



Comparative Analysis of Marine Fisheries Cooperatives in Versova, Mumbai: Structure, Function, and Economic Performance

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Abstract

Versova (Vesave), a marine fishing village in the northern suburbs of Mumbai, is home to the Kolis, who rely on its rich fishing grounds for both demersal and pelagic species. The huge fishing grounds have driven substantial growth in marine fishing, providing livelihoods for 3,000 active fishers and involving an additional 5,000 in supporting activities. There are about 392 trawlers in village and hamlet add approximately Rs. 400 crores annually in stakeholder income. Cooperatives have played a pivotal role in Versova's fisheries development, with three successful fishers cooperative societies (Vesava Macchimar Vividh Karyakari Sahakar Society Ltd. (VMVKSSL); Vesava Machhimar Sahkari Society Ltd. (VMSSL); Vesava Koli Sahkari Sarvodaya Society Ltd. (VKSSL)) in operation. This article focused on the comparative analysis of their roles, based on historical data collected through interactions and visits. These cooperatives, founded eight decades ago, have transformed from single-service providers to multifaceted services. They now offer various services like fishing gear, diesel, ice, insurance, marketing, transportation, rations, ferry boats, auditorium facilities, subsidies, and loans to over 10,609-member fisher folk. Despite their pre-lockdown economic stability, the COVID-19 pandemic significantly impacted their sales and profits. VMVKSSL, having diversified into marine production and other sectors, remained resilient and garnered awards. In response, the other two societies diversified their activities to enhance financial stability and recognition. In summary, Versova's fisheries cooperative societies have a rich history and have adapted to become comprehensive support systems for the marine fishing community. They face the challenge of post-pandemic recovery while continuing to empower fisher folk and contribute to the village's socio-economic development.

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Introduction

A fishery cooperative is a society of fishers that is owned and governed by its members, who are actively involved in various activities such as fishing, input procurement, transportation, and fish marketing. These cooperatives operate as collectively owned businesses, and their decision-making processes are democratic in nature. Their primary aim is to work for the betterment of both fish producers and consumers by offering various forms of support. Cooperatives play a significant role in small-scale fisheries, contributing to local communities and assisting in fisheries management (Unal *et al.*, 2009; Amarasinghe and Bavinck, 2011). In India, a substantial number of fisheries cooperative societies are serving both marine and inland sectors to benefit fishers. Presently, there is a well-structured cooperative system in place, including a National Level Federation called FISHCOPFED, along with 21 state-level federations, 7 regional level federations, 132 district-level federations, and an impressive total of 21,741 primary cooperative

societies operating in both marine and inland fisheries sectors. These cooperative entities collectively represent a membership of approximately 33,53,115 fishers as of 2022 (Fishcopfed, 2022; BOBP, 1983).

Versova, originally known as *Vesave*, is a small fishing village inhabited by the Koli community of Maharashtra. It is located to the north of the historic city of Mumbai (Mulock *et al.*, 2000). The village Versova is located at the mouth of Malad Creek in Mumbai and about 30 km north of the Sassoon Dock fisheries harbour, has become one of Maharashtra's most promising fishing hubs (CICEF, 2019). The presence of abundant fishing grounds, catering to both demersal and pelagic species, has led to significant growth in fishing activities in Versova. The shores of Versova creek are embraced by thriving mangroves that provide a habitat for various marine life, including crabs, molluscs, fish, and shellfish (Kantharajan *et al.*, 2017). The fishing harbour in Versova not only benefits the local fishers but also plays a crucial role in the broader supply chain. In the Versova region, Penaeid and Non-Penaeid Prawns constitute more than 50% of the catch, while Bombay duck accounts for around 16%, Anchoviella comprises over 7%, and Ribbon fish makes up greater than 6% of the entire fish landings as of 2010-11.

The demographic profile of Versova reveals a total of 1523 households, with approximately 5581 individuals constituting the fisherfolk population. Among these, 1475 households belong to traditional fishers, while 791 families fall below the poverty line. The fleet composition includes 286 mechanized crafts, 42 motorized crafts, and 64 non-motorized crafts, summing up to a total of 392 crafts. Moreover, the average family size in the area is estimated to be 4 individuals per household (table 1). The Kolis, the local fisher folk, engage in both wholesale and retail fish sales at Versova jetty. They have established their own cooperative societies, managed by the fishers themselves, to oversee all fishing activities (Choudhary and Vidhi, 2016). The cooperatives in Versova play a pivotal role in meeting the needs of the fishers, and sustainable management of these cooperative societies is essential for increasing fish production and supporting the socio-economic development of the fishers (Mahanayak and Panigrahi, 2021).

Table 1. Basic profile of Versova

Particular	Number
Total households	1523
Traditional fishers' families	1475
BPL families	791
Fisherfolk population	5581
Average family size	4
Total no. of mechanized craft	286

Total no. of motorized craft	42
Total no. of non-motorized	64
Total no. of craft	392

Data source: Marine Fisheries Census 2016, Maharashtra

This article aims to provide a comparative understanding of the functioning of Versova fisheries cooperative societies for the benefit of both fish producers and consumers. It's worth noting that fishing cooperative societies have been a subject of limited research, especially in India (Tyagi *et al.*, 2013). Therefore, this article fills a gap in the existing knowledge by offering insights into the operations of Versova fisheries cooperative societies.

