

Fish cooperatives: Development and performance through sustainable development goals for food and feed ecosystems

Amit N. Borkar¹, Hema Yadav² and Mahesh M. Kadam³

1. Assistant Professor, Vaikunth Mehta National Institute of Cooperative Management (VAMNICOM), Pune, India;

2. Director, Vaikunth Mehta National Institute of Cooperative Management (VAMNICOM), Pune, India;

3. Associate Professor, VAMNICOM, Pune, India.

India ranks second in global fish production and holds the second position in aquaculture production and inland capture fisheries. The fisheries sector provides livelihoods to over 16 million people. In 2017-18, our total fish production was 12.59 million metric tonnes, with an average annual growth of 10.14% (Handbook on Fisheries Statistics, Ministry of Fisheries, Animal Husbandry & Dairying, Government of India, 2018). India has abundant fishery resources with great potential for substantial progress. According to FishBase (Froese and Pauly, 2013), 862 species of freshwater fish are found in India. In 2017, 788 marine fish species were landed along Indian coasts. We possess more than 10% of global fish biodiversity.

Moreover, the fisheries sector contributes more than 5% of the agricultural GDP. However, despite being a 'sunrise sector', the fishing industry faces many constraints.

Some constraints in the fisheries sector are as follows:

- Most people engaged in fisheries for their livelihood belong to socio-economically disadvantaged communities.
- There is a lack of proper institutional support, such as infrastructure and finance.
- Quality seed is not readily available.
- The sector suffers from a lack of organised marketing.
- Quick transport facilities are unavailable.
- Fish farmers often have poor technical skills.
- There is a paucity of funds and bank credits.
- Participatory fisheries management is lacking.
- Social issues also pose significant challenges.

It was realised that fishermen and women should be organised at the community level to overcome these problems and improve their socio-economic status. This can be achieved by incorporating appropriate inputs from education, finance, marketing, communication, technology, transport, seed availability, health, and government policies. This idea led to the birth of Fisheries Cooperative Societies in India. As early as 1913, the fishery cooperative movement in India began when the first fisher's society, the Karla Machhimar Cooperative Society, was organised in Maharashtra.

Efforts to strengthen fishery cooperatives by various entities

The National Cooperative Development Corporation (NCDC), New Delhi, played a significant role in strengthening fishery cooperatives by assisting them to build their share capital and establishing service and repair centres for boats. NCDC also supported the setting up of canning units, fish oil and meal plants, net-making units, and the construction of godowns (storage facilities) and drying yards. To enhance the development of fishing cooperatives, NCDC formulated a comprehensive policy for assisting fishery cooperatives for various purposes. These include purchasing operational inputs such as fishing boats, nets, and engines, creating infrastructure facilities for marketing like transport vehicles, cold storages, and retail outlets, setting up processing units including ice plants and cold storages, and developing inland fisheries, seed farms, and hatcheries. Additionally, NCDC assists in preparing feasibility reports, appointing experts under technical and promotional cell schemes, and implementing integrated fisheries projects for marine, inland, and brackish water fisheries.

The National Fisheries Development Board (NFDB), Hyderabad, established in 2006, also plays a crucial role. NFDB aims to realise the untapped potential of the fisheries sector, augment fish culture, and promote fish processing and marketing. It focuses on the application of modern tools of research and development to optimise fish production. Furthermore, NFDB provides special care and financial assistance to fisher's societies, cooperative bodies, women, Scheduled Castes and Schedule Tribe communities, weaker sections, and underdeveloped regions.

International entities supporting the fisheries sector

The International Cooperation (IC) Division serves as a focal point to facilitate communication and interaction between the Department of Fisheries/Ministry of Agriculture & Farmers Welfare and international organisations, as well as foreign countries. This role helps the fisheries sector in India stay updated on the latest technological developments and advancements occurring globally, especially in technologically advanced countries. The objective is to leverage this knowledge to increase production and productivity in the livestock sector. Additionally, the division acts as a bridge

between India and less technologically advanced nations, sharing knowledge and providing technological assistance to strengthen friendly relations.

The Sustainable Development Goal 14: Life Below Water aims to conserve and sustainably use the oceans, seas, and marine resources for sustainable development.

