00%)
	Fisheries + Labourer	0(0.00%)	0 (0.00%)	60 (18.00%)

In terms of membership experience, 43.33% of chairpersons had membership experience of less than 5 years, followed by 36.66% with more than 10 years of membership experience and 5-10 year experience of 20%. The majority (53.33%) of secretaries had membership experience of more than 10 years, followed by 30% had less than 5 years of membership experience. The majority (44%) of executive body members had membership experience of 5-10 years, followed by 34.66% having more than 10 years of membership experience. The primary occupation of 46.66% of chairpersons was fisheries and agriculture. Similarly, 53.33% of secretaries were solely involved in fishing, followed by fishing +

agriculture (26.82%). The executive body members were engaged in fishing + agriculture (49.33%), in fisheries (21%), in fishing + labourer (18%), and (11.33%) fisheries + Makhana. The findings reflect an equal number of years of experience among the organization's leaders, with individuals with greater expertise often holding crucial positions such as secretaries. Occupation-wise, most leaders are heavily involved in fishing, agriculture, or a combination of the two, highlighting their connection to the core economic activities of the cooperative's community.

The study focuses on the differences between the Executive Body and the General Body of the cooperative. Firstly, the members of the Executive Body are generally younger, with an average age of 45, while the General Body members are older, averaging 55 years. In terms of education, Executive Body members demonstrate a higher literacy level, typically having completed middle to higher secondary education. In contrast, General Body members generally have lower literacy levels, ranging from primary to middle education. Training also plays a significant role in differentiating the two groups. Some Executive Body members have undergone training, which likely equips them with specific skills and knowledge relevant to their roles. In contrast, none of the general body members have received formal training. When it comes to membership experience, Executive Body members typically have between 5 to 10 years of experience, while General Body members boast over 10 years of experience. Despite these differences, both groups share a common focus on fishing and agriculture as their primary occupations.

Table 4.21 Profile summary of executive and general body members

Profile Variables	Executive Body (n= 78)	General Body (n= 95)
Average Age	45 years	55 years
Average Literacy level	Middle – higher secondary	Primary - Middle
Average training Status	75% trained	No training
Average Membership Experience	5-10 years	Above 10 years
Major Occupation	Fishing and Agriculture	Fishing and Agriculture

4.1.4.10 Extent of Contact of PFCs with Other Organizations

The findings reveal that the majority (83.33%) of PFCs had a low extent of contact with other organizations. This indicates that these cooperative societies had limited convergence or collaborations with external entities, which could limit their access to resources, best practices, and support from other entities. Around 16.67% of cooperative societies indicated a medium extent of contact with other organizations, indicating that while some interaction exists, it is not widespread. Notably, none of the cooperative societies reported a high extent of contact with other organizations.

Table 4.22 Distribution of PFCs based on extent of contact

Extent of Contact	Frequency (n=30)	Percentage
Low (<0.55)	25	83.33%
Medium (0.55-0.70)	5	16.67%
High (>0.70)	0	0.00%

Study reported that The Department of Fisheries had the highest unit score of 1, indicating a relatively strong level of contact with cooperative societies. The State Cooperative Federation secured scores of 0.55 and other primary cooperative secured 0.48. Regional cooperative, district cooperative federation and KVK score 0.133, 0.23 and 0.05 respectively showing very less contact. Overall score 0.42, indicating low level extent of contact with other organizations. This low level of contact signifies that these societies may face challenges in accessing crucial resources, technical assistance, and collaborative opportunities that can enhance their operations and sustainability. Limited contact can lead to missed opportunities for knowledge exchange, financial support, and innovation, which are essential for the growth and resilience of cooperative societies.

Table 4.23 Organization wise extent of contact of selected PFCSs

Organizations	Unit score
District Department of Fisheries	1.00
State Cooperative Federation	0.55
Department of Cooperatives	0.50
Other Primary cooperative	0.48
District Cooperative Federation	0.23
Regional Cooperative	0.13
Krishi Vigyan Kendra	0.05
Mean Extent of Contact Score	0.42

4.1.4.11 Extent of Infrastructure Facilities

The findings indicate that 80% of Primary Fisheries Cooperative Societies (PFCSs) have a low extent of infrastructure facilities. This indicates that most of these societies lack the necessary resources and infrastructure to operate efficiently. Only 20% of the PFCSs reported a medium extent of infrastructure facilities, indicating that while some have better resources, it is still a minority. Improving infrastructure is crucial for enhancing their functionality and growth.

Table 4.24 Distribution of PFCSs based on extent of infrastructure facilities

Extent of Infrastructure Facilities	Frequency (n=30)	Percentage
Low (<0.55)	24	80.00%
Medium (0.55-0.70)	6	20.00%
High (>0.70)	0	0.00%

The study reported the unit scores for infrastructure facilities are as follows: society office (0.33), meeting hall (0.33), water supply (0.33), electricity supply (0.26), toilet facilities and fish transportation facilities (0.2) and computer-related accessories (0.06). Overall score 0.42, indicating low infrastructure facilities available in PFCSs.

Table 4.25 Infrastructure wise unit score of selected PFCSs

Infrastructure Facilities	Unit scores
Society Office	0.33
Meeting Hall	0.33
Water supply	0.33
Electricity Supply	0.26
Toilet facilities	0.20
Fish transportation facilities	0.20
Computer related accessories	0.06
Mean Extent of infrastructure facilities	0.24

4.1.4.12 Extent of Welfare & Income Generating Activities

Most of the societies do not engage in income-generating activities such as aquarium keeping, cage culture, or fishing accessory shops. Only a few societies (10%) have fish retail shops. Most of the societies (90%) generate income from auctioning of the water bodies getting 25% of the revenue of water bodies. As a result, most of the societies do not realize significant profit from these activities. This reliance on a single income source indicates limited diversification in revenue-generating activities, which may restrict their financial stability and growth potential. Enhancing engagement in various income-generating initiatives could provide these societies with more sustainable revenue streams and improve their overall economic resilience.

The data reveals that the various welfare programs for fishers in Bihar, only 26.66% of societies benefiting from both the Mukyamantari Kit Vipannan Yojana, which provides subsidies for two-wheeler or three-wheeler vehicles, and the Input Yojana, which offers subsidies on fish seed and feed. Only 10% of societies are involved in the Rahat Bachat Yojana, which provides relief funds to active fishers during the fishing ban period from 15th June to 15th August in rivers. Additionally, just 6.66% of societies benefit from the Chaur Vikas Yojana, focused on wetland development. Notably, 30% of the societies do not benefit from any welfare programs, highlighting a significant gap in the reach and impact of these initiatives.

Table 4.26 Extent of welfare & income generating activities

Income generating activity	Frequency (n=30)	Percentage
Revenue from auction of water bodies	27	90.00%
Fish retail shop	10	10.00%
Welfare		
Mukyamantari Kit Vipannan Yojana	8	26.66%
Input Yojana	8	26.66%
Rahat bachat Yojana	3	10.00%
Chaur vikas Yojana	2	6.66%
Non beneficial societies	9	30.00%

4.1.4.13 Extent of Women Empowerment

The results indicated that the majority (**56.66%**) of Primary Fisheries Cooperative Societies (PFCSs) exhibited a low extent of women's empowerment, reflecting limited involvement and influence of women within the societies, followed by 43.33% with a medium extent of women's empowerment.

Table 4.27 Distribution of PFCSs based on extent of women empowerment

Extent of Women Empowerment	Frequency	Percentage
Low (<0.55)	17	56.66
Medium (0.55-0.70)	13	43.33
High (>0.70)	0	0.00

Table 4.28 represents a set of indicators measuring the extent of women empowerment within cooperative societies. "Women members are allowed to speak during meeting," with a unit score of 0.58 and "Women members get equal opportunities and benefit sharing" with unit score of 0.53 demonstrated the medium extent of women empowerment.

Table 4.28 Indicator wise unit score of women empowerment of PFCSS

Women Empowerment Indicators	Unit score
Women have access to cooperative federation resources and assets	0.46
Women members are allowed to speak during meeting	0.58
Women have equal say in all the cooperative decisions	0.16
Women members are given preference to attend skill development trainings	0.46
Cooperative federation meetings are held at women friendly time and place	0.41
Women members get equal opportunities and benefit sharing	0.53
Mean Women Empowerment Index Score	0.43

4.2 STATUS OF EXISTING FISHERIES RESOURCES WITH PFCSS

The table below illustrates the fishery resource utilization pattern. Water bodies are leased by the state government under the Department of Fisheries through cooperative leases. These leases typically last for 5 years, allowing societies to utilize water bodies and existing fisheries resources through culture and capture fisheries. Among the leases, approximately 10 societies pay less than 1 lakh per annum, 5 societies pay between 5-10 lakhs, and 6 societies pay more than 10 lakhs annually. In terms of area, 19 cooperatives lease water bodies of less than 100 hectares, 8 societies lease areas between 100-500 hectares, and 3 societies lease water bodies greater than 500 hectares. The majority (77%) of the cooperative societies practice semi-intensive fish culture, while 23% engage in extensive/traditional fish culture. Notably, none of the cooperative societies have adopted intensive fish culture methods.

Table 4.29 Fisheries resources of selected PFCSs

Fishery Resource Variables	Categories	Frequency (%)
Lease Amount (in lakh)	<1	10 (33.00%)
	1 to 5	9 (30.00%)
	5 to 10	5 (17.00%)
	>10	6 (20.00%)
Area (ha)	<100	19 (64.00%)
	100-500	8 (26.00%)
	>500	3 (10.00%)
Type of fish culture	Extensive	7 (23.00%)
	Semi intensive	23 (77.00%)
Source of fish seed	Private hatchery	30 (100%)

All the cooperative societies source their fish seed from private hatcheries, with none receiving seeds from government hatcheries. During the survey, it was observed that all the fishermen's cooperatives utilize similar types of craft and gear for fishing activities, predominantly using cast nets and drag nets for fish harvesting. The majority of cooperatives use plank-built boats for fishing in rivers and wetland areas. Additionally, all the cooperative-managed water bodies reported that Indian Major Carps (IMC) are the primary cultured species, followed by Grass carp, Silver carp, Mangur, and Pangasius.

4.3 GOVERNANCE ASSESSMENT OF MULTI-LEVEL FISHERIES COOPERATIVES

4.3.1 Dimension wise Mean Governance Index score at State Apex Federation

The study shows that COFFED achieved a Fisheries Cooperative Governance Quality Index (FCGQI) score of 0.71, indicating high governance practices. A high score of 0.80 for democratic control reflects active member participation and influence in decision-making. Leadership and teaming are both scored at 0.70, indicating good performance, though there is still room for improvement. The 0.62 score for convergence and linkage highlights a moderate level of partnerships, suggesting the need for further enhancement to achieve better integration into broader networks.

Table 4.30 Dimension wise mean governance index score of COFFED

Dimensions	Index score
Democratic Control	0.80
Accountable Empowerment	0.75
Leadership	0.70
Teaming	0.70
Convergence & Linkage	0.62
Overall Governance	0.71

4.3.2 Dimension wise Mean Governance Index Score at RFCS

Table 4.31 shows that the overall governance score of Tirhut-Darbhanga RFCS is 0.37, indicating a low level of governance, compared to Patna RFCS, which has a governance score of 0.51, reflecting a comparatively higher score. This difference is primarily attributed to the indicator-wise analysis, where the "Accountable Empowerment" variable for Patna RFCS shows a higher index score of 0.50, while Tirhut-Darbhanga RFCS has a lower score of 0.25. Leadership is also stronger in Patna RFCS, with a score of 0.40, compared to Tirhut-Darbhanga RFCS. Additionally, teaming and convergence & linkage scores are higher in Patna RFCS. Overall, Patna RFCS demonstrates stronger governance compared to Tirhut-Darbhanga RFCS.

Table 4.31 Dimension wise mean governance index score of RFCS

Dimensions	Patna RFCS	Tirhut-Darbhanga RFCS	Index score
Democratic Control	0.70	0.55	0.62
Accountable Empowerment	0.50	0.25	0.37
Leadership	0.40	0.30	0.35
Teaming	0.65	0.50	0.57
Convergence & Linkage	0.33	0.25	0.29
Overall Governance	0.51	0.37	0.44

4.3.3 Dimension wise Mean Governance Index Score at DFCSs

Table 4.32 shows that the overall governance score of Darbhanga DFCS is 0.38, indicating a low level of governance, compared to Samastipur DFCS (0.44) and Patna DFCS (0.56), which reflect higher governance levels. This difference is mainly due to the indicator-wise analysis, where the "Accountable Empowerment" variable for Patna DFCS shows a high index score of 0.65, compared to Darbhanga and Samastipur, both at 0.35. Leadership is also notably stronger in Patna DFCS (0.70) compared to Darbhanga (0.45) and Samastipur (0.65). Additionally, teaming and convergence & linkage scores are higher in Patna DFCS (0.40) compared to Darbhanga (0.30) and Samastipur (0.35). Overall, governance in Patna DFCS is stronger than in Samastipur and Darbhanga DFCS.