Methodology

The data on various aspects of fisheries cooperatives located in Versova village was collected through personal visits to the societies as well as through focused group discussions with its members as well as office bearers. Four focused group discussions were conducted wherein 19 members and officials from sampled societies participated. Information and data related to economic performance of society were taken from secondary sources such as annual reports of cooperative societies. The information on structural aspects like establishment of societies, their founding names, founding objectives, registrations, members, executive board and trawlers associated with society were collected through discussion with society's office bearers. To know more about infrastructural facilities developed by societies, collected information on ice plant capacity, diesel pump, transportation vehicles, industrial goods units, cold storage, fresh fish marketing centres, grain rationing shops, ferry boat and buildings. The major functions performed by societies along with its developmental history and recognitions received were composed through focused group discussions. The sales, expenditure and net profit of societies were collected for last three years to know the comparative economic performance. The basic descriptive statistics as well as economical tools are used to analyse the data and inferences are drawn on it.

Results and discussion

Fishery in Versova

Fisheries is the primary occupation in Versova village, employing around 3,000 active fishers and supporting an additional 5,000 people in related activities. The village is home to more than 300 trawlers, contributing approximately Rs. 400 crore annually to the income of stakeholders (Times of India, 2022). Versova was the first in the city to establish a cold storage and ice factory. The men are predominantly involved in fishing and wholesaling activities, while women dominate the

retail marketing sector of village. In addition to this, some people are engaged in dry fish processing and waste management activities. The villagers are also involved in backward integration in which fish waste is converted into valuable resources like manure and poultry feeds. And even tiny fish with limited market value are also processed to reduce waste and for enhancing profitability in Versova's fishing economy.

Cooperatives in Versova

The fisheries cooperative societies have played a crucial role in fostering the prosperous growth of the fisheries industry in Versova village. The three fishers' cooperatives are effectively functioning at Versova village. These are;

1. *Vesava Macchimar Vividh Karyakari Sahakar Society Ltd.* (VMVKSSL), Hiraji Chikhale Smriti Bhavan, Versova Koliwada, Versova, Mumbai-400061.
2. *Vesava Machhimar Sahkari Society Ltd.* (VMSSL), Sahkar Mandir, Charch Road, Versova, Mumbai-400061.
3. *Vesava Koli Sahkari Sarvodaya Society Ltd.* (VKSSSL), Tere Gally, Versova Road, Versova, Mumbai-400061.

Structure of fisheries cooperatives in Versova

Cooperatives in India have a three-tier structure: primary societies at the local level, district or regional federations in the middle, and state-level federations at the top. This setup is democratic, with members

electing their Boards of Directors. The choice of structure is vital for cooperative development and has a significant impact on how these societies operate and therefore understanding this structure is essential. Table 2 presents the structural details of fisheries cooperative societies in Versova.

Structure of VMVKSS

The *Vesava Macchimar Vividh Karyakari Sahakar Society Ltd.* was initially established in 1944 and officially registered as a primary society in 1948. The cooperative movement in Versova village commenced in 1944 with the active involvement of young fishers. These fishers collectively contributed 1100 rupees and formed the *Vesava Koli Samaj Seva Sangh*. During this period, stilt boats were commonly used for fishing, prompting the establishment of two cooperative shops to supply fishing tools such as sheaves, yarn, paint, oil tar, and chandrus (used to fill cracks). This initiative laid the foundation for the cooperative movement by instilling cooperative principles within the Koli community in Maharashtra. The '*Vesava Koli Samaj Seva Sangh*' was transformed into the *Vesava Macchimar Vividh Karyakari Sahakar Society Ltd.* on January 6, 1948 (table 2). Currently, the society has 4,859 members, comprising 64.6% (3140) males and 35.4% (1719) females, with 257 trawlers associated with the society. The society is managed by an executive board consisting of 14 elected members, of which 85.7% (12) are male and 14.3% (2) are females (Figure 1 & 2). This board includes one president, one vice president, and one secretary who oversee the society's operations (VMVKSSL, 2022; Kamble et al., 2023).

Table 2. Structural aspects of fisheries cooperative societies in Versova

Structure	VMVKSSL	VMSSL	VKSSSL
Establishment (Year)	1944	1946	1947
Founding name	<i>Vesava Koli Samaj Seva Sangh</i>	<i>Vesava Macchimar Motor Sangh</i>	<i>Vesava Koli Macchimar Vahtuk Sangh</i>
Founding objectives	To supply fishing tools like sheaves, yarn, paint, oil tar, etc. on cooperative basis to member fishers	To provide transportation facilities to fishers' catch	To provide transportation facilities to Koli brothers
Registered as a primary cooperative society (Year)	1948	1952	1952
Registered as (Name)	<i>Vesava Macchimar Vividh Karyakari Sahakar Society Ltd.</i>	<i>Vesava Machhimar Sahkari Society Ltd.</i>	<i>Vesava Koli Sahkari Sarvodaya Society Ltd.</i>
Trawlers associated with society	257	Nil	Nil

Structure of VMSSL

The *Kolis* of *Versova* used to catch fish in the hot and windy weather without caring for their lives and traders used to make most of the profit. They used to take fish they had caught, through *Kavadi* on their heads to the Mumbai market and it was night when they returned. Looking to it, the *Kolis* brothers of *Dongarigalli* and *Shivgalli* got together and thought that their *Kolis* brothers should be stopped from being exploited by the traders. Considering all these, a capital of 20 thousand rupees was collected in the year 1946 and this organization came into existence (VMSSL, 2022). They established society with objective of providing transportation facilities to fishers' catch. This society provides fish producers a transportation platform to sell their products at appropriate place and also eliminate middlemen from the chain, thus ensuring adequate profits. This cooperative is also managed through executive board composed of 15 elected members including one president, one vice president and one secretary. The representation of women in elected executive board is only 13.3 %. The total of 1983 fisher folks are the members of society including 63.4% (1258) male and 36.6% (725) females (Figure 1 & 2).

