



Analysing Constraints to Strengthen Multi-level Inland Fisheries Cooperatives in Tamil Nadu, India

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Abstract

Inland fisheries cooperatives in Tamil Nadu face multiple challenges across institutional levels. This study identified constraints and suggested strategies to strengthen their performance by examining 40 purposively selected primary inland fisheries cooperatives—equally divided between two-tier (directly linked to the state federation) and three-tier cooperatives (linked through district and state federations). In addition, one state-level federation (TAFCOFED) and two district inland fisheries federations were included. Data were gathered through focus group discussions and interviews with executive and general body members. Using the Constraint Analysis Index, constraints were classified into five major categories: financial, infrastructural, technical, social, and cooperative governance. Three-tier cooperatives were most affected by financial constraints, particularly lack of credit facilities (CAI = 100.00), followed by political interference (CAI = 91.67). In two-tier cooperatives, the most pressing issues were poor marketing infrastructure (CAI = 100.00) and poor member interest and participation (CAI = 89.00). At the district and state federation levels, poor marketing facilities, unavailability of technical support, and weak member engagement (each with CAI = 100.00) emerged as major concerns. Common challenges across all levels included limited credit access, inadequate infrastructure, and weak financial status. To address these issues, the study recommends strengthening financial linkages and working capital, upgrading market infrastructure, and enhancing water body management. It also stresses the importance of inclusive training of all the members, increased member participation, and regular, politically neutral elections to promote the sustainable development of inland fisheries cooperatives.

Keywords:

Constraints, Multi-level cooperatives, Governance, Inland Fisheries, Tamil Nadu

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Received : 11 August 2024

Accepted : 15 November 2024

Introduction

India is endowed with abundant inland water resources and favourable agro-climatic conditions, which provide significant potential for inland fisheries. The country ranks second globally in inland production, contributing nearly 8% to the world's total fish production. From 2011–12 to 2023–24, the fisheries sector recorded a remarkable annual growth rate of 8.44% in its gross value of production, is the highest among all agriculture and allied sectors in the country (Handbook on fisheries statistics, 2024).

Inland fisheries cooperatives play a vital role in sustaining livelihoods, enhancing food security, and empowering fishers. These cooperatives operate at multiple levels—state, district, and primary societies and it has been established to enhance the productivity, sustainability, and economic viability of fishers. Fisheries cooperatives, play a multifaceted role in income generation and providing services related to health, education, public distribution, and social welfare (Sapovadia, 2004).

Despite their significance, inland fisheries cooperatives often face

structural, operational, and governance challenges that hinder their effectiveness. Many inland fishers, who often come from economically and socially disadvantaged backgrounds, lack the financial resources, technology, and organisational support to improve fish production, processing, and marketing (Mahanayak & Panigrahi, 2021). Most cooperative-managed markets lack basic infrastructure such as ice storage and sanitation, limiting their effectiveness in fish marketing and supply chain operations (Unal et al., 2009). Small-scale fishers face many issues such as inadequate infrastructure, underfunding, limited market access, weak governance, and competition from commercial players (Andalecio, 2010; Salas et al., 2007; Kimani et al., 2020). Although the cooperative model offers a pathway to address these challenges, particularly for inland fisheries cooperatives. Moreover, little attention has been given to how constraints differ across various levels of cooperatives, namely, state, district, and primary societies. This study aims to analyse the constraints faced by multi-level inland fisheries cooperatives in Tamil Nadu and to propose appropriate strategies for their effective functioning and sustainability.

Overview of Inland Fisheries Cooperatives in Tamil Nadu

Fisheries cooperatives are very crucial in enhancing the socio-economic advancement of the fisher communities in Tamil Nadu. In the state, fish marketing, processing and procurement come under the control of Tamil Nadu State Apex Fisheries Cooperative Federation Limited (TAFCOFED), which was founded in 1992 under the Tamil Nadu Cooperative Societies Act. Out of the 1,483 registered fisheries cooperatives in the state, only 831 of them are members of TAFCOFED, comprising 10 district federations and 165 inland cooperatives, and this shows a large institutional disconnection (TAFCOFED Annual Report, 2023-2024).