Table 4.32 Dimension wise mean governance index score of DFCSs

Dimensions	Patna DFCS	Darbhangha DFCS	Samastipur DFCS	Index score
Democratic Control	0.70	0.55	0.65	0.63
Accountable empowerment	0.65	0.35	0.35	0.45
Leadership	0.70	0.45	0.60	0.58
Teaming	0.40	0.30	0.35	0.35
Convergence & Linkage	0.37	0.25	0.29	0.29
Overall Governance	0.56	0.38	0.44	0.46

4.3.4 Dimension wise Mean Governance Index Score at PFCSs

Figure 4.1 provides an overview of the dimension-wise governance quality in PFCSs, focusing on democratic control, accountable empowerment, leadership, teaming, and convergence & linkage. In terms of democratic control, 46.6% of the societies demonstrated a low level of quality, with 36.66% exhibiting a medium level, and 16.66% displaying high-quality democratic control. Notably, only 7.32% had high democratic control quality. Regarding accountable empowerment, 70% of PFCSs had low accountability, while 16.66% showed medium accountability, and only 13.33% had high levels of accountable empowerment. Leadership was another area of concern, as 66.66% of PFCSs had low leadership quality, followed by 16.63% with medium, and 6.66% with high leadership quality. In terms of teaming, 63.33% of the societies displayed low teaming quality, while 20% had

medium teaming capabilities, and 13.33% demonstrated high teaming quality. For convergence and linkage, all PFCSs (100%) exhibited low levels of convergence & linkage with external organizations. The overall governance quality was found to be low in 77% of PFCSs followed, by 17% having medium overall governance quality and 6% of the societies had a high level of governance.

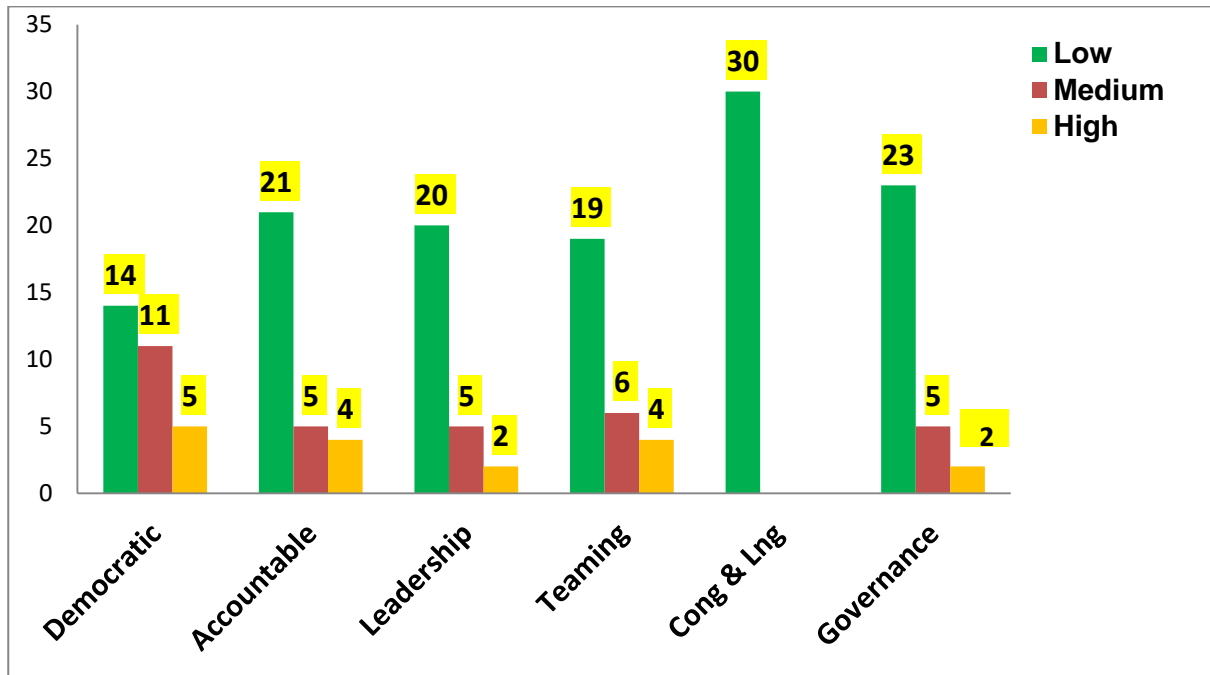


Fig. 4.1 The dimension wise extent of governance quality of selected PFCSs

Table 4.33 presents the mean governance index scores of cooperative societies across different dimensions perceived by executive body members. Overall, the majority of PFCSs demonstrate low governance quality, particularly in leadership and convergence & linkage. While some societies exhibit better democratic control and teaming, overall governance improvement is essential.

Table 4.33 Dimension wise mean governance index score of selected PFCSs

Dimensions	Executive body (Index score)
Democratic Control	0.65
Accountable empowerment	0.45
Leadership	0.44
Teaming	0.44
Convergence & Linkage	0.22
Governance	0.44

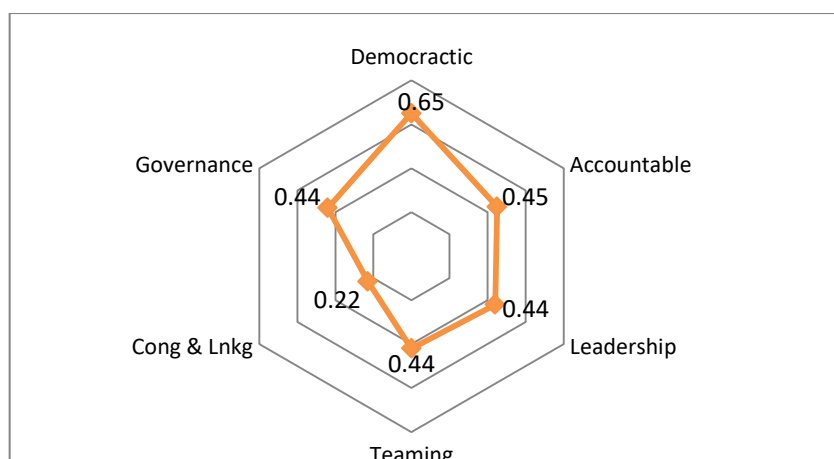


Fig. 4.2 Mean governance index score of selected PFCSs

Table 4.34 highlights the performance of cooperatives in terms of democratic control based on 10 different indicators. The highest scores are for “the election of executive members (1) and the practice of open membership (0.96)”, indicating strong performance in these areas. On the other hand, the lowest scores are for “rights and responsibilities of members being moderately defined (0.26)” and “the transparent registration procedure (0.36)”, reflecting weaker performance in these aspects. Overall, the dimension of democratic control in cooperatives has an index score of 0.65, indicating moderate performance.

Table 4.34 Indicator-wise mean unit index score of democratic control of selected PFCSs

Democratic Control	PFCSs
1. The organizational structure of the cooperative federation is well designed	0.45
2. The registration procedure is transparent and professionally managed	0.36
3. Membership is open to all active PFCS and district federation and voluntary	0.96
4. Members have equal right of voting and participating in the cooperative election	0.90
5. All the executive body members are elected	1.00
6. Regular conduct of executive/general body meetings	0.85
7. All the decisions happen in the presence of quorum of members	0.41
8. All rights and responsibilities of members are defined	0.26
9. Representation of youth, marginalized and vulnerable people in society	0.58
10. Free flow of information to each member without any discrimination	0.61
Mean democratic control	0.65

Table 4.35 highlights the performance of cooperatives in terms of Accountable Empowerment based on 10 different indicators. The highest scores are for “regular auditing practices and proper maintenance of records positively impact (0.75),” indicating strong performance in these areas. On the other hand, the lowest scores are for “The lack of regular skill assessments (0.00)” and the “absence of access to safety and social welfare services (0.00),” reflecting weaker performance in these aspects. Overall, the dimension of Accountable Empowerment in cooperatives has an index score of 0.45, indicating low performance.

Table 4.35 Indicator-wise mean unit index score of accountable Empowerment of selected PFCSs

Accountable Empowerment	PFCS
1. All the members are empowered to express their views/opinions	0.66
2. Delegation and distribution of authority among executive body members to hold them accountable	0.51
3. Regular assessment of member’s technical and functional skills	0.00
4. Performance benchmarking with other states’ federation and national federation.	0.08
5. Facilitating access to safety standards, healthcare, and social welfare services for members.	0.00
6. Following standard operating procedures for all the cooperative activities	0.36
7. Regular maintenance of record books & statutory registers	0.75
8. Cooperative performance & financial reports are published regularly	0.28
9. Financial & social audits of society happen at regular interval	0.76
10. A cooperative society is free from debt and non-performing assets	0.75
Mean Accountable Empowerment	0.45

Table 4.36 reveals that the mean leadership index score is 0.44, indicating a low leadership environment. The highest scores are for “leaders have good rapport building and networking skills (0.76),” indicating strong performance in these areas. On the other hand, the lowest scores are for “The leaders strive to diversify income generating activities (0.23),” reflecting weaker performance in these aspects.

Table 4.36 Indicator-wise mean unit index score of leadership of selected PFCSs

Leadership	PFCS
1. Leaders are educated, trained and responsible for their work	0.65
2. Leaders are actively listening the problems of member	0.68
3. Leaders have good rapport building and networking skills	0.76
4. Leaders demonstrate transparency and fairness in decision-making and financial matters	0.41
5. Leaders identify opportunities and develop strategies to capitalize on them	0.35
6. Leaders possess strategic thinking skills to address issues and challenges	0.28
7. Leaders handle timely grievances of members and ensure accountability	0.26
8. Leaders strive hard to diversify the services and income generating activities of federation	0.23
9. Leaders keep informing members about the federation functioning and welfare/subsidy schemes	0.51
10. Leaders rehabilitate defunct operations and promote cooperative start-ups	0.26
Mean Leadership	0.44

Table 4.37 reveals that the mean teaming index score is 0.44, indicating a low teaming environment. The highest scores are for “Members have group harmony (0.66) and mutual support and cooperation (0.68),” indicating the highest score in these areas. On the other hand, the lowest scores are for “Members are satisfied with the federation’s functional activities (0.00) and Federation shares financial and other benefits among all members (0.00)”, reflecting weaker performance in these aspects.

Table 4.37 Indicator-wise mean unit index score of teaming of selected PFCSs

Teaming	PFCS
1. The general body members and executive body members have group harmony	0.66
2. All the cooperative members stand together to resolve common issues	0.61
3. Members show mutual support and cooperation when a task is to be performed for the federation	0.68
4. Members have confidence on each other and trust among them all the cooperative members stand together to resolve common issues	0.46
5. Cooperative Federation members maintain political and religious neutrality	0.35
6. Cooperative federation members are committed to the society's welfare	0.51
7. Link with other Primary societies, district federations and other state federation and fostering collaboration	0.58
8. Members are satisfied with the federation's functional activities	0.00
9. Federation shares financial and other benefits among all members	0.00
10. Federation works in line with Primary and District level cooperative bodies/federations	0.36
Mean teaming	0.44

Table 4.38 highlights the performance of cooperatives in terms of convergence and linkages based on 10 different indicators. The highest scores are for “Cooperative federation collaborates with other federation/DoF/ DoC/ KVK/ other organizations to achieve common goals (0.53),” indicating strong performance in these areas. On the other hand, the lowest scores are for “Cooperative federation conducts training programmes in association with research institutes, DoF, KVK, NGOs, etc. for technology transfer (0.00) and Officials/ project coordinators from State federation, DoF, KVK, NGOs, etc. visit the cooperative society regularly (0.00)” ,reflecting weaker performance in these aspects. Overall, the dimension of convergence and linkages in cooperatives has an index score of 0.41, indicating low performance.

Table 4.38 Indicator-wise mean unit index score of convergence & linkages of selected PFCSs

Convergence and Linkages	PFCS
1. Cooperative federation collaborates with other federation/DoF/ DoC/ KVK/ other organizations to achieve common goals.	0.53
2. Cooperative federation conduct training programmes in association with research institutes, DoF, KVK, NGOs, etc. for technology transfer.	0.00
3. Cooperative federation collaborate with DoF to ensure the effective resource management practices.	0.31
4. Cooperative federation provides input resources to member societies through other external organizations	0.26
5. Cooperative federation avail schemes/ subsidies through DoF/DoC.	0.41
6. Members convey suggestions and grievances at administrative level for policy implications.	0.28
7. Officials/ project coordinators from State federation, DoF, KVK, NGOs, etc. visits the cooperative society regularly.	0.00
8. Cooperative facilitates bi-directional communication among multi – level cooperatives.	0.25
9. Cooperative link with funding agencies (NABARD, NCD,DCB) for facilitating business activities.	0.13
10.Cooperative has tie up with Traders/Business Organisation for market linkage.	0.10
Mean Convergence and Linkages	0.22

Table 4.39 exhibit the correlation analysis between governance and profile attributes of cooperative societies. It indicates that Paid up share capital, infrastructure facilities, Women empowerment, extent of contact with other organizations and Experience of executive body members were found positively correlated with cooperative governance quality.