Structure of VKSSSL

This society was established in 1947 with objective to provide transport facilities to *Koli* fisher folks and registered under cooperative act during 1952. This organization was established with the aim of economic, social, educational and overall development of *Versova's Koli* community (VKSSSL, 2022). The society is managed through executive board composed of 17 elected members including one president, one vice president and one secretary. The representation of women in elected executive board was only 11.8 % (2). The total of 3767 fisher folks are the members of society including 52.22% (1967) men and 47.78% (1800) women (Figure 1 & 2).

It's evident that all three societies were established before India's independence and promptly registered under the Cooperative Societies Act shortly after gaining independence. While established at different times (1944, 1946, and 1947), they all originated as social organisation before transitioning to cooperative societies with different motives. That, one was aimed in providing supply of fishing tools like sheaves, yarn, paint, oil tar, etc. on cooperative basis to member fishers while other two were meant for transportation facilities to fishers' catch as well as *Koli* brothers. Further VMVKSSL has 257 trawlers associated with it, while VMSSL and VKSSSL have none. This suggests that VMVKSSL is a larger and more commercial operation than the other two societies. However, it's worth noting that even seemingly similar organizations have valid reasons for co-existing. They could offer specialized services, cater to different community needs, and promote healthy competition within the fishing community. The presence of multiple societies with shared members in one location raises the question of whether some fishers choose to affiliate with all three. Certain fishers may benefit from membership in all three societies, potentially accessing broader resources, opportunities, or representation across diverse groups. Factors such as specialized services offered by each society might motivate some fishers to join all three officially or usefully. Further, all three societies have a membership where women make up more than 33%. Ensuring a gender-balanced membership within these fishery cooperatives is crucial for optimizing the sector's productivity and achieving equitable outcomes for all its members. (Biswas and Rao, 2014). However, when it comes to the executive boards of these societies, the representation of women is quite low, ranging from only 11% to 14%. Increasing the representation of women on executive boards would contribute to a more equitable and inclusive growth of societies.