Given the challenges and efforts by various entities, there is a need for a roadmap for the overall development of the fisheries sector through institutional building via cooperatives. The objectives of this study were framed to guide research in this area:

- To study the performance of fish cooperatives in India during NITI.
- To examine the Government of India's schemes for fish cooperatives.

To investigate the finance, marketing, and capacity-building needs and associated problems of fish cooperatives.

Methodology

The research study employed a straightforward approach using factual data and literature from the NITI Aayog era. Secondary data were gathered from the inception of NITI Aayog in 2015 to July 2023. The collected information was analysed using simple tabular analysis (refer Table 1 below) to profile fish cooperatives in India.

Findings

Table 1 outlines the performance of fish cooperative societies at the primary, district, and state levels in India from 2015 to 2023. It also presents data on the memberships of fishery societies and the number of insured fishers across all levels of the cooperative structure.

Fishery cooperatives in India

The fisheries sector in India is diverse, encompassing marine, inland, brackish water, cold water, and ornamental fisheries. This sector holds significant economic potential, supported by India's extensive coastline of over 8,000 km, an exclusive economic zone exceeding 2 million square km, and numerous freshwater bodies.

Types of fishery cooperative societies:

- **Producer's cooperative societies:** Aim to produce goods and services based on common ownership and management by workers, eliminating the employee-employer relationship.
- **Fish consumer's societies:** Composed of agricultural workers and middle-class individuals who operate consumer stores. These societies purchase fish at wholesale prices and sell them at market or lower prices to their members.
- **Fisheries credit societies:** Voluntary associations providing credit to members based on personal security or nominal security.
- **Marketing cooperative societies:** Managed by small producers to promote their trade by selling goods at reasonable prices, bypassing middlemen.
- **Insurance cooperative societies:** Negotiate with insurance companies to minimise risk for members and their produce. They purchase individual and group insurance policies at lower premiums.
- **Transport cooperative societies:** Provide vehicle and transport services to members at reduced rates.
- **Storage cooperative societies:** Offer storage facilities for perishable items to their members.

These cooperative societies play a crucial role in enhancing the economic viability and sustainability of the fisheries sector in India by facilitating collective action and shared benefits among their members.

Role of fishery cooperatives

Fishery cooperatives play a crucial role in providing livelihood security, nutritional security, and social security to vulnerable groups in society. In India, approximately 4 million people derive economic benefits from primary fishery cooperatives.

These cooperatives are pivotal in the current economic landscape and should receive support at every level. Funding is essential to develop infrastructure and establish progressive supply chains and value chains that ensure sustainability. By bolstering fishery cooperatives, India can enhance economic resilience and social well-being among its coastal and inland fishing communities.

Table 1. Performance of the fish cooperatives in India, 2015-2022.

Fishery Cooperatives	2015-16	2016-17	2017-18	2020-21	2021-22	2022-23
Number of primary fishery cooperatives	18,559	18,357	20,639	21,714	25,301	27,906
Number of regional / district fishery cooperative societies	130	132	144	132	152	138
Number of state federation of fisher's cooperatives	22	21	21	28	23	33
Membership (million)	2.8	2.9	3.2	3.3	3.8	3.9
Fishermen insured	4,671,124	4,214,220	4,214,220	NA	NA	NA

Fishery development: Government of India's thrust

The Government of India has placed significant emphasis on the development of the fisheries sector through various initiatives:

- **Aatmanirbhar Bharat Abhiyaan:** A Rs 20 trillion economic package aimed at creating jobs in the fisheries sector.
- **Pradhan Mantri Matsya Sampada Yojana (PMMSY):** Launched in 2019-20 with a total project outlay of Rs 200.5 billion to boost India's economy through the fisheries sector. Learn more about PMMSY.
- **Fisheries & Aquaculture Infrastructure Development Fund (FIDF):** A dedicated fund of Rs 75.22 billion established to develop fisheries and aquaculture infrastructure.
- **Blue Revolution:** Introduced in 2014, it aims to enhance fish production and develop infrastructure in the fisheries sector.