Table 4.39 Correlation between governance and profile attributes of cooperatives

Profile Variables	“r” value
Age of executive body members	-0.52
Education of executive body members	0.53
Experience of executive body members	0.54
Training status of executive body members	0.68
Extent of contact with other organisations	0.38
Attendance percentage of meetings (GB)	0.39
Infrastructure facilities	0.36
Paid up share capital	0.16
Women empowerment	0.57

4.3.5 Cooperatives wise Governance Index (FCGQI) Score

Table 4.40 presents the ranking of selected PFCSs as per their governance quality unit index scores. Only two, Kewati Prakhand Matsyajivi Sahyog Samiti and Darbhanga Sadar Prakhand Matsyajivi Sahyog Samiti indicate, a high level of governance quality. There were 5 cooperative societies with a medium level of governance quality, and 23 cooperative societies had a low level of governance quality. The cooperative societies were ranked based on their governance quality index scores, allowing for an assessment of their relative performance in terms of governance.

Table 4.40 Ranking of selected PFCSs based on their governance index score

Rank	Name of PFCS	Index Score	Governance Quality
1	Kewati Prakhand Matsyajivi Sahyog Samiti	0.72	High
	Darbhanga Sadar Prakhand Matsyajivi Sahyog Samiti	0.71	
3	Manigachhi Prakhand Matsyajivi Sahyog Samiti	0.66	Medium
4	Mokama Prakhand Matsya jivi Sahyog Samiti	0.64	
5	Bibhutipur Prakhand Matsyajivi Sahyog Samiti	0.63	
6	Phulwarisharif Prakhand Matsyajivi Sahyog Samiti	0.61	
7	Shivajinagar Prakhand Matsyajivi Sahyog Samiti	0.56	

8	Punpun Prahand Matsyajivi Sahyog Samiti	0.52	Low
9	Pusa Prakhand Matsyajivi Sahyog Samiti	0.50	
	Danapur Prakhand Matsyajivi Sahyog Samiti		
10	Kusheshwar Prakhand Masyajivi Sahyog Samiti	0.49	
11	Bahadurpur Prakhand Matsyajivi Sahyog Samiti	0.44	
	Alinagar Prakhand Matsyajivi Sahyog Samiti		
12	Maner Prakhand Matsyajivi Sahyog Samiti	0.43	
13	Hanuman Nagar Prakhand Matsyajivi Sahyog Samiti	0.41	
14	Patna sadar Prakhand Matsyajivi Sahyog Samiti	0.37	
15	Biraul Prakhand Matsyajivi Sahyog samiti	0.35	
	Ghanshyampur Prakhand Matsyajivi Sahyog Samitti		
16	Khanpur Prakhand Matsyajivi Sahyog Samiti	0.34	
17	Morwa Prakhand Matsyajivi Sahyog Samiti	0.31	
18	Naubatpur Prakhand Matsyajivi Sahyog Samiti	0.30	
19	Pandarack Prakhand Matsyajivi Sahyog Samiti	0.29	
20	Dalsingh Saray Prahand Matsyajivi Sahyog Samiti	0.28	
21	Mohanpur Prakhand Matsyajivi sahyog Samiti	0.26	
22	Samastipur Prakhand Matsyajivi Sahyog samiti	0.25	
	Tajpur Prakhand Matsyajivi Sahyog Samiti		
23	Rosara Prakhand Matsyjivi Sahyog Samiti	0.22	
24	Singhawara Prakhand Matsyajivi Sahyog Samiti	0.21	
	Belchhi Prakhand Matsysjivi Sahyog Samiti		
25	Daniyawan Prakhand Matsyajivi Sahyog Samiti	0.18	

The table 4.41 summarizes governance quality index scores across multiple levels of cooperative societies—State, Regional (RFCS), District Fisheries Cooperative Societies (DFCS), and Primary Fisheries Cooperative Societies (PFCS). The study highlights that governance quality is higher at the state level (0.71) but lower at DFCS (0.46), RFCS (0.44), and PFCS (0.44), indicating a need for improvement in governance at these lower levels.

Table 4.41 Overall governance quality index score of multi-level fisheries cooperatives

Dimensions	State	RFCS	DFCS	PFCS
Democratic Control	0.80	0.62	0.63	0.65
Accountable empowerment	0.75	0.37	0.45	0.45
Leadership	0.70	0.35	0.58	0.44
Teaming	0.70	0.57	0.35	0.44
Convergence & Linkage	0.62	0.29	0.29	0.22
Governance	0.71	0.44	0.46	0.44

4.4 EASE OF DOING BUSINESS IN MULTI-LEVEL FISHERIES COOPERATIVES

4.4.1 Dimension wise Ease of Doing Business at State Apex

Table 4.42 illustrates the dimension-wise Ease of Doing Business (EoDB) index score for COFFED. COFFED scores highest in business infrastructure (0.87), indicating that the necessary physical and organizational structures, such as facilities, technology, and resources, are well-developed and supportive of business operations. It scores lowest in business governance (0.62), indicating challenges related to management, decision-making processes, transparency, or regulatory compliance that may need improvement. The overall Ease of Doing Business Index score for COFFED is 0.71, reflecting a high level of business performance. While there are certain areas for improvement, COFFED generally provides a favourable environment for conducting business efficiently and effectively.

Table 4.42 Dimension wise mean EoDB index score of COFFED

Dimensions	Index score
Business Human Capital	0.62
Business Infrastructure	0.87
Business Leadership	0.75
Business Governance	0.62
Overall EoDB	0.71

4.4.2 Dimension wise Mean Ease of Doing Business at RFCS

The table 4.43 provides an overview of the Ease of Doing Business (EoDB) index scores for two Regional Fisheries Cooperative Societies (RFCS), located in Patna and Tirhut-Darbhanga, across different business dimensions. In terms of business human capital, both RFCSs score equally at 0.37, indicating low development in workforce skills and capacity. When it comes to business infrastructure, Patna RFCS performs better with a score of 0.50, while Tirhut-Darbhanga lags behind at 0.25. However, in business governance, Patna RFCS scores higher at 0.50, indicating better governance practices, while Tirhut-Darbhanga scores lower at 0.30, reflecting weaker governance structures. The combined governance index score stands at 0.40, signaling lower performance in this area. For overall ease of doing business, Patna RFCS leads with a score of 0.46, compared to Tirhut-Darbhanga's 0.35. The overall EoDB index score is 0.41, indicating low business performance in these RFCSs.

Table 4.43 Dimension wise mean EoDB index score of RFCS

Dimensions	Patna RFCS	Tirhut-Darbhanga RFCS	Index score
Business Human Capital	0.37	0.37	0.37
Business Infrastructure	0.50	0.25	0.37
Business Leadership	0.50	0.50	0.50
Business Governance	0.50	0.30	0.40
Overall EoDB	0.46	0.35	0.41

4.4.3 Dimension wise Mean Ease of Doing Business at DFCSs

The table 4.44 provides an overview of the Ease of Doing Business (EoDB) index scores for three District Fisheries Cooperative Societies (DFCSs) located in Patna, Darbhanga, and Samastipur, evaluated across several key business dimensions. Patna DFCS leads with an EoDB score of 0.65, indicating a

favourable business environment. In comparison, Darbhanga DFCS scores 0.41, and Samastipur DFCS scores 0.40, resulting in an average EoDB score of 0.48 for the three societies. Overall, Patna DFCS consistently demonstrates comparatively higher performance across all evaluated dimensions, particularly in business human capital and infrastructure. In contrast, Darbhanga and Samastipur DFCSs exhibit lower scores, especially in infrastructure development, highlighting the need for targeted improvements to enhance the overall business environment in these regions.

Table 4.44 Dimension wise mean EoDB index score of DFCSs

Dimensions	Patna DFCS	Darbhanga DFCS	Samastipur DFCS	Mean score
Business Human Capital	0.62	0.50	0.50	0.54
Business Infrastructure	0.75	0.25	0.12	0.37
Business Leadership	0.75	0.50	0.50	0.58
Business Governance	0.50	0.40	0.50	0.46
Overall EoDB	0.65	0.41	0.40	0.48

4.4.4 Dimension-wise Mean Ease of Doing Business at PFCSs

Figure 4.3 highlight the majority of cooperatives face significant challenges across key business areas. In both Business Infrastructure and Business Leadership, 86.66% of cooperatives perform poorly, with only 13.33% showing moderate progress, indicating underdeveloped capabilities in both infrastructure and leadership. In the Business Governance dimension, 90% of cooperatives score low, reflecting serious governance issues, with only 10% reaching a medium level. Finally, in terms of the Ease of Doing Business, 87 % of cooperatives are in the low category, pointing to barriers in operational efficiency and regulatory challenges. The remaining 13% are in the medium range, but like other dimensions, none have achieved the highest level of performance. The results suggest that cooperatives are struggling with key operational and governance challenges, with most of them performing poorly across all dimensions. There is an urgent need for interventions to improve human capital, infrastructure, leadership, governance, and the overall ease of doing business for these organizations.

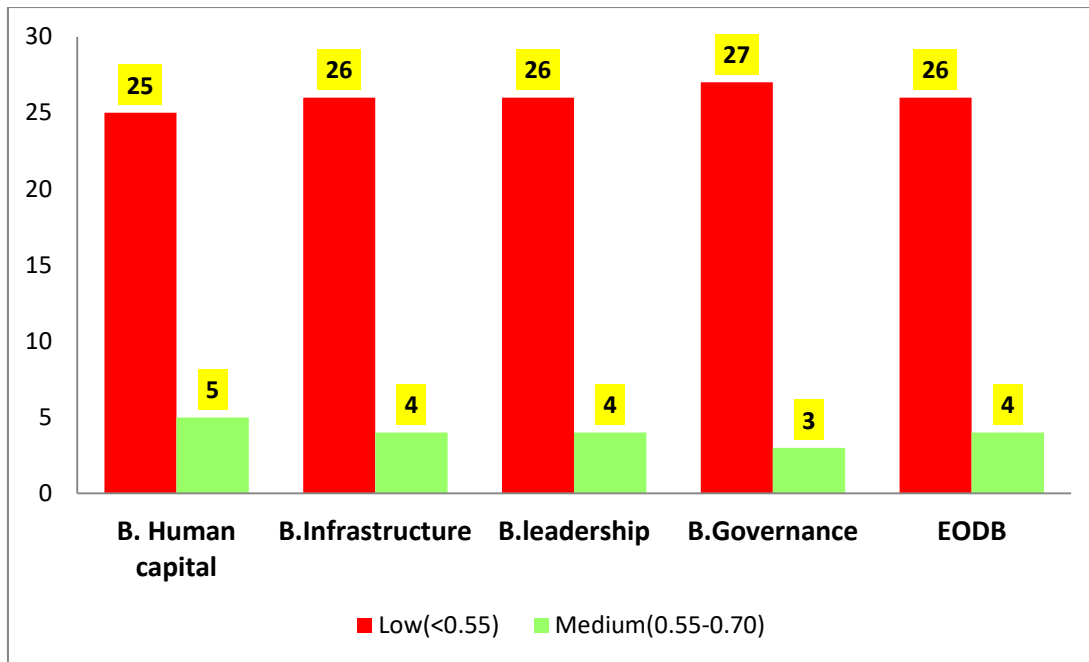


Fig. 4.3 Dimensions wise extent of ease of doing business in selected PFCSs

Table 4.45 presents the mean Ease of Doing Business index scores of cooperative societies across different dimensions perceived by executive body members. Overall, the majority of PFCSs demonstrate low EODB quality, particularly in Business Infrastructure, Business Governance and Business Leadership, overall EODB improvement is essential.