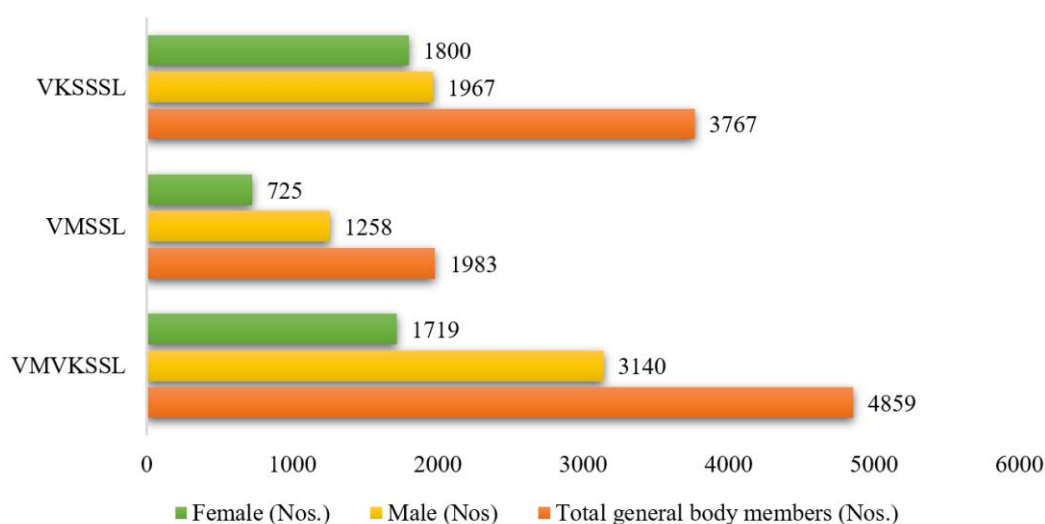


Figure 1: Membership details of General Body members

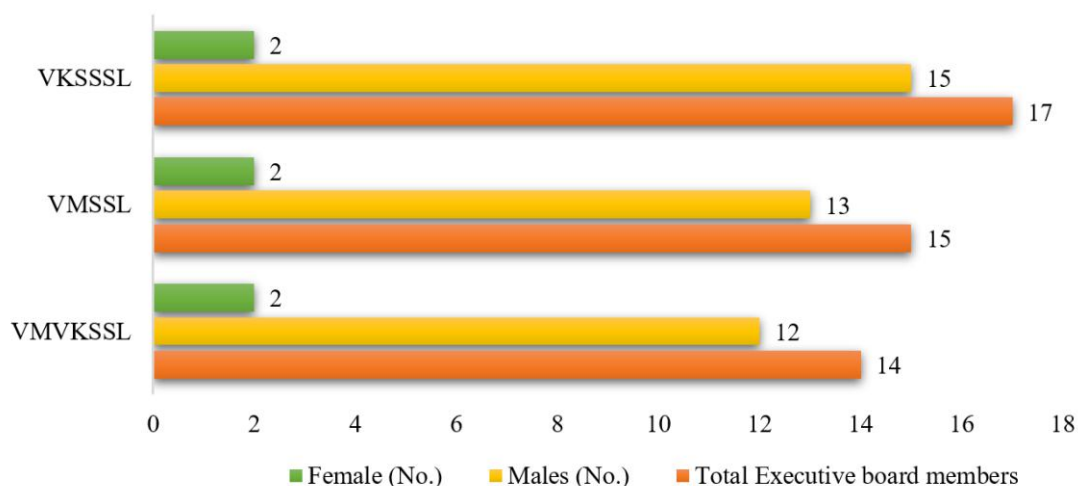


Figure 2: Membership details of Executive Body members

Functions performed by fisheries cooperative societies in Versova

Broadly co-operative fishery programme aims at providing livelihood to more and more fish folks in coastal and inland areas through smooth fishing business. Supply of essential inputs with optimal cost to its members is the prime objectives of societies. Fisheries cooperatives can be used in many ways to benefit fishers in the everyday needs of life. The major functions performed by fisheries cooperative societies in Versova is given in table 3. From the table 3, it can be inferred that multipurpose society (VMVKSSL)

perform functions like supply of fishing gears and industrial goods, diesel and petroleum products, ice, cold storage, insurance, marketing, subsidy, loan, grain rationing delivery, etc., to its members. At the same time, one thing noted was that the other two societies are also engaged in many activities apart from their mandated transportation activity. The societies who are actively involved in various functions are more productive and contributing significantly in development of fishers (Halder and Saha, 2015; Wasave *et al.*, 2020). The details of functions performed by societies is discussed below;

Table 3. Major functions performed by societies in Versova

Major functions performed	VMVKSSL	VMSSL	VKSSSL
Ice supply (ton/year) (approx.)	4172	10542	19500
Cold storage facilities	Yes, available	Yes, available	Yes, available
Sales of industrial goods	Sale fishing gears, spare parts, mesh, rope, yarn, etc.	No	Sales of fishing gears
Supply of petroleum products	Supply diesel, grease, gear oil, gas, etc.	No	10000 litre capacity diesel pump
Fresh fish marketing centre	Perform fresh fish buying and selling	No	No
Facilitation in government schemes	Yes, 14 groups	Yes, 9 groups	Yes, 48 groups
Insurance	Yes	No	No
Facilitation in diesel subsidies	Yes	No	No
Transportation service	No	Yes, 1 tempo	Three trucks and two tempos
Ferry boat service	No	Yes	No
Grain ration shop service	Yes	No	No
Others	Financial aid for welfare activities, felicitation to successful students, follow-up of development activities	Construction of Koli bhavan as well as auditorium for cultural activities and felicitation to successful students	Felicitation to successful students

Functions performed by VMVKSSL

The important functions performed by VMVKSSL are given below;

- a) **Ice supply:** In 1964, an ice factory with a production capacity of 11 tons and cold storage facilities were built by the society. Presently, production capacity of society is 20 ton per day and it vended 4172 ton ice of Rs. 1.55 crore to its members during 2021/22.
- b) **Sales of industrial goods:** The society sold industrial goods worth Rs. 38.43 lakh at a minimum price to its members during 2021–2022. The society sells fishing gears, spare parts, mesh, rope, yarn of branded companies. Further, by taking seasonal demand changes into account, the society makes industrial commodities available to its members.
- c) **Supply of petroleum products:** To provide fuel to the fishing boats, a diesel pump was installed by society and supplied 9.49 crore rupees diesel, grease, gear oil and 1.49 lakh rupees gas to its members during 2021/22.
- d) **Fresh fish marketing center:** In the years 2021–2022, the society's fresh fish sales center sold 1.67 crore rupees worth of fish, generating a profit of Rs. 13.22 lakh. Through this society, freshwater fish from other regions of Maharashtra are also marketed.
- e) **Supply of grain ration:** The groceries like kerosine, rice, wheat, different dals, salt, sugar, and other items are sold to the society's members through ration shops. The society sold its members rations worth Rs. 4.67 lakh throughout the years 2021–2022.
- f) **Facilitation in availing government schemes:** The society provides financial assistance for the development of fishers through the National Cooperation Development Corporation. The society is active in reaching the schemes to the member fishers and making them benefit from it. Through this society, 14 fishing groups have so far benefited from this program.
- g) **Insurance:** Fishers' profession is entirely dependent on the whims of nature. The Fishery Boat and Sailor Accident Insurance scheme was established by the society to safeguard the fishing industry, and fishers are responding favorably to this program. As a result, the fishers have received significant assistance for their business as well as for the safety of the sailors on board. So far, nine fishing boats have sunk and been completely destroyed and fifteen sailors lost their lives and insurance benefit was given to their heirs. The cooperative gives Rs. 1.75 lakh insurance to destroyed boats.

- h) **Subsidies on diesel:** The cooperative operates fairly to assist the fishers in obtaining the diesel subsidy they receive from the Maharashtra government. Due to the efforts of the cooperative, the fishers in Maharashtra would receive a sales tax rebate of Rs. 5.66 crore on their diesel purchases for the fiscal year 2021–2022.

i) Others

- The cooperative frequently monitors developmental works in Versova village, such as the building of roads and jetties. Transporting fish and input supplies thus made simple.
- To date, society has donated Rs. 14.33 lakh in financial aid to a variety of religious institutions, schools, flood, earthquake, storm, and medical victims as well as disaster victims.
- The society encourages members students who have excelled in various academic fields by giving prizes to them.