These initiatives underscore the government's commitment to bolstering the fisheries sector, promoting economic growth, and improving livelihoods across India.

Fishery cooperative movement in India

The fishery cooperative movement in India dates back to 1913, with the establishment of the first fisher's society named the 'Karla Machhimar Cooperative Society' in Maharashtra. Since the establishment of the Ministry of Cooperation, fisheries cooperatives have received significant attention and focus.

National database of fisheries cooperatives

Efforts are underway to organise fishery cooperatives across every panchayat in India, aiming to reach a total of 200,000 cooperatives in the next five years. The National Fisheries Development Board (NFDB) and FISHCOPFED are working closely with state and union territory authorities to expedite this initiative. The database will help identify sectoral gaps, with concerted efforts to address them.

Fishery success stories

Fishery cooperatives have gained prominence since the establishment of the Ministry of Cooperation in 2021. Some notable examples include:

- **Matsyafed-Kerala:** Established in 1984, this state-level federation excels in fish sales, exports, and operates its own mat-making and processing plants.
- **Gujarat Fisheries Central Cooperative Association (GFCCA):** Registered in 1956, GFCCA manages diesel outlets for fishing boats and operates successful fish retail outlets in Delhi.

These success stories highlight the positive impact of cooperative models in enhancing fishery operations, sales, and economic outcomes across different states in India.

Enhanced access to agricultural credit

Ensuring seamless access to affordable credit has been a paramount goal of the Government of India, particularly through initiatives like the Kisan Credit Card Scheme (KCC).

Kisan Credit Card Scheme

Introduced in 1998, the KCC scheme empowers farmers to access credit for agricultural inputs and services at any time. As of 30 December 2022, banks have issued KCCs to 389 million eligible farmers, with a total credit limit of ₹4.51 trillion. The scheme was extended to fisheries and animal husbandry sectors in 2018-19, resulting in the issuance of 100,000 KCCs to fisheries and 950,000 to animal husbandry farmers as of 4 November 2022.

Interest Subvention Scheme (ISS) / Modified Interest Subvention Scheme (MISS)

To ensure affordable credit, the government introduced the ISS, now known as MISS, offering short-term agricultural loans up to ₹300,000 at a subsidised interest rate of 7% per annum. Farmers engaged in agriculture and allied activities, including animal husbandry, dairying, poultry, and fisheries, benefit from this scheme. An additional 3% subvention (prompt repayment incentive) is provided to farmers who repay loans promptly, reducing the effective interest rate to 4% per annum.

Agriculture credit flow

Due to these initiatives and strengthened policies, there has been a consistent increase in agricultural credit flow, surpassing targets each year. In 2021-22, credit flow exceeded the ₹16.5 trillion target by approximately 13%. The target for 2022-23 aims to further increase credit flow to ₹18.5 trillion, supporting agricultural growth and rural livelihoods across India.

Fisheries catching up in recent years

The allied sectors of Indian agriculture—livestock, forestry and logging, and fishing and aquaculture—are increasingly contributing to buoyant growth and promising farm incomes. From 2014-15 to 2020-21, the livestock sector grew at a compound annual growth rate (CAGR) of 7.9% (at constant prices), boosting its share of total agriculture GVA (at constant prices) from 24.3% to 30.1%. Similarly, the fisheries sector has maintained an annual average growth rate of about 7% since 2016-17, now accounting for 6.7% of total agriculture GVA. This higher growth in allied sectors compared to traditional crops underscores their rising importance in agricultural economics. Acknowledging this trend, the Committee on Doubling Farmers' Income (DFI, 2018) identifies dairying, livestock, poultry, fisheries, and horticulture as key growth drivers, recommending focused policies and support systems for these sectors.

Pradhan Mantri Matsya Sampada Yojana (PMMSY)

In May 2020, as part of the Aatmanirbhar Bharat stimulus package, the Government of India launched the Pradhan Mantri Matsya Sampada Yojana (PMMSY) with a total outlay of ₹200.5 billion. PMMSY represents the largest-ever investment in India's fisheries sector, planned for

implementation over five years from FY21 to FY25 across all States and Union Territories. The aim is to foster sustainable and responsible development while promoting the socio-economic well-being of fishers, fish farmers, and fish workers. Prior to this initiative, efforts focused on addressing infrastructure gaps through the Fisheries and Aquaculture Infrastructure Development Fund (FIDF), established from 2018-19 to 2022-23 with an investment of ₹75.22 billion. As of 17 October 2022, proposals amounting to ₹49.239 billion have been approved under FIDF, benefiting over 940,000 individuals through direct and indirect employment in fishing and allied activities.