Table 4.45 Dimensions wise mean EoDB index score of selected PFCSs

Dimensions	Index score
Business Human Capital	0.41
Business Infrastructure	0.33
Business Leadership	0.37
Business Governance	0.38
Overall EoDB	0.37

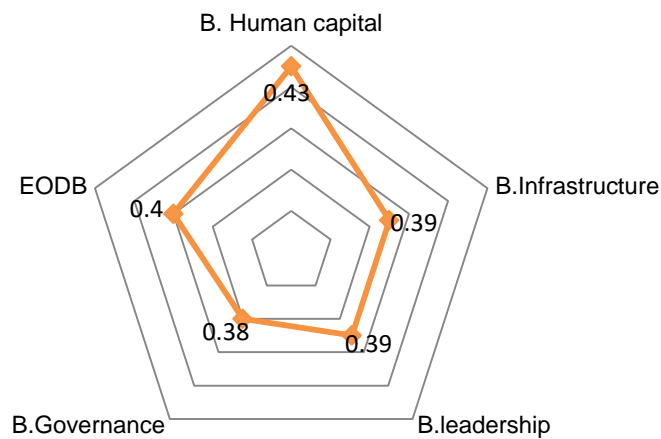


Fig. 4.4 Mean EoDB index score selected PFCSs

Table 4.46 reveals that the mean business human capital score is 0.41, indicating a low business human capital environment. This score indicates that there are significant challenges in nurturing the skills, knowledge, and capabilities of individuals involved in the business community. The highest scores are for “Society take initiative for socio economic well-being of members (0.68),”. On the other hand, the lowest scores are for “Society recognizes and rewards the members (0.26) and training need assessment (0.30),” reflecting weaker performance in these aspects. Furthermore, inadequate training can hinder the ability to provide relevant skill development opportunities, leaving members ill-equipped to meet the challenges of the business environment.

Table 4.46 Indicator wise mean unit index score of business human capital of PFCSs

Business Human Capital	PFCS
The Cooperative society has an adequate number of competent & skilled staff	0.41
The Cooperative society periodically assesses the training needs of the staff/members and tries to improve their competencies	0.30
The Cooperative society takes initiatives for socio-economic wellbeing of its members/staff	0.68
The Cooperative society recognizes and rewards the contribution of members/staff	0.26
Mean Business Human Capital	0.41

Table 4.47 reveals that the mean business Business Infrastructure score is 0.33, indicating a low business human capital environment. The highest scores are for “ Society has adequate farm to run business (0.60)”. On the other

hand, the lowest scores are for “Society has access to basic infrastructure facilities (0.15) and adequate and easily accessible business infrastructure (0.20)”, reflecting weaker performance in these aspects. These scores reveal a critical weakness in the availability of fundamental infrastructure needed for general business operations, such as transportation, utilities, cold storage, and communication networks. The lack of basic infrastructure severely limits the capacity of businesses to function efficiently, hindering their ability to reach markets, connect with suppliers, and serve customers effectively. Overall low score reflects the need for significant improvements to create a more robust and supportive infrastructure environment for all EODB.

4.47 Indicator wise mean unit index score of business Infrastructure of PFCSs

Business Infrastructure	PFCS
The Cooperative society has an adequate supply source of critical inputs for business activities	0.35
The Cooperative society has access to basic infrastructure facilities like office space, water & electricity, computers with high-speed internet connectivity, etc	0.15
The Cooperative society has adequate and easily accessible business infrastructure facilities to run the income-generating activities	0.20
The Cooperative society has adequate fields/farms for carrying out the business activities	0.60
Mean Business Infrastructure	0.33

Table 4.48 reveals that the mean Business Leadership score is 0.37, indicating a low business Leadership. This score suggests that there are significant deficiencies in effective leadership practices, which are critical for guiding organizations and fostering a supportive business ecosystem. The highest scores are for “Society has proactive and visionary leadership (0.58)”. However, while this score is relatively higher compared to other indicators, it still falls below the optimal level, indicating that there is still need for improvement in leadership effectiveness. On the other hand, the lowest scores are for “Society has online platform to connect people (0.00),” reflecting weaker performance in these aspects. which reveals a

critical gap in the ability to utilize digital tools for communication and networking. The absence of such a platform limits opportunities for collaboration, sharing of ideas, and building relationships among entrepreneurs and stakeholders. In today's digital age, lacking an online presence can severely hinder the capacity for businesses to grow and adapt, as it restricts access to information, resources, and potential partnerships. Overall, the findings highlight the need for improved leadership development alongside establishing digital platforms to create a more robust and effective business leadership.

Table 4.48 Indicator wise mean unit index score of business leadership of PFCSSs

Business Leadership	PFCSS
The Cooperative society always takes proactive steps to harness the business/funding opportunities	0.46
The Cooperative society has visionary and proactive leadership for promoting business activities	0.58
The Cooperative society has online platform/active social media presence to connect people	0.00
The Cooperative society encourages its members for starting business ventures through financial and marketing support	0.45
Mean Business Leadership	0.37

Table 4.49 reveals that the mean Business Governance score is 0.38, indicating a low business Governance. Cooperative or organization faces challenges in establishing robust governance mechanisms to support its business activities. The highest scores are for “Society has political and bureaucratic hindrance to start business (0.75)”. On the other hand, the lowest scores are for “Society has adequate budget for starting a business (0.15),” reflecting weaker performance in these aspects. This weak performance highlights a serious obstacle for aspiring entrepreneurs or cooperatives in the society, as a limited access to capital can significantly hinder the ability to start and sustain new ventures.

Table 4.49 Indicator wise mean unit index score of business governance of PFCSS

Business Governance	PFCSS
The Cooperative Society has good linkage and convergence with village/district/state/national levels Institutions	0.48
The Cooperative society has political/bureaucratic hindrance to start their business activities	0.75
The Cooperative society has adequate budget for starting business activities	0.15
The business environment of the Cooperative society is supportive, innovative and enabling business excellence	0.23
The Cooperative society has internal mechanism for monitoring to ensure the quality of output	0.31
Mean Business Governance	0.38

Table 4.50 explained the correlation analysis between EODB and profile attributes of cooperative societies. It indicates that infrastructure facilities, women empowerment, extent of contact with other organizations and experience of executive body members were found positively correlated with EODB.

Table 4.50 Correlation between EODB and profile attributes of cooperatives

Profile Variables	“r” value
Age of executive body members	0.18
Education of executive body members	0.62
Experience of executive body members	0.53
Training status of executive body members	0.98
Extent of contact with other organisations	0.48
Governance	0.79
Infrastructure facilities	0.39
Women empowerment	0.69

Table 4.5 presents the ranking of selected Primary Fisheries Cooperative Societies (PFCSs) according to their Ease of Doing Business (EODB) unit index scores. The cooperative societies were ranked based on their EODB index scores, allowing for an assessment of their relative performance in terms of Business. This ranking is significant as it provides insight into how well these societies facilitate business operations and support their members. Only four, Kewati Prakhand Matsyajivi Sahyog Samiti, Bibhutipur Prakhand Matsyajivi Sahyog Samiti and Darbhanga Sadar Prakhand Matsyajivi Sahyog Samiti indicate, a medium level EODB index. There were 26 cooperative societies had a low level of EODB index. This low ranking reveals that a significant number of these societies struggle to create an environment that supports business operations effectively. Factors contributing to a low EODB score may include inadequate infrastructure, limited access to resources, bureaucratic hurdles, or a lack of supportive policies. Such challenges can deter members from engaging in business activities, ultimately affecting the economic viability of these cooperatives.

Table 4.51 Ranking of PFCSs based on EODB unit index score

Rank	Name of PFCS	Index Score	Governance Quality
1	Kewati Prakhand Matsyajivi sahyog samiti	0.66	Medium
2	Bibhutipur Prakhand Matsyajivi Sahyog Samiti	0.65	
3	Darbhanga Sadar Prakhand Matsyajivi Sahyog Samiti	0.56	
4	Shivajinagar Prakhand Matsyajivi Sahyog Samiti	0.55	
5	Manigachhi Prakhand Matsyajivi Sahyog Samiti	0.53	Low
6	Mokama Prakhand Matsyajivi Sahyog Samiti	0.52	
	Dalsingh Saray Prahand Matsyajivi Sahyog Samiti		
7	Patna sadar Prakhand Matsyajivi Sahyog Samiti	0.45	
8	Kusheshwar Prakhand Masyajivi Sahyog Samiti	0.44	
	Phulwarisharif Prakhand Matsyajivi Sahyog Samiti		

9	Pusa Prakhand Matsyajivi Sahyog Samiti	0.41
10	Danapur Prakhand Matsyajivi Sahyog Samiti	0.39
11	Punpun Prahand Matsyajivi Sahyog Samiti	0.36
	Ghanshyampur Prakhand Matsyajivi Sahyog Samiti	
	Alinagar Prakhand Matsyajivi Sahyog Samiti	
12	Naubatpur Prakhand Matsyajivi Sahyog Samiti	0.34
13	Bahadurpur Prakhand Matsyajivi Sahyog Samiti	0.32
14	Singhawara Prakhand Matsyajivi Sahyog Samiti	0.30
	Rosara Prakhand Matsyajivi Sahyog Samiti	
15	Mohanpur Prakhand Matsyajivi Sahyog Samiti	0.29
	Hanuman Nagar Prakhand Matsyajivi Sahyog Samiti	
	Morwa Prakhand Matsyajivi Sahyog Samiti	
16	Samastipur Prakhand Matsyajivi Sahyog samiti	0.28
17	Biraul Prakhand Matsyajivi Sahyog samiti	0.27
	Tajpur Prakhand Matsyajivi Sahyog Samiti	
18	Belchhi Prakhand Matsysjivi Sahyog Samiti	0.25
	Pandarak Prakhand Matsyajivi Sahyog Samiti	
19	Khanpur Prakhand Matsyajivi Sahyog Samiti	0.24
20	Daniyawan Prakhand Matsyajivi Sahyog Samiti	0.23
21	Maner Prakhand Matsyajivi Sahyog Samiti	0.22

The table summarizes EODB scores across multiple levels of cooperatives societies—State, Regional (RFCS), District Fisheries Cooperative Societies (DFCS), and Primary Fisheries Cooperative Societies (PFCS). The study highlights that EODB is higher at the state level (0.71). The high EODB score at the state level suggests that state authorities have implemented effective policies and infrastructure that facilitate business operations. This may include streamlined regulatory processes, adequate support services, and efficient communication channels that allow for smooth interaction between cooperatives and government

entities. but lower at DFCS (0.48), RFCS (0.41), and PFCS (0.37), Indicates that these levels are struggling more significantly with obstacles such as inadequate infrastructure, bureaucratic inefficiencies, limited access to resources, and a lack of effective leadership, suggest that indicating a need for improvement in this area at these lower levels.

Table 4.52 Overall EoDB index score of multi-level fisheries cooperatives

Dimensions	State	RFCS	DFCS	PFCS
Business Human Capital	0.62	0.37	0.54	0.41
Business Infrastructure	0.87	0.37	0.37	0.33
Business Leadership	0.75	0.50	0.58	0.37
Business Governance	0.62	0.40	0.46	0.38
Overall Ease of doing business	0.71	0.41	0.48	0.37

4.5 CONSTRAINTS FACED BY MULTI-LEVEL FISHERIES COOPERATIVES

4.5.1 Constraints Faced by State Apex Federation

In the governance-related constraints, there are several key factors that need attention. One of the prominent issues is political influence, which affecting decision-making processes and overall governance, potentially undermining the autonomy and effectiveness of management. Similarly, the lack of welfare schemes is another area of concern. The absence of robust welfare initiatives indicates that the needs and well-being of the members are not being adequately addressed.

In the business-related constraints, it is evident that several critical issues are hampering the overall performance. The most critical concerns include a complete lack of credit facilities, weak financial status, and a severe shortage of technical human resources. Moreover, other challenges, such as inadequate transport facilities, lack of cold storage, and poor marketing facilities, also contribute to the inefficiencies in the business operations. Addressing these challenges through targeted interventions could lead to improved business sustainability and operational efficiency.

Table 4.53 Constraints faced by COFFED

Constraints	CAI
Governance-Related	
Political influence	66
Lack of welfare schemes	66
Limited access to government support	33
Business-Related	
Lack of credit facilities	100
Weak financial status	100
Shortage of technical human resources	100
Inadequate transport facility	66
Lack of cold Storage	66
Poor marketing facilities	66

4.5.2 Constraints Faced by of Regional Federations

The most critical constraints in governance is ineffective communication channels. This highlights a breakdown in internal and external communication. Furthermore, ineffective service delivery results in vital services not being promptly or effectively provided to members. Political interference and the absence of welfare programs indicate that the organization's ability to operate independently and create a positive work environment is being hampered by external influences. Additionally, leadership issues point to management difficulties, which could exacerbate other governance challenges.

The three biggest business-related obstacles facing RFCS are a lack of credit facilities, a weak financial position, and a shortage of technical human resources. These problems are interconnected, as it is difficult to attract and retain qualified workers—essential for business expansion and operational efficiency—when financing is scarce and the financial situation is unstable. Furthermore, inadequate marketing, cold storage, and transportation facilities represent infrastructure challenges that reduce the efficiency of supply chains and limit their ability to reach new markets.