Functions performed by VMSSL: The important functions of VMSSL are discussed below;

- a) **Transportation facilities:** In the year 1956, the society purchased 2 trucks and registered as the first cooperative fish transportation organization in India. However, currently society owns and operate only one tempo for transportation of fish and prawn catches to the Mumbai market and processing centres.
- b) **Cold storage and ice factory:** To provide regular ice supply and cold storage facilities during transportation, the society established cold storage facility and ice making plants in 2009. The society vended 10542 ton ice during 2021–22.
- c) **Ferry boat service:** The society provide transport service to the fisher folks between Versova and Madh on no profit no loss basis. Five boats namely Dwarka, Ayodhya, Suvarnganga, Dharma and Mahadev of society are operating daily to provide ferry service to fishers.
- d) **Facilitation in availing government schemes:** The society helped to organize number of fishers' groups, and up to nine groups obtained grants and subsidies through the NCDC scheme.
- e) **Other services like**
 - The society constructed 'Koli Bhavan' for the socio-economic activities of society members.
 - Auditorium construction for socio cultural programmes of fisher folks is in progress.
 - The society encourages members students who have excelled in various academic fields by giving prizes to them.

Functions performed by VKSSSL: The important functions of VKSSSL are;

- a) **Transportation arrangement:** The society provides conveyance arrangements including three trucks and two tempos for the transportation of member's fish and ice with low cost.
- b) **Ice supply:** The society is having ice plant named 'Swapnpurti' with 125 ton production capacity supplying about 19500 ton ice per year to its member fisher. Earlier the plant uses pure municipal water to produce quality ice and sell to its member at modest price. But its cost was high. Now the society setup aqua-pure unit to supply pure water for ice plant.
- c) **Diesel pump:** Society placed diesel pump in 1990 with aim of making diesel available locally at reasonable price to its member. Earlier diesel was available in drum, now it changed in flow meter service with 10000 liter capacity.
- d) **Sales of industrial goods:** During the year 2000 the society started providing fishing gears with rational prices to the members of society.
- e) **Facilitation in availing government schemes:** The society also performs function of linking fishers' group with various government schemes for the benefits of member. Till date, with the initiatives of society, 48 groups received loans and subsidy from the National Cooperative Development Corporation (NCDC). The highest number of society member received fishing vessels from the various schemes is also big achievement of this society.

f) The society also perform functions like

- Whenever necessary, conducting online meetings to promote digitization in society functioning
- The society encourages members students who have excelled in various academic fields by giving prizes

All three fishing cooperatives, VMVKSSL, VMSSL, and VKSSSL, share a core set of functions that cater to the needs of their members. These include crucial services for the fish marketing, such as supplying ice for fish preservation, cold storage, selling essential equipment and spare parts, and providing access to fuel and lubricants for fishing boats. Additionally, they all offer various forms of social and economic support to their members, such as helping them access government programs and initiatives, and potentially offering financial aid, student scholarships, and other community-focused support. However, there are also key differences in functioning among the societies. VMVKSSL seems to be the largest and most comprehensive, offering the widest range of functions and likely handling larger volumes based on its membership size. VMSSL appears to have a more limited scope, while VKSSSL power the most specialized, focusing on serving a specific niche within the fishing community. In terms of unique offerings, VKSSSL provides a transportation service, while VMSSL is the only one with a ferry boat service. Notably, VMSSL and VKSSSL do not offer insurance, unlike VMVKSSL.

Table 4. Chronology of VMVKSSL activities

S. No.	Year	Activity	Purpose
1.	1944	Foundation of <i>Vesava Koli Samaj Seva Sangh</i>	Two shops were opened on a cooperative basis to supply fishing tools
2.	1948	Registered under Cooperative Societies Act	To become authorised society to supply fishing industry goods
3.	1957-58	Establishment of Grain section D-27	Cooperative ration shop
4.	1959-60	Installation of Diesel Section	Regular diesel and oil supply for engine boats
5.	1960	Installation of ice factory	Cold storage and ice supply
6.	1966	Establishment of fresh fish center at <i>Chatrapati Shivaji Mandai</i> Mumbai	Platform for member fishers for fish marketing
7.	1977	Spare part section	Supply of engine spare part and other fishing accessories
8.	1981-82	Transport section	1 diesel tanks for diesel transport
9.	2019-20	Transport section	One tata tempo 709, 2 diesel tanks for transportation

Source: VMVSSL, 2022

Historical changes in development of fisheries cooperative societies in Versova

- **Historical development of VMVKSSL:** Initially this cooperative was founded with an aim to provide fishing tools to member fisher on cooperative basis. A few years following registration, society began providing rations on a cooperative basis with minimum price to members. Later, society began to operate in the supply of diesel and ice by establishing a diesel pump and an ice factory, in response to the needs of the fisherman. Further, society began marketing activities for that they opened fresh fish centre at *Chatrapati Shivaji Mandai* Mumbai. Moreover, society is also functioning in supply of industrial goods and transportation of diesel through tanks to its members (Table 4).
- **Historical development of VMSSL:** After its establishment in 1946 the society was registered under Cooperative Societies Act and became authorised society to provide transportation facilities during 1952. In 1956, they first time purchased transport vehicle. In 1963, they initiated ferry boat service to provide ferry service to the fisher folks between *Versova* and *Madh*. The society purchased land in 2003 and established ice plant & cold storage facility on it during 2009. Further society constructed *Koli Bhavan* (2014) and Auditorium (2020) to facilitate socio-economic and cultural activities of fisher folks.