For inland fishers, the primary source of income comes from reservoir-based fisheries operated by inland fisheries cooperatives. Tamil Nadu has 3.83 lakh hectares of inland water resources, including reservoirs, irrigation tanks, and ponds. However, most water bodies retain water only for four to five months annually, restricting fishing activities (Marimuthu, 2015). Out of 2.26 lakh inland fishers, only 79,000 are active members of 303 Primary Inland Fisheries Cooperative Societies (PIFCSs) (Tamil Nadu Fisheries Policy, 2022).

The Tamil Nadu Inland fisheries cooperatives operates in two systems, namely, the two-tier system, which comprises a direct affiliation of primary cooperatives to TAFCOFED, and the three-tier system, where the primary cooperatives are affiliated both to the district federations and to the state federation. This hierarchical interdependence has implications for governance, service delivery, and accessibility of schemes. Understanding the constraints in

functioning at each level i.e. State Federation, District Federation and Primary Cooperatives, is essential for identifying gaps and developing targeted strategies to strengthen the multi-level cooperative network and improve inland fisher livelihoods in Tamil Nadu. This study provides a tier-wise analysis of inland fisheries cooperatives, which is a novel contribution to the fisheries cooperatives.

Materials and Methods

The study was undertaken in inland regions of Tamil Nadu during the period of May to June 2024 to analyse the challenges faced by inland fisheries cooperatives functioning across multiple tiers. A total of 40 Primary Inland Fisheries Cooperative Societies (PIFCSs) were purposively selected, comprising 20 cooperatives under the two-tier structure (directly affiliated with the State Apex Federation) and 20 under the three-tier structure (affiliated with both District Federations and the State Federation). The three-tier cooperatives were associated with two inland district federations: the Vellore-Tiruvannamalai District Federation of Inland Fisheries Cooperatives and the Madurai District Federation of Inland Fisheries Cooperatives. Selection was based on criteria such as regular auditing and the conduct of annual general body meetings. In addition, one State Apex Federation and two District Inland Fisheries Federations were included to represent the upper tiers of the cooperative structure. Data were collected through focus group discussions held at each level. At the primary and district levels, discussions were conducted with executive and general body members of the societies. At the state level, discussions were held with members from the executive body and the management staff of the Apex Federation. A pilot study conducted in Dharmapuri district helped refine the interview schedule and discussion framework. Analysis of constraints was performed through the Constraint Analysis Index (CAI), which was based on Patil and Kokate (2011), where the constraints were rated as Severe (3), Moderate (2) and Minor (1). The CAI was computed in the formula:

$$CAI = \frac{(Sum\ of\ scores\ for\ a\ constraint)}{(Total\ societies\ \times\ Maximum\ score)} \times 100$$

This enabled comparative ranking of constraints across 2-tier and 3-tier cooperative structures and insights from the state and district levels. The CAI was used due to its simplicity and effectiveness in ranking qualitative data.

Results and discussion

Inland fisheries cooperatives in Tamil Nadu function within a multi-tier structure comprising primary (2-tier and 3-tier), district, and state federation. At the primary level, each society is administered by a seven-member executive body—consisting of a president,

vice president, and five board members—either elected or nominated under the oversight of the Department of Fisheries (Bylaws of TAFCOFED, 2022). Their operations include reservoir leasing, fish marketing, and sustaining livelihoods in fisheries and allied sectors.

Profile of members at multi-level inland fisheries cooperatives

The findings derived from the analysis of 40 multi-level inland fisheries cooperatives, highlighting key patterns, constraints, and functioning across different tiers. Table 1 presented a Profile summary of multi-level inland fisheries cooperatives.

The executive members of the state and district federations were educated till higher secondary school and fully trained (100%), whereas general body members of 2-tier and 3-tier cooperatives lacked formal training in the last five years. Executive members had more experience (20–25 years) and were actively involved in fishing and marketing, while general members—especially at the primary level—were mostly engaged in agriculture and part-time fishing. Executive members were most likely to have membership experience on all levels since they were more involved in cooperative functions due to long-term cooperation. This indicates that leadership is largely held by long-serving members, while general members participate occasionally in cooperative activities.