Table 4.54 Constraints faced by RFCS

Constraints	CAI
Governance-Related	
Ineffective communication channels	100
Ineffective service delivery	66
Political influence	66
Lack of welfare schemes	66
Leadership issues	33
Business-Related	
Lack of credit facilities	100
Weak financial status	100
Shortage of technical human resources	100
Limited access to government support	100
Inadequate transport facility	66
Lack of cold Storage	66
Poor marketing facilities	66

4.5.3 Constraints Faced by District Federations

The most critical constraints in governance is ineffective communication channels, indicating a breakdown in both internal and external communication. This, in turn, hampers coordination and decision-making. Additionally, ineffective service delivery means that vital services are not being provided to members promptly or efficiently. Political interference, along with the absence of welfare programs, suggests that external influences are undermining the organization's independence and its ability to foster a positive work environment. The lack of accountability and leadership issues, raises concerns about the governance structure, as weak leadership and insufficient accountability can magnify other operational challenges.

In the business-related constraints, most significant obstacles for DFCSs are a lack of credit facilities and shortage of technical human resources stand out as critical constraints. Limited access to finance makes it difficult to attract and retain skilled workers, which in turn affects the organization's ability to grow and improve operational efficiency. Additionally, inadequate marketing, cold storage, and transportation facilities represent critical infrastructure challenges, reducing supply chain efficiency and restricting access to the markets.

Table 4.55 Constraints faced by DFCSs

Constraints	CAI
Governance-Related	
Ineffective communication channels	100
Ineffective service delivery	66
Unavailability of technical assistance	100
Lack of accountability	33
Political influence	66
Lack of welfare schemes	66
Lack of accountability	33
Leadership issues	33
Business-Related	
Lack of credit facilities	100
Shortage of technical human resources	100
Inadequate transport facility	66
Poor marketing facilities	66

4.5.4 Constraints Faced by Primary Cooperative Societies

In the governance-related constraints, there are several key factors that need attention. Key among these are the lack of welfare schemes, poor participation of cooperative members, and ineffective communication channels. These challenges indicate a significant disconnect between the cooperative and its members. As a result, members feel unsupported and disengaged, accountability suffers, and overall morale within the cooperative declines. Additionally, the unavailability of technical assistance highlights the necessity for expert guidance and support, which are crucial for improving service delivery and overall governance. Favouritism during the auction of water bodies raises significant concerns about fairness and transparency; such practices can alienate members and erode trust within the organization, further exacerbating governance challenges. Moreover, ineffective service delivery indicates that the cooperative struggles to provide essential services to its members in a timely and efficient manner.

In the business-related constraints, the most critical issues are the lack of credit facilities and weak financial status. These challenges are deeply interconnected; financial instability limits access to credit, which in turn restricts opportunities for growth and improvements in operations. Without sufficient financial resources, the cooperative struggles to invest in necessary initiatives or expand its reach. Additionally, encroachment presents a substantial threat to the cooperative's

resources, potentially compromising its ability to operate effectively. The issue of weed infestation in water bodies highlights an environmental challenge that negatively impacts productivity, leading to reduced fish yields and lower incomes for members.

Table 4.56 Constraints faced by PFCs

Constraints	CAI
Governance-Related	
Lack of welfare schemes	100
Poor participation of members of cooperatives	100
Ineffective communication channels	100
Lack of welfare schemes	100
Limited access to government support	100
Ineffective service delivery	66
Unavailability of technical assistance	100
Political influence	99
Favoritism during auction of water bodies	66
Ineffective service delivery	66
Poor awareness of cooperative administration	59
Business-Related	
Lack of credit facilities	100
Weak financial status	100
Encroachment	97
Weed infestation in water bodies	80
Inadequate transport facility	66

4.6 STRATEGIES FOR STRENGTHENING MULTI-LEVEL FISHERIES COOPERATIVES

4.6.1 Strategies for Strengthening State Federation

Collaborate with financial institutions to improve the financing procedure for member of societies, increasing access to loans and eliminating financial constraints such as poor financial condition and equipment costs.

Identify and develop partnerships with buyers, wholesalers, and retailers to create more market opportunities for cooperative members. Building direct market linkages can enhance sales and improve profit margins for members.

Invest in marketing infrastructure and transportation systems, with an emphasis on optimizing supply chains to improve fish marketing efficiency across the state.

Strengthen relationships with regional, district and primary cooperatives by fostering clear communication structures and increasing active involvement in decision-making processes.

Work with the department of fisheries and the department of cooperatives to advocate for policies that favour cooperative development, including subsidies, grants, and tax incentives.

Develop services to meet the specific needs of cooperative members, ensuring that they receive adequate support in areas such as technical assistance, market access, and welfare programs.

4.6.2 Strategies for Strengthening Regional Federation

Develop a transparent and efficient communication system between the state apex federation, district federations and primary cooperative societies.

Require regular elections to prevent stagnation and ensure fresh, member-driven leadership that reflects the needs and aspirations of the cooperative members.

Establish a system for conducting regular internal and external financial audits, ensuring transparency in financial management and create confidence among members.

Implement a system to regularly monitor and evaluate the services provided by cooperatives to their members, ensuring that gaps in service delivery are identified and addressed promptly.

Engage with state and national federations to increase the support provided to cooperatives, including investments in infrastructure, policy advocacy, and financial backing.

Collaborate with state and national federations to strengthen support for cooperatives, such as infrastructure investments, policy advocacy, and financial assistance.

4.6.3 Strategies for Strengthening District Federations

Enhance coordination between District and Primary Cooperatives to ensure that district-level initiatives meet the needs of grassroots societies. Establish regular interactions to promote cooperative awareness.

Create cooperative-owned marketplaces where members can directly sell their products. These hubs should be well-located and equipped to handle large volumes of fish and fish products, helping to streamline the marketing process.

Invest in marketing infrastructure and transportation systems, with an emphasis on optimizing supply chains to improve fish marketing efficiency across the state.

Facilitate the development of online marketing platforms that allow cooperative members to sell their products digitally. This can extend market reach beyond the local district and reduce reliance on traditional market channels.

Regular elections are required to prevent stagnation and ensure fresh, member-driven leadership that reflects the needs and aspirations of the cooperative members.

Establish a system for conducting regular internal and external financial audits, ensuring transparency in financial management and create confidence among members.

Create a monitoring framework to track the progress of these strategies, ensuring goals are met and adjustments are made based on feedback from cooperatives and members.

4.6.4 Strategies for Strengthening Primary Fisheries Cooperatives

Cooperative societies should incorporate income-generating and welfare activities and the provision of credit facilities to support their members' livelihoods and overall wellbeing.

Implement governance reforms to reduce political interference in decision-making processes, especially during auctions of water bodies and other key operations.

Issue funds annually to encourage savings among cooperative members, offering attractive interest rates to build financial security.

Ensure cooperative elections occur regularly every five years without political interference, giving members more control over decision-making.

Create inclusive training programs that focus on various skills such as sustainable fishing practices, financial management, and entrepreneurship for all members, not just leaders.

Collaborate with business organizations to enhance market linkages and improve pricing for cooperative members.

The financial status of fisheries cooperatives needs to be strengthened through government support and by promoting diversified income-generating activities in the cooperatives.

Regular monitoring and evaluation is needed for ensuring continuous improvement within cooperative societies.

The encroachment of water bodies is another major constraint for PFCSs and should be addressed by the DOF.

Create microfinance initiatives within cooperatives that provide low-interest loans for members to start small businesses or enhance their fishing operations, improving their overall livelihoods.

Schedule annual reviews involving all members to assess progress and gather feedback, ensuring continuous improvement and alignment with member needs.

Encourage regular member meetings to discuss cooperative operations, fostering a sense of ownership and engagement in decision-making.

5. SUMMARY AND CONCLUSION

Cooperatives are generally voluntarily formed, democratically operated and managed business organization for the purpose of mutual benefit of its members. According to the Bihar Jalkar Adhinyam Act 2006, government water body are leased exclusively to fishermen's cooperatives and Society settle its Jalkar to its members for five years so that there is enhancement in fish production along with creating avenues of livelihood. A pilot study of Bihar's multi-level fisheries cooperatives, covering primary, district, regional, and state levels, reveals several challenges hindering their performance and growth. These challenges include inefficient resource allocation, low member participation, limited awareness, lack of transparency in decision-making, inadequate financial management, poor communication across different levels, insufficient income-generating activities, dormant cooperative societies, and a lack of capacity-building efforts. So the present investigation was designed to explore governance issues such as teamwork, accountable empowerment, leadership, democratic control, and the ease of doing business within multi-level cooperative societies in Bihar, areas that have been under explored. This study, entitled "**Governance Assessment of Multi-level Fisheries Cooperatives in Bihar,**" aims to address examining governance issues and providing insights for improving governance and ease of doing business through defined research objectives.

- To evaluate the governance quality of multi-level fisheries cooperatives in Bihar
- To assess the ease of doing business in multi-level fisheries cooperatives
- To identify the constraints and suggest strategies for strengthening multi-level fisheries cooperatives

5.1 Research Methodology

In chapter 3, the methodology adopted in the study has been discussed. Ex post-facto research design was utilized for conducting the study systematically. The present study was conducted in Bihar. The State Cooperative Fisheries Federation (COFFED), being the sole fisheries cooperative operating at the state level, was purposely selected as the state apex federation for this study. At the regional level, only two regional fisheries federations exist: Patna and Tirhut-

Darbhanga, both of which were included in the research. At the district level, five fisheries cooperatives are present, and three of these—Patna, Darbhanga, and Samastipur—were chosen for the study, as they fall under the earlier mentioned regional federations. At the primary level, 30 active societies were randomly selected from these three district federations using convenience sampling. In total, 36 fisheries cooperatives were included in the study. Data was collected through personal interviews and focus group discussions (FGDs) with both executive and general body members, using structured interview schedules. To minimize bias and ensure high-quality data, two FGDs were conducted for each cooperative—one with executive body members and another with general body members. The statistical methods used in the study include averages, frequencies, percentages, means, and standard deviations. Statistical analysis was carried out using MS Excel and SPSS.

5.2 SALIENT FINDINGS

5.2.1 Profile of Multi-level Fisheries Cooperatives

COFFED, established in 1951, serves as Bihar's apex fisheries cooperative, comprising 16 lakh individual members and 428 cooperative societies, with 90% affiliation among Primary Fisheries Cooperative Societies (PFCSs). It has an authorized share capital of ₹50 crores and a paid-up capital of ₹ 8.87 lakhs, indicating potential for growth. With working capital of ₹16.74 crores and a net profit of ₹35.60 lakhs in 2022-23, COFFED exhibits financial stability and maintains an "A" grade audit, reflecting effective financial management. Executive body members average 45 years of age, predominantly having higher secondary education and over ten years of cooperative experience. They meet quarterly, with attendance rates between 75% and 100%. While COFFED engages moderately with key organizations like the Department of Fisheries and Department of Cooperatives, partnerships with fisheries colleges and regional cooperatives are limited. The Patna and Tirhut federations, established in 1983 and 1981, respectively, face challenges due to the absence of elections for over five years, resulting in reduced member engagement. Both federations have authorized share capital of ₹60 lakhs, but low paid-up capital (₹74,000 for Patna and ₹1,05,000 for Tirhut). Lack of audits in five years raises concerns about financial transparency. Meetings, held in community halls, attendance rates of 50% to 75%. Executive body members primarily range from 35 to 50 years old, with varied educational backgrounds and around ten years

of cooperative experience. The Patna federation maintains medium contact with primary cooperatives and district federations but lacks connections with key organizations like KVKs and NGOs, leading to a contact score of 0.44. Infrastructure-wise, Patna RFCS is better equipped than Tirhut, which lacks basic amenities, contributing to a low overall infrastructure score of 0.38. In terms of registration, 83% of the studied PFCSs were registered after 2010, showing significant growth in cooperative formation. Overall membership total 33,755, with only 12,988 (38%) being active participants. Male representation dominates, with 59% in the Executive Body and 83% in the General Body, highlighting barriers to women's participation. Financially, 63% of societies have a paid-up capital of less than ₹13,000, and 47% report net profits below ₹20,000, with 23% showing no profit. Audit grades indicate a need for improved governance, with all societies receiving a C grade. Welfare programs are underutilized, with 90% of societies relying solely on auctioning water bodies for revenue and only 26.66% participating in welfare schemes. Women's empowerment remains low, as 56.66% of PFCSs show limited female involvement in cooperative activities. Overall, these findings point to significant operational and structural challenges faced by fisheries cooperatives in Bihar, particularly concerning financial resources, women's participation, and infrastructure.