Last time society purchased transport vehicle during 2015 to provide transportation facilities to fishers' catch (table 5).

- **Historical development of VKSSL:** This society was initially founded to provide transportation facilities to fishers' catch by the name of *Vesava Koli Macchimar Vahtuk Sangh* in 1947. Later in 1952 it registered as a *Vesava Koli Sahkari Sarvodaya Society Ltd.* The society established an ice plant in 1972 and diesel pump in 1990 to supply ice and diesel to transportation vehicles. Also, it is highly active in supply of industrial goods and for that industrial unit was established in 2000. Currently society purchased two vehicles during 2014 and 2017 to transport ice (table 6).

The historical development of all three societies shows that they moved from single to multifunctional for the welfare of the fishing community during the last eight decades. All the three societies were initially established with one or the other objective, but gradually all these began to work in more than one field for the development of fish folks. The VMVKSSL was founded to supply fishing tools like sheaves, yarn, paint, oil tar, etc. on a cooperative basis to member fishers. As well as VMSSL and VKSSL, they were established to provide transportation facilities to fishers. However, presently all are involved in multifunctional activities. This evolution demonstrates the adaptability and responsiveness

Table 5. Chronology of VMSSL activities

S. No.	Year	Activity	Purpose
1.	1946	Foundation of <i>Vesava Macchimar Motor Sangh</i>	To provide transportation facilities to fishers' catch
2.	1952	Registered under Cooperative Societies Act	To become authorised society to provide transportation facilities
3.	1956	First time purchase of transport vehicle	To became first cooperative in fish transportation in India
4.	1963	Initiation of Ferry boat service	To provide transport service to the fisher folks
5.	2003	Purchased land in Navi Mumbai	To establish ice and cold storage plant
6.	2009	Ice plant & cold storage facility	To supply ice and cold storage facility to its members
7.	2014	Construction of ' <i>Koli Bhavan</i> '	To facilitate socio-economic activities of society members
8.	2015	Last time purchase of transport vehicle	To provide transportation facilities to fishers' catch
9.	2020	Construction of Auditorium	To facilitate socio cultural programmes of fisher folks

(Source: VMSSL, 2022)

Table 6. Chronology of VKSSSL activities

S. No.	Year	Activity	Purpose
1.	1947	Foundation of <i>Vesava Koli Macchimar Vahtuk Sangh</i>	To provide transportation facilities to fishers' catch
2.	1952	Registered under Cooperative Societies Act	To become authorised society to provide transportation facilities
3.	1972	Establishment of Ice plant	To supply ice and cold storage facility to its members
4.	1990	Establishment of diesel pump	Regular diesel and oil supply for engine boats
5.	2000	Establishment of industrial goods unit	To provide fishing gears with rational prices to the members of society
6.	2104 & 2017	Purchase of transport vehicles	To provide ice and fish transportation facilities

(Source: VKSSSL, 2022)

of the cooperative model. As the needs of the fishing community changed, so too did the services provide by these societies. Deacon (2012) stated that using a combination of rights-based instruments can achieve efficiencies in cooperatives, which cannot be captured by any single instrument. While focusing on a single function can offer certain advantages, diversification often proves to be a stronger strategy for cooperatives, particularly those supporting livelihoods in specific industries like fishing. This is due to several key benefits:

- 1. Enhanced Resilience:** Relying solely on one function exposes a cooperative to vulnerabilities associated with fluctuations in that specific market. By diversifying into activities like ice supply, fuel sales, and transportation, cooperatives spread their risk. This means that if demand for one service drops, income from other areas can provide crucial stability.
- 2. Meeting Evolving Needs:** Fishers have multifaceted needs beyond just fishing gear. They require support with logistics, market access, and often, broader community development. A multifunctional cooperative can act as a one-stop shop, addressing these varied needs comprehensively. Additionally, the ability to adapt to changing economic, environmental, or governmental landscapes is crucial. A diversified cooperative is more likely to find new ways to support its members amidst these shifts, ensuring their long-term well-being.
- 3. Achieving Scale and Market Power:** A larger, multifunctional cooperative can leverage economies of scale to negotiate better prices for supplies or bulk fish sales, ultimately benefiting its

members. Furthermore, such cooperatives hold greater leverage in the market due to their involvement in various aspects of the value chain.

- 4. Community Impact:** Beyond direct member support, successful cooperatives can positively impact the broader fishing community. They can do this by reinvesting surplus income from multiple activities into community development initiatives like scholarships and welfare programs. This fosters a sense of social cohesion within the community, making fishing a more sustainable livelihood not just economically, but also socially.

While some might argue that focusing on a single function allows for greater expertise and performance, diversification generally provides a more robust and sustainable approach for fishing cooperatives. It mitigates risks, offers holistic support to members, strengthens market position, and contributes to the overall well-being of the fishing community. It is within the framework of a strong cooperative model, built on shared ownership and democratic decision-making, that diversification can truly flourish and benefit all members of the fishing community.