Reservoir use and operations

Reservoir-based aquaculture was predominantly seasonal, with 80% of water bodies holding water for just 4–5 months annually. Major species cultured included Indian and Chinese Major Carps. Fishers often relied on imports from neighbouring states like Andhra Pradesh to manage demand gaps. Though playing a central role in the supply chain, inland fishers' action was greatly curtailed with little to no subsidising and

support compared to their marine counterparts. Some reservoirs were leased through a public auction arrangement that discriminated against marginalised cooperative members. In addition, certain societies were non-functional and existed solely to get government benefits without actually operating actively.

Constraints and CAI analysis

Constraint analysis was conducted across the multi-cooperative levels-State Federation, District Federations (DIFCSs), 2-tier, and 3-tier Primary Inland Fisheries Cooperative Societies (PIFCSs) under five broad categories: financial, infrastructural, cooperative governance, technical, and social (Table 2).

Financial constraints were critical in 3-tier cooperatives, where lack of credit facilities (CAI = 100.00) was the top-ranked issue, followed by weak financial status and high equipment costs. Although older and larger in membership (673 members on average), two-tier cooperatives faced moderate financial strain. In contrast, state and district federations reflected institutional financial stability, with relatively lower CAI scores (33.33–50.00). These findings are consistent with prior research highlighting that inadequate access to institutional credit and reliance on informal lending hinder cooperative efficiency (Emdad Haque et al., 2015; Fowowe, 2017). Kashangaki (2017) also emphasized that poor financial access increases vulnerability among inland fishers, while Iqbal and Sami (2017) observed that weak cooperative-bank linkages further constrain financial inclusion.

Infrastructural deficiencies, especially poor marketing and transport facilities, were widespread. Poor marketing infrastructure ranked as the most severe constraint across state, district, and 2-tier levels (CAI = 100.00), whereas transport constraints were

Table 1: Profile summary of multi-level inland fisheries cooperatives

Profile Variables	State Apex	DIFCSs	Tier PIFCSs		3 Tier PIFCSs	
	Executive Body		Executive Body	General Body	Executive Body	General Body
Average age	48 years	47 years	46 years	43 years	48 years	45 years
Education						
Illiterate	0%	0%	4%	35%	26%	32%
Primary School	0%	7%	28%	35%	46%	42%
Middle School	57%	64%	47%	13%	16%	17%
Higher Secondary and above	43%	29%	21%	17%	12%	9%
Training status	100% Trained	100% Trained	65% Trained	0% Trained	77% Trained	0% Trained
Membership experience	24 years	25 years	24 years	18 years	20 years	16 years
Major occupation	Fishing & Marketing	Fishing & Marketing	Fishing & Marketing	Fishing & Agriculture	Fishing & Marketing	Fishing & Agriculture

Table 2: Constraint analysis of multi-level inland fisheries cooperatives

Constraints	State Apex		DIFCSs		2-tier PIFCSs		3-tier PIFCSs	
	CAI	Rank	CAI	Rank	CAI	Rank	CAI	Rank
Financial Constraints								
Lack of credit facilities	33.33	III	33.33	V	81.67	VI	100.00	I
High cost of fishing equipment	33.33	III	33.33	V	80.00	VII	68.33	VII
Weak financial status	33.33	III	50.00	IV	66.67	VIII	90.00	III
Infrastructural constraints								
Poor marketing facilities	100.00	I	100.00	I	100.00	I	81.67	VI
Inadequate Fish transport facilities	100.00	I	83.33	II	41.67	XI	81.67	VI
Cooperative governance constraints								
Poor member interest and participation	100.00	I	100.00	I	89.00	II	48.33	IX
Political interference	100.00	I	83.33	II	86.67	III	91.67	II
Lack of coordination in cooperatives	33.33	III	83.33	II	81.67	VI	66.67	VIII
Poor awareness of cooperative administration	33.33	III	66.67	III	48.33	IX	48.33	IX
Technical constraints								
Weed infestation in water bodies	66.67	II	83.33	II	85.00	IV	85.00	IV
Unavailability of technical assistance	100.00	I	100.00	I	83.33	V	83.33	V
Social constraints								
Lack of welfare schemes	33.33	III	50.00	IV	83.33	V	83.33	V
Illiteracy	66.67	II	50.00	IV	45.00	X	45.00	X

significant at state (100.00), district (83.33), and 3-tier (81.67) levels. However, 2-tier cooperatives experienced fewer issues with transport, possibly due to better local connectivity or shorter distribution chains.