5.2.2 Governance Assessment of Multi-level Fisheries Cooperatives

The governance practices at COFFED are highlighted by a strong Fisheries Cooperative Governance Quality Index (FCGQI) score of 0.71, reflecting effective governance structures. A notable aspect is the high score of 0.80 in democratic control, which indicates significant member participation in decision-making. In contrast, other cooperative structures display weaker governance scores. For example, the Tirhut-Darbhanga Regional Fisheries Cooperative Society (RFCS) has a score of 0.37, while Patna RFCS scores 0.51. The Darbhanga District Fisheries Cooperative Society (DFCS) scores even lower at 0.38, compared to Samastipur DFCS (0.44) and Patna DFCS (0.56). A concerning finding is that 77% of Primary Fisheries Cooperative Societies (PFCSs) exhibit low governance quality. Among them, 46.66% show inadequate democratic control, and 70% fall short in accountable empowerment. Notably, no PFCSs achieve high levels of convergence and linkage, highlighting a critical area for improvement. The overall governance quality of PFCSs stands at a low score of 0.42, in contrast to the state-level score of 0.71. Specific weaknesses include poorly defined member rights (0.26), a lack of

transparency in registration (0.36), and limited access to welfare services. Leadership challenges also arise, particularly in diversifying income-generating activities and timely grievance resolution. Performance rankings indicate that only Kewati and Darbhanga Sadar demonstrate high governance quality, while most PFCSs fall into low governance categories. Overall, COFFED exemplifies strong governance, there is a notable decline in governance quality at regional, district, and primary levels, necessitating strategic interventions. Enhancing member participation, improving leadership effectiveness, and fostering collaboration with external organizations are essential steps toward boosting governance quality.

5.2.3 Ease of Doing Business in Multi-level Fisheries Cooperatives

The state level boasts the highest EoDB score of 0.71, reflecting effective policies and infrastructure. However, scores decline sharply at lower level, with DFCS at 0.48, RFCS at 0.41, and PFCS at 0.37, indicating greater operational challenges. Dimension-wise, Business Infrastructure ranks highest at the state level (0.87), while DFCS (0.37) and PFCS (0.33) reveal critical infrastructure inadequacies. Business Human Capital scores range from 0.62 at the state level to 0.41 for PFCS, highlighting a pressing need for skill development and workforce training. Business Governance also raises concerns, particularly for PFCS, which scores just 0.38, indicating weaknesses in transparency and decision-making processes. Among PFCSs, only four cooperatives (Kewati, Bibhutipur, Darbhanga Sadar and Shivajinagar) achieve medium EoDB scores, while 26 out of 30 fall into the low EoDB category. Furthermore, 86.66% of cooperatives struggle with Business Infrastructure and Leadership, with 90% reporting low governance quality.

5.2.4 Constraints Analysis of Multi-level Fisheries Cooperatives

The critical constraints faced by state apex federations are particularly around lack of credit facilities, weak financial status, and unavailability of technical assistance. Additionally, issues such as poor marketing facilities and political influence, further complicate their operations. For Regional Federations (RFCS), besides challenges with credit facilities, financial status, and technical assistance, also face inadequate infrastructure, leadership stagnation, and ineffective service delivery, which undermine their functionality. District Federations (DFCS) experience similar constraints but also contend with poor marketing facilities, political influence,

inadequate infrastructure, and ineffective service delivery, all rated. The study further emphasizes that primary cooperative societies encounter numerous critical challenges. These factors make it difficult for these societies to invest in improvements or sustain their operations. Additionally, political influence, encroachment, weed infestation in water bodies, favouritism during auctions, lack of cold storage, and poor marketing facilities exacerbate the challenges faced by primary cooperatives.

5.2.5 Strategies for Strengthening Multi-level Fisheries Cooperatives

To address cooperative challenges of the State Federation, collaboration with financial institutions can enhance access to loans, alleviating financial constraints and improving operations. Forming partnerships with buyers and wholesalers will create direct market opportunities, boosting sales and profit margins for members. Strengthening communication between cooperatives at all levels will foster collaboration, while advocating for supportive policies and developing tailored services will ensure cooperatives receive the necessary assistance for growth. To improve RFCS and DFCS, establishing a transparent communication system between state apex, district, and primary cooperatives is crucial. Regular elections should be held to ensure dynamic, member-driven leadership, and consistent financial audits will promote transparency and build member confidence. PFCSs should introduce income-generating activities, welfare programs, and credit facilities to support members' livelihoods. Inclusive training programs, enhanced market linkages through business collaboration, and savings initiatives can further strengthen financial security. Regular monitoring and evaluation, along with addressing water body encroachment, are essential for continuous improvement. Microfinance initiatives and frequent member meetings will foster engagement, financial growth, and alignment with cooperative goals. Future efforts should prioritize capacity-building programs to strengthen leadership and operational efficiency while fostering democratic processes within cooperatives. Establishing partnerships with external organizations can provide essential resources and expertise. By addressing these challenges, fisheries cooperatives can enhance governance quality and create a more conducive business environment, ultimately leading to better outcomes for their member.

5.3 CONCLUSION

The study on the governance and Ease of Doing Business (EoDB) of multi-level fisheries cooperatives in Bihar reveals significant challenges across all levels—state, regional, district, and primary cooperatives. The Bihar State Cooperative Fisheries Federation (COFFED) exhibited the highest governance score of 0.71, outperforming regional (0.44), district (0.46), and primary cooperatives (0.42). While COFFED demonstrates financial stability and effective governance with relatively higher member participation, governance quality at lower levels is concerning, particularly among primary cooperatives, where 77% are characterized by low governance standards. In terms of EoDB, the State Federation also led with a score of 0.71, followed by district federations at 0.48, while regional (0.41) and primary cooperatives (0.37) lagged significantly, indicating a need for targeted improvements in their operations. Among primary fisheries cooperative societies, 87% exhibit low EoDB performance across all dimensions, underscoring the necessity for substantial improvements to enhance overall effectiveness and performance. The study highlights the need for strategic interventions focused on improving financial health, strengthening governance structures, enhancing communication between cooperative levels, and fostering partnerships with external stakeholders. Tailored capacity-building programs, policy advocacy, and infrastructure investments are essential to empower cooperatives and ensure sustainable growth. By implementing these strategies, fisheries cooperatives in Bihar can overcome operational challenges, boost fish production, and create sustainable livelihoods for their members.

5.4 IMPLICATIONS OF THE STUDY

1. The present study offers a detailed understanding of the current profile of multi-level fisheries cooperatives in Bihar. The findings can provide valuable insights for policymakers to design targeted interventions such as specialized training programs, development of clear guidelines, provision of incentives, to enhance governance through democratic decision-making, strategic leadership, teaming and accountable empowerment.
2. The development of the 'Fisheries Cooperative Governance Quality Index' (FCGQI) presents a novel tool for evaluating governance quality in fisheries cooperatives. This methodology could be applied beyond Bihar to other states

across India, offering a framework for assessing multi-level cooperatives. Such evaluations could help design large-scale strategies and policy interventions to strengthen fisheries cooperatives nationwide.

3. The ranking fisheries cooperatives based on governance quality would be a practical tool for the Department of Fisheries, Bihar. This approach can help prioritize strategic interventions, allowing for targeted improvements in governance and overall performance of fisheries cooperatives across the state.
4. The study's assessment of the ease of doing business in multi-level fisheries cooperatives sheds light on how conducive the cooperative environment is for business operations. Future research could explore the factors influencing this business environment further and suggest ways to optimize resource management, improve operational efficiency, and enhance the overall ease of doing business within cooperatives.

5.5 SUGGESTIONS FOR FUTURE RESEARCH

1. Using the FCGQI methodology, the governance quality of multi-level fisheries cooperatives can be assessed in other states of India. This can provide a standardized measure for cooperative governance across different regions.
2. A study on the Ease of Doing Business in fisheries cooperatives can be extended to other districts of Bihar as well as other states in India. This will help in comparing and improving business practices across various fisheries cooperative sectors.
3. A comparative study of governance practices in agriculture, dairy, and fisheries cooperatives in Bihar and other states can be conducted. This would help identify strengths and areas for improvement across sectors.
4. To enhance the robustness of the FCGQI, standardization and refinement using a larger sample size and expert ratings should be taken up. This will improve its reliability and applicability in diverse cooperative settings.

BIBLIOGRAPHY

- Abiodun, S. and Cooney, A., 2023. Importance of Creation of Fisheries Cooperative Societies to Support Aquaculture in Nigeria. *International Journal of Engineering, Management and Humanities* 4(1), pp: 74-84.
- Allahyari, M. S., 2010. Social sustainability assessment of fishery cooperatives in Guilan Province, Iran. *Journal of Fisheries and Aquatic Sciences*, 5, pp.216-222.
- Ani, T.G., 2015. Effect of ease of doing business to economic growth among selected countries in Asia. *Asia Pacific journal of multidisciplinary research*, 3(5), pp.139-145.
- Annual Report, 2022-2023. Department of Fisheries Ministry of Fisheries, Animal Husbandry & Dairying Government of India, New Delhi.
- Bachu, U. and Eunice, B.L.G., 2024. A Study On Fisherwomen Co-Operative Societies In Visakhapatnam District Of Andhra Pradesh, India. *Journal of Survey in Fisheries Sciences*, pp.55-62.
- Baruah, U.K., Bhagowati, A.K., Talukdar, R.K. and Saharia, P.K., 2000. Beel fisheries of Assam-community-based co-management imperative. *Naga*, 23(2), pp.36-38.
- Bhaumik, U., Mittal, I. C., Das, P. and Paria, T., 2005. Constraints in enhancing fish production. *Indian J. Extn. Edu*, 41(1), pp.88-90.
- Bhuyan, S. 2007. The "people" factor in cooperatives: an analysis of members' attitudes and behavior. *Canadian Journal of agricultural economics*, 55(3), pp.275-298.
- Bihar Economic Survey, 2022-2023. Finance department, Government of Bihar, India.
- Birchall, J. and Simmons, R., 2004. What motivates members to participate in co operative and mutual businesses?. *Annals of Public and Cooperative Economics*, 75(3), pp.465-495.
- Chandrashekar, B. S. 2014. Fishery co-operative societies in India: problems and prospects. *Global Journal for Research Analysis*, 3(7), pp.92-94.
- Chauhan, S. K. 1996. Role of inland fishermen's co-operatives in the marketing of reservoir fisheries in Himachal Pradesh. *Indian Journal of Agricultural Economics*, 51(4), p.767.
- Chandra, p. 2012,. A study on present status of fishery co-operatives of hardoi district in uttar Pradesh. M.F.Sc. Dissertation, West Bengal University of Animal and Fishery Sciences, Kolkata.

- Chand, G. B. and Asghar, S., 2023 Socio-economic condition of fishermen community in Patna district, Bihar: Present status and probable strategies for improvement. *Biospectra* :ISSN: 0973-7057, 18(1), pp. 25-34.
- De, H. K., Radheyshyam, S. G., Safui, L., Chandra, S., Adhikary, S., Barik, N. K. and Eknath, A. E., 2016. Impact of aquaculture field school on community fish farming. *Indian J. Fish*, 63(2), pp.154-155.
- Dinesh, R., 2023. Evaluating governance in inland primary fisheries cooperative societies of Tamil Nadu. M.F.Sc. Dissertation, ICAR-Central Institute of Fisheries Education, Mumbai
- Doshi, R., Kelley, J. G. and Simmons, B. A., 2019. The power of ranking: The ease of doing business indicator and global regulatory behaviour. *International Organization*, 73(3), pp.611-643.
- Das B. K., Sahu S. K. and Parida P. K., 2022. Inland water bodies of Bihar, ICAR-CIFRI, Barrackpore.
- Ekramuddin, M., 2017. An Overview of impact of small scale fish farming on socio-economic growth in Birbhum district, West Bengal, India. *Journal of Entomology and Zoology Studies*, 5(4), pp.46-52.
- Elsler, L.G., Quintana, A., Giron-Nava, A., Oostdijk, M., Stefanski, S., Guillermo, X.B., Nenadovic, M., Romero, M.J.E., Weaver, A.H., Van Dyck, S.R. and Tekwa, E.W., 2022. Strong collective action enables valuable and sustainable fisheries for cooperatives. *Environmental Research Letters*, 17(10), p.105003.
- Edwards, A. L., 1957. Techniques of attitude scale construction. Vakils, Feffer and Simons Private Ltd., Bombay.
- Esther, G., 2012. The co-operative difference: impact and role of research in building sustainable co-operative enterprises. *International Journal of Humanities and Social Science*, Vol. 2 (24).
- FISHCOPFED. 2021. National Federation of Fishermen's Cooperatives Ltd. (Under Ministry of Agriculture, Govt. of India). Online available at <http://www.fishcopfed.in/>
- Fujita, R. M., Honey, K. T., Morris, A., Wilson, J. R. and Russell, H., 2010. Co-operative strategies in fisheries management: integrating across scales. *Bulletin of Marine Science*, 86(2), pp.251-27.
- Gosari, B. A. J., Wahid, A. and Cangara, A. S., 2019, November. Fisheries cooperative as a catalyst for economic improvement of fishermen society. In *IOP Conference Series: Earth and Environmental Science* , 370(1), p. 012073.
- Government of Bihar (2006). Bihar Fisheries *Jalkar* Management Bill, 2006. Animal and Fisheries Resources Department, Government of Bihar, pp 4-11.
- Government of Bihar (2008). Draft Fisheries Policy, Directorate of Fisheries, Department of Animal and Fish Resources , Government of Bihar. Downloaded from <http://ahd.bih.nic.in/acts/ar-01-20-06-2008.pdf>.