Sahakar-Se-Samridhi: From cooperation to prosperity

The cooperative societies, particularly in agriculture, dairy, and fisheries sectors, offer rural populations livelihood opportunities and financial security through community-based approaches. Cooperatives are pivotal in transforming rural economies. The country hosts 850,000 registered cooperatives with over 290 million members, primarily from marginalised rural communities. Primary Agriculture Credit Societies (PACS) cover 98% of villages. To realise the vision of "Sahakar-se-Samridhi," the cooperative sector has received renewed attention. Currently, cooperatives account for approximately 19% of agricultural financing. The Ministry of Cooperation, established in July 2021, focuses on enhancing the cooperative sector. Government initiatives include computerising 63,000 functional PACS and enabling their expansion through by-laws. The *Multi-State Cooperative Societies Act, 2002* replaced the 1984 Act, promoting democratic and autonomous functioning. Currently, there are 1,528 registered societies under this Act, including 66 Multi-State Cooperative Banks holding deposits of approximately ₹2.6 trillion. Maharashtra leads with 661 cooperatives, followed by Delhi and Uttar Pradesh.

The food processing sector plays a crucial role in India's development by fostering strong linkages between industry and agriculture. Over the last five years leading up to FY21, the food processing industries sector has grown at an average annual rate of approximately 8.3 percent. According to the latest Annual Survey of Industries (ASI) for 2019-20, 12.2 percent of individuals in the registered manufacturing sector were employed in food processing. Furthermore, agri-food exports, including processed food exports, accounted for about 10.9 percent of India's total exports during the fiscal year 2021-22.

The increasing significance of processed food items in the consumer market opens new horizons for both agriculture and industry sectors. This shift promotes diversification and commercialisation in farming, improves resource efficiency, enhances farmers' incomes, expands avenues for exporting agro foods, and creates employment opportunities. Optimal development of the food processing sector can address various developmental challenges, including disguised rural unemployment in agriculture, rural poverty, food security, food inflation, improved nutrition, and prevention of food wastage. These outcomes underscore the sector's pivotal role in India's socio-economic development.

To facilitate the unfettered growth of the food processing sector, there is a continuous need for extensive investment in cold chain infrastructure and to address logistical challenges.

The NITI Aayog Strategy for New India identifies the lack of adequate and efficient cold chain infrastructure as a critical supply-side bottleneck that leads to massive post-harvest losses (mostly of perishables) estimated at approximately ₹925.61 billion annually. The uneven geographic distribution of cold storage infrastructure also contributes to regional-level disparities. Given that countries worldwide have stringent guidelines for importing food and agricultural products, the probability of exports from India getting rejected increases with the lack of adequate cold chain infrastructure. Further, logistical barriers relating to connectivity also pose supply-side challenges. For instance, Indian national highways, while accounting for 2 per cent of the total road network, carry 40 per cent of all cargo – exemplifying the burden on the existing road networks and potential for congestion, which is detrimental to food (and particularly perishables) transport.