Economics of fisheries cooperative societies in Versova:

- Economics of VMVKSSL:** This society formed with objective of undertaking multifarious activities for the economic and social development of its members. To achieve its goals, this cooperative works to secure affordable access to industrial supplies like diesel, market platforms, ice, insurance, and transportation for each of its members. Table 7 shows the overall revenue and profit made by the society from 2019/20 to 2021/22. After fulfilling required expenditures to run the business and mandate of fisher member,

Table 7. Profit and loss of VMVKSSL

Particular	2019-20		2020-21		2021-22	
	Lakh Rs.	% Share	Lakh Rs.	% Share	Lakh Rs.	% Share
Sales (Receipts)						
Diesel section sale	2660.7	89.8	1863.3	83.9	948.8	72.1
Gas sale	1.26	0.04	1.32	0.06	1.49	0.11
Industrial division sale	54.36	1.83	42.55	1.92	38.43	2.92
Grain shop division D27 sale	6.37	0.21	0.63	0.03	4.67	0.36
Ice sale and rent sale	212.66	7.18	139.24	6.27	155.16	11.80
Fresh fish sale	28.42	0.96	168.65	7.59	166.74	12.68
Other sale	0.00	0.00	5.33	0.24	0.00	0.00
Total sale	2963.8	100.0	2221.0	100.0	1315.3	100.0
Expenditure	2919.9		2193.6		1307.5	
Net profit	43.8		27.5		7.8	

(Source: VMVKSSL, 2022; Kamble et al., 2023)

the society runs its business on profit of Rs. 7.84 lakh. This shows that society is performing well along with fulfilling its member's requirements. Results matching to the study conducted by Nair *et al.* (2007), where they reported satisfactory net profit ratio. However, since the lockdown, society's revenue and profits have steadily decreased. The sale reported Rs. 2963.77 lakh in 2019/20 declined drastically to Rs. 1315.32 lakh in 2021/22. Also, profit was declined by 82.11% after lockdown i.e. from Rs. 43.8 lakh to Rs. 7.8 lakh. This society sells 72% diesel and petroleum products to its members, followed by fresh fish and ice.

- **Economics of VMSSL:** This society receives income mainly from ferry boat service, ice and cold storage

service, Koli Bhavan and Sanskrit Bhavan along with main section (transportation of fish catch, interest, dividend, commission, etc.). The society's prime objective for which society was established i.e. transportation of fish catch service was contributing lesser (<3.34%) in total sale. The ferry boat service contributing highest (84.41%) in society's total sale. The sale and profit of society was drastically declined after lockdown; however, it improved in next year. The total sale declined to Rs. 265.3 lakh in 2020/21 from Rs. 420.87 lakh reported in 2019/20. The profit also declined from 9.37 lakh rupees to 2.03 lakh rupees after lockdown. This shows that lockdown has severely affected society's sale and profit (Table 8).

Table 8. Profit and loss of VMSSL

Particular	2019-20		2020-21		2021-22	
	Lakh Rs.	% Share	Lakh Rs.	% Share	Lakh Rs.	% Share
Sales (Receipts)						
Ferry boat section	365.7	86.9	213.9	80.6	314.8	84.4
Ice and cold storage section	16.20	3.85	13.09	4.93	16.00	4.29
Koli Bhavan section	16.44	3.91	14.34	5.41	17.25	4.63
Sanskrit Bhavan					12.42	3.33
Main section	22.51	5.35	23.92	9.02	12.47	3.34
Total sale	420.9	100.0	265.3	100.0	372.9	100.0
Expenditure	411.5		263.3		368.5	
Net profit	9.37		2.03		4.39	

(Source: VMSSL, 2022)

Table 9. Profit and loss of VKSSSL

Particular	2019-20		2020-21		2021-22	
	Lakh Rs.	% Share	Lakh Rs.	% Share	Lakh Rs.	% Share
Sales (Receipts)						
Transportation section	51.77	6.14	20.21	7.56	17.07	7.00
Ice and cold storage section	183.73	21.80	90.54	33.88	52.49	21.52
Diesel section	590.92	70.12	138.59	51.87	159.76	65.50
Industrial division sale	16.25	1.93	17.87	6.69	14.57	5.97
Total sale	842.7	100.0	267.2	100.0	243.9	100.0
Expenditure	841.8		298.3		325.3	
Net profit	0.89		-31.10		-81.36	

(Source: VKSSSL, 2022)

- **Economics of VKSSSL:** This society provides transportation service, ice and cold storage facilities, diesel and industrial goods to its member fisher. Diesel section contribute highest (65.50%) while industrial division stake lowest (5.97%) in total sale of society. The total sale declined from Rs. 842.67 lakh to Rs. 243.89 lakh from 2019/20 to 2021/22. Earlier society used to be somewhat profitable but after lockdown, it is running at a huge loss. It reported Rs. 81.36 lakh net loss during 2021/22 (Table 9).

An analysis of the financial results of these cooperative societies reveals an interesting trend: a high concentration of income from specific activities. The VMVKSSL, a multifaceted cooperative, draws a remarkable 96% of its income from just three central functions: diesel, ice, and fish sale. This highlights its crucial role in supporting the fishing community across the entire production, transportation, and marketing chain. Similarly, VMSSL and VKSSSL, initially established for transportation purposes, have significantly diversified their operations. While VMSSL's ferry service generates a substantial 84.41% of its revenue, it earns remaining income from ice sales, cold storage, and its cultural centres *Koli Bhavan* and *Sanskrutik Bhavan* services. The VKSSSL, despite its focus on transportation, derives over 90% of its income from ice, cold storage, diesel, and industrial goods sales, with its mandated transportation activity contributing only 7%. These findings offer some intriguing insights: The cooperatives with specific objectives demonstrate remarkable adaptability. By catering to a wider range of community needs beyond their original mandate, they have likely secured their continued success. Further, exploring ways to increase the revenue share from their core transportation functions could further strengthen the fundamental missions of VMSSL and VKSSSL. Additionally, the high reliance of the fishing community on the ice, diesel, and marketing activities of all three cooperatives

underscores the critical importance of their stability and efficiency for the overall success of the entire fishing sector. Moreover, one common observation is that all three societies were demonstrating healthy economic performance prior to the lockdown, effectively fulfilling the needs of their members. However, the lockdown period led to a drastic decline in sales and profits for all three societies. This downturn has been so severe that one society, VKSSSL, is currently grappling with substantial losses. This stark contrast underscores the disruptive impact of the lockdown on the fishing industry and the cooperative societies that support it. It further emphasizes the critical role these societies play in the economic well-being of the fishing community.