- Hubaib, F., 2020. Learning Indicators of cooperative management In The Review Of The Economic Perspective. *Journal Khatulistiwa Informatika*, 4(1), pp.85-91.
- Hakelius, K. and Hansson, H., 2016. Members' attitudes towards cooperatives and their perception of agency problems. *International Food and Agribusiness Management Review*, 19(4), pp.23-36.
- Hartley, T. W. and Robertson, R. A., 2006. Stakeholder engagement, cooperative fisheries research and democratic science: the case of the Northeast Consortium. *Human Ecology Review*, pp.161-17.
- ICA. (1995). <http://usa2012.coop/about-co-ops/7-cooperative-principles>. Retrieved on 23rd December 2022.
- Jadhav, K. D., 2020. Fishermen cooperative societies for fishing professional development. *Journal of Shanghai Jiaotong University*, 16 (10), pp.87-94.
- Jayasinghe, A., Jayasinghe, C.J., Sobia, V. and Sopana, V., 2023. The Role of Institutions in Addressing Small-Scale Fishery Predicaments: A Case of Fisheries Cooperatives Societies in Northern Sri Lanka. Available at SSRN 4450874.
- Jeyanthi, P., Chandrasekar, V. and Gopal, N. 2017. Fishers' perception on cooperative services and willingness-to-pay (WTP) for improved fish marketing services at Njarakkal, Ernakulam District, Kerala. *Indian Journal of Fisheries*, 64 (Special Issue), pp.278-282.
- Kalpana, G., and Elumalai, D., 2022. Better Supply Chain Management Designs For Fisheries Cooperative In Tamilnadu. *Webology (ISSN: 1735-188X)*, 19(2), pp.1861-1869
- Karthikeyan, K., 2021. A study on financial statement analysis of primary agricultural cooperative credit society in Paiyanoor Branch at Chengalpattu District. *ComFin Research*, 9(3), pp.37-43.
- Kaswan, M.J., 2014. Developing democracy: Cooperatives and democratic theory. *International Journal of Urban Sustainable Development*, 6(2), pp.190-205.
- Kerlinger, F. N., 1983. Foundations of Behavioural Research. New York: Holt, Rinehart and Winston.
- Kitts, A. W. and Edwards, S. F., 2003. Cooperatives in US fisheries: realizing the potential of the Fishermen's collective marketing act. *Marine Policy*, 27(5). pp.357-366.
- Kumar, R. and Kumar, N.R., 2023. Comparative Economics of Various Management Regimes of Chaur Fisheries in Koshi-Gandak River Basin of Bihar. *Fishery Technology*, 60, pp.212-220.
- Kumar, S., 2018. Present status and future prospects of fisheries development in Bihar with special reference to some selected ox-bow lakes of Muzaffarpur district. *Journal of Plant Development Sciences*, 10(1), pp.35-41.

- Kyriakopoulos, K., Meulenberg, M. and Nilsson, J., 2004. The impact of cooperative structure and firm culture on market orientation and performance. *Agribusiness: An International Journal*, 20(4), pp.379-396.
- Loera, M.R.C. and Zulawska, U., 2013. Fisheries cooperative organization and sustainable development in the rural community. *Journal of Intercultural Management*, 5(1), pp.19-28. Mahanayak, B. and Panigrahi, A. K. 2021. Sustainable management of fishermen co-operative societies in India: A review. *International Journal of Fisheries and Aquatic Studies*, 9(3), pp.253–259.
- Mathews, M. N., 2018. Impact of Fisheries Co-Operative Societies on the Livelihood Activities of Marine Fisherfolk - A Study with Special Reference to Port Fishing Village in Kollam District, Kerala. *International Journal of Research and Scientific Innovation*, 5 (5), pp.164-174.
- Motamed, M. K., Fatideh, B. A. and Sabet, S. S., 2011. The role of fisheries cooperative societies in the social and economic development of Guilan beach seine cooperative members. *Journal of Research Peace Gender and Development*, 1(10), pp.286-291.
- Mishra, B. K. 1997. Fisheries Co-operatives in India. *Co-op Dialogue*, 7(2), pp.28.
- Nair, S. R., Pandey, S. K., Sharma, A. and Salim, S. S. 2010. An Evaluation of the business performance of fishery cooperative societies in Vasai Taluka of Thane district, Maharashtra. *Indian Cooperative Review*, pp.225-233.
- Novkovic, S., 2006. Co-operative business: The role of co-operative principles and values. *Journal of Co-operative Studies*, 39(1), pp.5-15.
- Nasar R., Das, S. K. and Pati, M. K., 2021. Investigation on the Need Matrix of Primary Fishermen's Cooperative Societies in the District of North 24 Parganas, West Bengal. *Indian Journal of Animal Health*, 60 (1), pp.31-39.
- Pencavel, J., 2013. Worker cooperatives and democratic governance. In *Handbook of economic organization*. Edward Elgar Publishing, pp. 462-480.
- Rahim, K. M. and Singh, K. 1992. The marine fishermen's co-operative societies in West Bengal an exploratory study. In *Symposium on Management of Rural Co-operatives December 7-11*, pp.37.
- Ravichandran, K., 2015. BUSINESS DIVERSIFICATION STRATEGIES OF PACS: A STUDY ON PACS-SHG LINKAGES IN SALEM DISTRICT, TAMIL NADU. *CGO International*, p.109.
- Rujan, J., 2023. Evaluating governance in marine primary fisheries cooperative societies of Tamil Nadu. M.F.Sc. Dissertation, ICAR-Central Institute of Fisheries Education, Mumbai.
- Sahani, B., 2016. An explorative study on fishermen's cooperative societies in Darbhanga district, Bihar. M.F.Sc. Dissertation, West Bengal University of Animal and Fishery Sciences, Kolkata.

- Sahani, M. 2020, Agribusiness potential in north Bihar a critical analysis. *National Journal of Multidisciplinary Research and Development*, 5 (4), pp.01- 05.
- Sanyal, T., Saha, A. and Mukherjee, P., 2023. Activities of fisheries co-operative societies in India to boost up and optimise the resources and economy of farmers: a review. *Journal of Fisheries*, 11(2), p.112301.
- Semaw Henock , M. 2019. Financial sustainability and outreach performance of saving and credit cooperatives: The case of Eastern Ethiopia. *Asia Pacific Management Review*, 24(1), pp.1–9.
- Sreeranganadhan, K. 2012. Role of cooperative societies in the marketing of fish and fish products in Kerala. *Major Project report, UGC, New Delhi*, 297.pp.1-24
- Thavai, A., 2023. Evaluating governance in marine primary fisheries cooperative societies of Maharashtra. M.F.Sc. Dissertation, ICAR-Central Institute of Fisheries Education, Mumbai.
- Thrishma, S.P. and Veerakumaran, G., 2020. A Study on Financial Performance of Kerala State Co-operative Federation for Fisheries Development Limited (MATSYAFED). *Shanlax International Journal of Economics*, 8(4), pp.59-67.
- Tripathy, K. K., Paliwal, M. and Nistala, N., 2021. Good Governance Practices and Competitiveness in Cooperatives: An Analytical Study of Kerala Primary Agricultural Credit Societies. *International Journal of Global Business and Competitiveness*, 16, pp.153–161.
- Tyagi, L. K., Bisht, A. K., Pal, A. and Lal, K. K. 2013. Functioning of fishing cooperative societies in selected states of India. *Journal of Community Mobilization and Sustainable Development*, 8(1), pp.90-93.
- Unal, V., Guclusoy, H. and Franquesa, R. 2009. A comparative study of success and failure of fishery co-operative in the Aegea, Turkey. *Journal of Applied Ichthyology*, 25(4), pp.394 - 400.
- Wasave, S., Sharma, A. and Wasave, S. 2020. Organizational roles performed by marine fisheries cooperatives of Maharashtra state, India. *Journal of Experimental Zoology, India*, 23 (Suppl. 1),pp.781–786.
- Wimalasena, H. D. and Rupamoorthy, K., 2005. A review of the present status of fishermen's cooperatives of Sri Lanka. *Journal of National Aquatic Resources Research & Development Agency*, 37,pp.40–60.
- Yapanto, L.M., Musa, D.T., Tanipu, F., Paramata, A.R. and Tuli, M., 2020. The effectiveness of fishery cooperative institutions. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(4),pp. 1329-1338

PLATES



Plate-1 Focus group discussion with executive body members of state fisheries cooperative of Bihar



Plate 2:- Focus group discussion with members of Shivajinagar Prakhand Matsyajivi Sahyog Samiti, Samastipur



Plate 3:- Focus group discussion with members of Patna District Federation



Plate 4:- Focus group discussion with members of Darbhanga Prakhand Matsyajivi Sahyog Samiti, Darbhanga



Plate 5:- Focus group discussion with members of Maner Prakhand Matsyajivi Sahyog Samiti, Patna



Plate 6:- Focus group discussion with members of Patna Prakhand Matsyajivi Sahyog Samiti, Patna



Plate 7:- Focus group discussion with members of Phulwarisharif Prakhand Matsyajivi Sahyog Samiti, Patna.



Plate 8:- Focus group discussion with members of Mokama Prakhand Matsyajivi Sahyog Samiti, Patna.

ANNEXURE-1

Interview Schedule

Governance Assessment of Multi-level Fisheries Cooperatives in Bihar

Part A: Profile of Multi-level Fisheries Cooperative Federation

1. Basic Information

a. Name of fisheries cooperative		
b. Date of registration		
c. Registration number		
d. Contact person		
e. Mobile No.		
f. Total number of PFCS affiliated		
g. Total number of District Federation affiliated		
h. Staff position	Temporary	Permanent
i. Membership fee		
j. Audit grade of the cooperative federation (Average of last 3 years)		
k. Total number of PFCS member of the federation in the beginning		
l. Total number of PFCS member of the federation at present		
m. Total number of male in administrative body		
n. Total number of female in administrative body		
o. Total no. of males in executive body		
p. Total no. of females in executive body		
q. Total no. of males in general body		
r. Total no. of females in general body		

2. Funding source of cooperative (average of last 3 years)

Organization	Share (%)	Year	Amount (in Rs.)

3. Schemes availed by cooperative

Name of the scheme(s)	Funding pattern	Government subsidy on (Craft/gear/others)	Amount allocated

4. Financial status of cooperative

Rs.	2020-21	2021-22	2022-23

Authorised share capital			
Present share capital			
Debt			
Fixed capital			
Working capital			
Total capital			
Profit / Loss			
Sales Turn over			
Net Profit			
Amount spent on welfare of fishermen and their families			
Total dividend distributed			
Reserve Fund			

Shares (%)	Government	
	Member	
	Others (Specify)	

5. Cooperative meeting pattern

a. Frequency of conducting a meeting					
Meeting Interval	Fortnightly	Monthly	Quarterly	Half-yearly	Yearly
Executive body					
General body					
b. Average attendance percentage during meetings					
Attendance %		Up to 25%	25% -50%	50% -75%	75% - 100%
Management Body	Male				
	Female				
Executive body	Male				
	Female				
c. Time of conducting federation meeting					
Morning (Hrs.)		Afternoon (Hrs.)		Evening (Hrs.)	
d. Place for conducting federation meeting					
Federation Office					
DoF Office					
Other (Mention)					

6. Profile of the management body members

a. Age	Managing Director	Extension officer	Finance manager	Junior engineer
Below 35				
35-50				
Above 50				
b. Experience of membership				
Less than 5 years				
More than 10 years				
5-10 years				
c. Education				
d. Training attended status of management body members (in the last 3 years)				

Yes				
No				
e. In which area training attended by Executive body members				
i.				
ii.				
iii.				

7. Profile of the executive body members

a. Age	President	Vice-President	M 1	M 2	M 3	M 4	M 5
Below 35							
35-50							
Above 50							
b. Education							
Illiterate							
Primary school							
Middle school							
Higher secondary							
Diploma							
Graduation							
Post graduation							
c. Experience of membership							
Less than 5 years							
5-10 years							
More than 10 years							
d. Occupation of executive body members							
Only fisheries							
Fisheries + Makhana							
Only Aquaculture							
Fisheries + Agriculture							
Fisheries + Livestock							
Fisheries + Labourer							
Other (Mention)							
e. Training attended status of executive body members (in the last 3 years)							
Yes							
No							
f. In which area training attended by Executive body members							
No Training							
Society functioning training							
Value addition							
Culture practice							
Fish marketing							
Fish health management							
Fish breeding							
Others (Specify)							

7. Training organised by cooperative in the last 3 years

Total No. of members trained (Male/Female)		
Sl. No.	Area of training programme	Organisation

1		
2		
3		

8. Infrastructure facilities available with cooperative

Infrastructure	Yes	No
Federation office		
Meeting hall/ Community service centre		
Computer & related accessories		
Fish transport vehicle		
Fish retail outlet		
Mobile fish retail van		
Cold storage		
Boat & gear repair facilities		
Fish storage		
Input supply & services (feed, seed, etc.)		
Others (specify)		

9. Income generating activities of the cooperative society

- i.
- ii.
- iii.