Recognising the abundant potential of the sector, the Government has been at the forefront with various interventions aimed at the development of food processing in the country. The Ministry of Food Processing Industries, through the component schemes of Pradhan Mantri Kisan SAMPADA Yojana (PMKSY), provides financial assistance for the overall growth and development of the food processing sector. Under PMKSY, 677 projects were completed by 31 December 2022. The Ministry also launched the Prime Minister's Formalisation of Micro Food Processing Enterprises (PMFME) Scheme in 2020 as part of the ANB Abhiyan to enhance the competitiveness of individual micro-enterprises in the unorganised segment and promote the formalisation of this sector by providing financial, technical, and business support for upgrading/setting up 200,000 micro units in the country. As of 31 December 2022, 15,095 loans totaling ₹14.026 billion were sanctioned. The scheme adopts the One District One Product (ODOP) approach to benefit from economies of scale in procuring inputs, using shared services, and marketing products. So far, 713 districts with 137 unique products were approved under ODOP in 35 states/UTs. The Production Linked Incentive Scheme for Food Processing Industry (PLISFPI), launched in March 2022, aims to incentivise investments to create global food champions. Sectors with high growth potential, such as marine products, processed fruits & vegetables, and 'Ready to Eat / Ready to Cook' products, are covered for support. In phase I, 149 applications have been selected for assistance under PLISFPI. Subsequently, a PLI Scheme for millet-based products was introduced with an outlay of ₹8 billion. In phase II, 33 applications (both organic and millet products) have been selected. To focus on transporting perishable food products, including horticulture, fishery, livestock, and processed products, from hilly areas, northeastern states, and tribal areas, Krishi UDAN 2.0 version was launched in October 2021 as a six-month pilot project. The Airports Authority of India (AAI) provides a full waiver of landing, parking, terminal navigational landing charges (TNLC), and route navigation facility charges (RNFC) for Indian freighters and P2C (passenger-to-cargo) aircraft. The scheme covers around 25 airports focusing on northeastern, hilly, and tribal regions, and 28 airports in other regions/areas. Thus, the scheme assists farmers in transporting agricultural products and improves value realisation.

To study finance, marketing, and capacity building needs and associated problems of fish cooperatives, a training needs assessment was carried out at Thane and Palghar fish marketing federations. Maharashtra Fishery Cooperative Federation operates at the apex level, District Central Fishery

Cooperative Society at the tier two level, and primary fishery cooperative societies at the village level. There are a total of 57 primary fishery cooperative societies under District Central Fishery Cooperative Society, Palghar.

There is an annual monsoon fishing ban from 1 May to 1 August 2023 to facilitate breeding of fish during the spawning season. Normally, societies have a varied number of small boats for fishing, but only a few societies harvest fish for more than 15 days. Most of the societies engage in daily harvests from morning to afternoon, adhering to the government's harvesting limit of 8 nautical miles.

Problems and suggestions

- **Unscrupulous practices:** Non-licensed individuals engage in night-time fishing using narrow mesh nets (LED and Percy nets), resulting in the capture of young fish before they reach economic maturity. Suggestions: Implement government regulations on the production, use, and manufacturing of fishing nets, and enhance monitoring of nighttime fishing activities.
- **Land tenure:** Lease tenures for land used in prawn and crab culture have expired. Suggestion: Extend lease periods to sustain prawn and crab culture and diversify business activities.
- **ONGC & MIDC activities:** Oil drilling by ONGC causes ocean environmental pollution, adversely affecting fish population growth. Suggestion: Advocate for government intervention as necessary to mitigate environmental impacts.
- **Tax burden on inputs:** Heavy taxes on bulk diesel cooperative purchases affect fisherfolk. Suggestion: Consider tax exemptions to support the betterment of fisher communities.
- **Compensation for fishing ban period:** Annual monsoon fishing bans from 1 May to 1 August hinder regular fishing activities, necessitating income assistance during this period. Suggestion: Extend income assistance similar to the PM-KISAN Yojana to fishers who are excluded from its benefits.
- **Skilled labour shortage:** Local skilled labourers are drawn to higher wages offered by entities under MIDC, leaving fish cooperatives struggling to recruit manpower at standard wages. Suggestion: Regulate wages in the area similar to the norms followed by the Food Corporation of India to address labour shortages.
- **Windbreak and JT Platform:** Heavy currents necessitate the construction of concrete windbreak walls and removal of JT platforms. Suggestions: Construct concrete windbreak walls and consider removing JT platforms to mitigate the effects of heavy currents.

The fisheries sector represents a sunrise industry in India with substantial economic potential. Fishery cooperatives are pivotal in ensuring access to nutritious food and creating employment opportunities. The Government of India is dedicated to advancing the fishery cooperative sector through robust policy frameworks and financial backing. The coordinated efforts between the Ministries of Cooperation and Fisheries are poised to catalyse the sector's expansion.

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