Cooperative governance emerged as a pervasive challenge. At the state and district levels, poor member participation and political interference were the most severe (CAI = 100.00). In 2-tier cooperatives, these ranked second and third, respectively, highlighting a consistent issue across tiers. The lack of elections in 65% of primary societies led to favouritism and biased scheme implementations. Even 3-tier cooperatives showed high levels of political interference (CAI = 91.67), indicating governance breakdowns at all institutional levels.

Within primary cooperatives (CAI = 85.00), technical limitations like weed infestation in reservoirs (mainly *Eichhornia*) were a common problem. Meanwhile, technical support was available mostly at higher levels and was largely inaccessible to the less-informed members of the general body. This lack of information transfer hindered productivity and innovation.

There was also the issue of social constraints. Due to insufficient government support, welfare schemes ranked high (CAI = 83.33) as a major problem on both the 2-tier and 3-tier levels. Experiential learning helped to mitigate the problem of illiteracy, but the problem of

little to no knowledge regarding cooperative administration was still a major problem, especially within PIFCSs.

These findings corroborate earlier research. Financial exclusion and lack of collateral hinder loan access for fishers (Emdad Haque *et al.*, 2015; Fowowe, 2017; Kashangaki, 2017). Weak institutional links and inadequate cooperative-bank relationships intensify the vulnerability of inland fisheries cooperatives, as noted by Iqbal and Sami (2017). Governance challenges, particularly political interference, and infrastructural issues related to transport and market hygiene have also been widely documented (Wanyonyi *et al.*, 2016; Kimani *et al.*, 2020).

Addressing these issues requires a tier-sensitive policy approach. Much as institutional reforms and improved administrative coordination are required at higher-level cooperatives, priority should be given to inclusive governance, training members of the general body, and access to financial resources at the primary-level cooperatives. These findings indicate the necessity of simplifying and improving structures, clarifying the selection of leaders, and applying clarity in activities at all levels of collaboration.

Strategies for Strengthening Multi-level Inland Fisheries Cooperatives

In order to enhance the operations of inland fisheries cooperatives at various levels, a few strategic interventions should be made:

- 1. Financial linkages and working capital:** To improve its working capital and Cooperative surplus, promote fish sales through cooperative channels. Establish institutional connections with banks, NABARD, and microfinance institutions to facilitate credit access, particularly among women.
- 2. Market infrastructure and value addition:** Develop hygienic landing centres, transport facilities, and cold storage at all levels. Support cooperatives in producing and marketing value-added products to improve income.
- 3. Capacity building and training:** Ensure inclusive training programs covering modern aquaculture, governance, value chain management, and entrepreneurship, especially targeting general body members and women.
- 4. Governance reforms:** Mandate regular and transparent elections at all levels to reduce political interference. Deploy district-level officers for cooperative supervision and conflict resolution.
- 5. Water body management:** Amending auction guidelines to protect cooperative access to leased reservoirs. Avoid leasing drinking water sources to prevent local conflicts.
- 6. Policy and scheme awareness:** Launch awareness drives and capacity building on cooperative administration and available government schemes to empower under-informed members.

Conclusion

The study highlights the key constraints faced by inland fisheries cooperatives across Tamil Nadu. Financial challenges, such as limited access to credit and weak financial status, are most severe in three-tier cooperatives. Infrastructure related issues like poor market facilities and poor transport connectivity affect cooperatives at all levels. Governance problems have been widespread across state, district and primary cooperatives, this decreases the efficacy of cooperative operations, especially due to political interference and poor member involvement. Fishers are further hindered by technical limitations, which include weed infestation in water bodies and poor technical skills. These findings emphasise the need for targeted interventions are required across the all-cooperative level. Improving financial support structures, creating adequate market and transport infrastructures, inclusive training and enhancing democratic and transparent governance should be of great priority. Furthermore, modernizing aquaculture

practices and promoting value-added opportunities can significantly boost fish production and member incomes. Addressing these multi-dimensional constraints is essential to strengthening the sustainability and operational effectiveness of inland fisheries cooperatives in the region.

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