10. Information about fishing business

a. Chaur/Maun/river/pond

Chaur/Maun /river/pond name	
Chaur /Maun/river/pond ownership	
Nature of Chaur/Maun/river/pond	Perennial/ Seasonal
Area (ha)	
Lease amount	
Lease period	
Department/ organisation of the lessor	

b. Type of fish culture:

- i. Intensive
- ii. Semi-intensive
- iii. Extensive/traditional

c. Cultured/captured species:

- i.
- ii.

d. To what extent are you getting quality fish seed for stocking? (Mostly/Sometimes/ Never)

e. Source of fish seed used for stocking.

- i. Government hatchery
- ii. Private hatchery
- iii. College of Fisheries
- iv. Others

f. Fish seed stocked (Fry/fingerlings):

i. Annual fish production (Average of last 3 years):

j. Fishing gears & crafts

Type of gear used for harvesting	Type of craft used in fishing

k. Marketing Details

Type of fish product (live/ value added)	
Harvesting season	
Quantity Sold last year (kg)	
Purchasing price (Rs)	
Selling price (Rs/kg)	
Purchase from whom	
Sold to whom (Wholesaler/Retailer/Consumer)	
Selling place (Farm/ landing centre/ market, etc)	

11. Extent of contact with other organizations:

Organizations	Always	Sometimes	Never
Department of Fisheries			
Department of Cooperation			
Fisheries colleges and other research Institutes			
KVKs			
NGOs			
National cooperative federation			
District cooperative federation			
Primary cooperatives			
Financial institutions (NABARD, NCDC, DCB)			
Industry association			
Other organisations			

12. Women empowerment (Only for PFCSs)

Statements/indicators	Always	Sometimes	Never
Women have access to cooperative federation resources and assets			
Women members are allowed to speak during meeting			
Women have equal say in all the cooperative decisions			
Women members are given preference to attend skill development trainings			

Cooperative federation meetings are held at women friendly time and place			
Women members get equal opportunities and benefit sharing			

Part B: Fisheries Governance Quality Index

Democratic Control	To great extent	To some extent	Not at all
1. The organizational structure of the cooperative federation is well designed			
2. The registration procedure is transparent and professionally managed			
3. Membership is open to all active PFCS and district federation and voluntary			
4. Members have equal right of voting and participating in the cooperative election			
5. All the executive body members are elected			
6. Regular conduct of executive/general body meetings			
7. All the decisions happen in the presence of quorum of members			
8. All rights and responsibilities of members are defined			
9. Representation of youth, marginalized and vulnerable people in society			
10. Free flow of information to each member without any discrimination			

Accountable Empowerment	To great extent	To some extent	Not at all
1. All the members are empowered to express their views/opinions			
2. Delegation and distribution of authority among executive body members to hold them accountable			
3. Regular assessment of member's technical and functional skills			
4. Performance benchmarking with other states' federation and national federation.			
5. Facilitating access to safety standards, healthcare, and social welfare services for members.			
6. Following standard operating procedures for all the cooperative activities			
7. Regular maintenance of record books & statutory registers			
8. Cooperative performance & financial reports are published regularly			
9. Financial & social audits of society happen at regular interval			

10. A cooperative society is free from debt and non-performing assets			
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Teaming	To great extent	To some extent	Not at all
1. The general body members and executive body members have group harmony			
2. All the cooperative members stand together to resolve common issues			
3. Members show mutual support and cooperation when a task is to be performed for the federation			
4. Members have confidence on each other and trust among them all the cooperative members stand together to resolve common issues			
5. Cooperative Federation members maintain political and religious neutrality			
6. Cooperative federation members are committed to the society's welfare			
7. Link with other Primary societies, district federations and other state federation and fostering collaboration			
8. Members are satisfied with the federation's functional activities			
9. Federation shares financial and other benefits among all members			
10. Federation works in line with Primary and District level cooperative bodies/federations			

Leadership	To great extent	To some extent	Not at all
1. Leaders are educated, trained and responsible for their work			
2. Leaders are actively listening the problems of member			
3. Leaders have good rapport building and networking skills			
4. Leaders demonstrate transparency and fairness in decision-making and financial matters			
5. Leaders identify opportunities and develop strategies to capitalize on them			
6. Leaders possess strategic thinking skills to address issues and challenges			
7. Leaders handle timely grievances of members and ensure accountability			
8. Leaders strive hard to diversify the services and income generating activities of federation			
9. Leaders keep informing members about the federation functioning and welfare/subsidy schemes			
10. Leaders rehabilitate defunct operations and promote cooperative start-ups			

Convergence and Linkages	To great Extent	To some extent	Not at all
1. Cooperative federation collaborates with other federation/DoF/ DoC/ KVK/ other organizations to achieve common goals.			
2. Cooperative federation conduct training programmes in association with research institutes, DoF, KVK, NGOs, etc. for technology transfer.			
3. Cooperative federation collaborate with DoF to ensure the effective resource management practices.			
4. Cooperative federation provides input resources to member societies through other external organizations			
5. Cooperative federation avail schemes/ subsidies through DoF/DoC.			
6. Members convey suggestions and grievances at administrative level for policy implications.			
7. Officials/ project coordinators from State federation, DoF, KVK, NGOs, etc. visits the cooperative society regularly.			
8. Cooperative facilitates bi-directional communication among multi – level cooperatives.			
9. Cooperative link with funding agencies (NABARD, NCDC,DCB) for facilitating business activities.			
10. Cooperative has tie up with Traders/Business Organisation for market linkage.			

Part C: Ease of Doing Business in state cooperative federation

Statements	To great extent	To some extent	Not at all
Business Human Capital			
1. The cooperative has an adequate number of competent & skilled staff			
2. The cooperative always takes proactive steps to harness the business/funding opportunities			
3. The cooperative periodically assesses the training needs of the staff/members and tries to improve their competencies			
4. The cooperative takes initiatives for socio-economic wellbeing of its members/staff			
Business Infrastructure			
1. The cooperative has access to basic infrastructure facilities like office space, water & electricity, computers with high-speed internet connectivity, etc.			
2. The cooperative has adequate and easily accessible business infrastructure facilities to run the income generating activities			
3. The cooperative has adequate field/farms for carrying out the business activities			

4. The Cooperative has adequate supply source of critical inputs for business activities			
Business Leadership			
1. The cooperative has visionary and proactive leadership for promoting business activities			
2. The cooperative socetes always take proactive steps to harness the business /funding opportunities			
3. The cooperative has online platform/active social media presence to connect people			
4. The cooperative encourages its members for starting business ventures through financial and marketing support			
Business Governance			
1. The cooperative has good linkage and convergence with village/district/state/national levels Institutions supply source of critical inputs for business activities			
2. The cooperative has political/bureaucratic hindrance to start their business activities			
3. The Cooperative has adequate budget for starting business activities			
4. The Cooperative has internal mechanism for monitoring to ensure the quality of output			
5. The business environment of the cooperative is supportive, innovative and enabling business excellence			

Part D: Constraints

Constraints	Severe	Moderate	Minor
1. Weak financial status			
2. Indebtedness			
3. High cost of fishing equipment			
4. Lack of technical know-how in accounting, record keeping			
5. Poor awareness of cooperative administration			
6. Unavailability of technical staff			
7. Lack of coordination in cooperatives			
8. Political influence			
9. Lack of welfare schemes			
10. Inadequate transport facilities			
11. Lack of processing facilities			
12. Poor marketing facilities			
13. Lack of motivation			
14. Others (Specify)			

Part E:

Suggestions for strengthening Multi-level fisheries cooperatives

- i.
- ii.

Annexure - 2

Sl.No	Name of the Fisheries cooperative societies	District	Reg. No	Date of Registration
1	COFFED	Patna	MSCS/CR/1491/2024	24.04.1951
2	Patna RFCs	Patna	4/HQ	10.08.1983
3	Tirhut - Darbhanga RFCs	Muzaffarpur	BR-23-0032795	28.08.1981
4	Patna DFCs	Patna	03/Patna/69	16.08.1969
5	Darbhanga DFCS	Darbhanga	BR/06/01/01/F/10/1998	23.06.1998
6	Samastipur DFCs	Samastipur	BR/06/03/00/F/04/2009	28.02.2009
7	Mokama Prakhand Matsya jivi Sahyog Samiti	Patna	Matsyajivi(Pat)purn 0/2011	18.11.2011
8	Patna sadar Prakhand Matsyajivi Sahyog Samiti	Patna	01Matsyajivi(Pat)purn/2012	25.02.2012
9	Maner Prakhand Matsyajivi Sahyog Samiti	Patna	129/Patna	30.01.1971
10	Punpun Prahand Matsyajivi Sahyog Samiti	Patna	20Matsyajivi(Pat)purn/2010	03.05.2010
11	Phulwarisharif Prakhand Matsyajivi Sahyog Samiti	Patna	119Matsyajivi(Pat)purn/2010	20.12.2010
12	Pandarak Prakhand Matsyajivi Sahyog Samiti	Patna	19Matsyajivi(Pat)purn/2011	02.12.2011
13	Naubatpur Prakhand Matsyajivi Sahyog Samiti	Patna	01 Matsyajivi(Pat)purn/2015	07.05.2015
14	Daniyawan Prakhand Matsyajivi Sahyog Samiti	Patna	17 Matsyajivi(Pat)purn/2011	19.06.1996
15	Belchhi Prakhand Matsysjivi Sahyog Samiti	Patna	01Matsyajivi(Pat)purn/2011	18.01.2011
16	Danapur Prakhand Matsyajivi Sahyog Samiti	Patna	97/Patna	20.07.1949
17	Kusheshwar Prakhand Masyajivi Sahyog Samiti	Darbhanga	09/Dar/2011	19.02.2011
18	Biraul Prakhand Matsyajivi Sahyog samiti	Darbhanga	14/Dar/2011	26.02.2011
19	Ghanshyampur Prakhand Matsyajivi	Darbhanga	12/Dar/2011	09.09.2011

Annexure - 2

	Sahyog Samiti			1
20	Kewati Prakhand Matsyajivi sahyog samiti	Darbhanga	01/Dar/2011	06.01.2011
21	Darbhanga Sadar Prakhand Matsyajivi Sahyog Samiti	Darbhanga	05/Dar/2011	04.02.2011
22	Hanuman Nagar Prakhand Matsyajivi Sahyog Samiti	Darbhanga	19/Dar/2015	08.05.2015
23	Bahadurpur Prakhand Matsyajivi Sahyog Samiti	Darbhanga	04/Dar/2011	17.02.2011
24	Singhawara Prakhand Matsyajivi Sahyog Samiti	Darbhanga	18/Dar/2011	07.02.2011
25	Manigachhi Prakhand Matsyajivi Sahyog Samiti	Darbhanga	17/Dar/2011	01.04.2011
26	Alinagar Prakhand Matsyajivi Sahyog Samiti	Darbhanga	13/Dar/2011	13.02.2011
27	Bibhutipur Prakhand Matsyajivi Sahyog Samiti	Samastipur	10/SAM/2010	18.12.2010
28	Morwa Prakhand Matsyajivi Sahyog Samiti	Samastipur	46/SAM/1962	13.08.1962
29	Tajpur Prakhand Matsyajivi Sahyog Samiti	Samastipur	11/SAM/2010	18.12.2010
30	Rosara Prakhand Matsyajivi Sahyog Samiti	Samastipur	7/SAM/2010	01.09.2010
31	Mohanpur Prakhand Matsyajivi sahyog Samiti	Samastipur	4/SAM/2010	20.09.2010
32	Samastipur Prakhand Matsyajivi Sahyog samiti	Samastipur	13/SAM/2010	20.12.2010
33	Shivajinagar Prakhand Matsyajivi Sahyog Samiti	Samastipur	12/SAM/2010	06.10.2010
34	Khanpur Prakhand Matsyajivi Sahyog Samiti	Samastipur	14/SAM/2010	18.12.2010
35	Dalsingh Saray Prahand Matsyajivi Sahyog Samiti	Samastipur	19/SAM/2010	18.12.2010
36	Pusa Prakhand Matsyajivi Sahyog Samiti	Samastipur	35/SAM/1980	19.01.1980