Cooperatives Future Strategies for Versova's Fisheries

The fisheries cooperative societies in Versova are all charting distinct paths towards a brighter future, each with unique plans to address specific needs and challenges. The VMVKSSL is taking a bold step towards modernizing infrastructure, aiming to develop a state-of-the-art fishing port equipped with automated ice transportation and filling facilities. This innovative approach promises increased efficiency, potential cost savings, and improved working conditions for fishers. The VMSSL is focusing on investing in knowledge and processing by establishing training and education facilities in Raigadh district. This initiative will empower fishers with new skills and knowledge in fish processing and fish enterprises, ultimately leading to increased economic opportunities and the potential for establishing or expanding fish processing businesses within the community. The VKSSSL, striving to enhance convenience and accessibility, plans to implement proper transportation arrangements for delivering diesel and ice directly to vessels. This will save time and effort for fishers, improve operational efficiency, and potentially lead to cost savings through bulk delivery arrangements. These unique plans showcase the unwavering

commitment and vision of each society. They demonstrate a shared goal of modernizing infrastructure and operations, empowering fishers through knowledge and skills, and ultimately enhancing efficiency and economic opportunities for the entire fishing community in Versova.

Recognition

A striking disparity exists in the awards received by these societies. VMVKSSL, boasting no less than eleven national awards, stands out as a leader not only within Maharashtra but across the entire nation. In contrast, VMSSL remains without any awards to date, and VKSSSL's only recognition is a testimonial from Om Gorai Nagari Sahakari Patsanstha Maryadit (Table 10). This clearly indicates a significant bias in recognition towards societies engaged in production activities like VMVKSSL, while those involved in marketing activities (VMSSL and VKSSSL) have yet to receive significant recognition for their contributions to the development of fishers. Production activities may be more readily associated with measurable results (e.g., increased catch volumes, enhanced infrastructure), potentially making them more appealing for awards consideration. Marketing activities, while crucial, may have less immediately apparent impacts on the fishing community, making it harder to quantify their transformative effects.

Challenges Plaguing Versova's Fisheries Cooperative Societies

While the future plans of Versova's fisheries cooperative societies paint a promising picture, it's crucial to acknowledge the significant challenges they currently face. These roadblocks, if not addressed, can hinder their progress and limit their positive impact on the fishing community. As noted by Nair *et al.* (2007) and Chandrashekar (2014), some cooperatives benefit from government support and monitoring, granting them a distinct advantage, while others struggle to survive amidst various constraints. These

challenges take several forms in these three cooperatives:

Financial difficulties:

- **Non-payment of dues:** When members fail to pay for resources purchased through the society, it creates financial strain and hinders the cooperative's ability to operate effectively.
- **Growing number of wilful defaulters:** This further exacerbates financial problems and undermines trust within the cooperative system.

Market challenges:

- **Outdated infrastructure at Versova harbour:** The lack of modern facilities creates inefficiencies and disadvantages compared to competitors with more advanced resources.
- **Predatory middlemen:** The presence of a syndicate of brokers and commission agents can exploit fishers and negatively affect the business of cooperatives selling ice and diesel.
- **Competition from private businesses:** Intense competition within the fishing gear market, coupled with the chain of brokers, can significantly reduce sales for cooperative societies.
- **Impact of COVID-19:** The pandemic's restrictions on fishing activities directly impacted the sale of essential supplies like diesel and ice, causing income losses and operational disruptions.
- **Unfair tax practices:** Private vendors who evade paying Goods and Services Tax (GST) can offer lower prices, unfairly undercutting the competitive edge of the cooperatives.

These challenges present a collective hurdle for the cooperative societies of Versova. To overcome them, a collaborative approach involving the societies themselves, the government, and the fishing community is crucial.

Table 10. Awards received by cooperatives

Society	Name of award	Given by	Year
VMVKSSL	JC Barvey Productivity 1 st Prize	National Federation of Fishers Co-operative Limited, Delhi	1988
	Best Productivity Performance in Marine Fish Production in Cooperatives (9 times)	National Productivity Council, New Delhi	1992-93; 1993-94; 1995-96; 1997-98; 1998-99; 2000-2002; 2002-03; 2004-05; 2005-06
	Jeevan Gaurav Award	Vasantrao Naik Pratisthan, Maharashtra	1998
VMSSL	Nil	Nil	Nil
VKSSSL	Nil	Nil	Nil

Potential Solutions:

- **Strengthening internal governance:** The cooperatives can work towards improved financial management practices and stricter enforcement of payment obligations by members.
- **Advocacy for infrastructure upgrades:** Collaboration with the government can push for investments in modernizing Versova's fishing harbor to create a more competitive and efficient environment.
- **Combating unfair market practices:** Implementing regulations and raising awareness can help combat the exploitative practices of middlemen and ensure a level playing field for all.
- **Building community buy-in:** Educating members about the benefits of cooperative membership and encouraging responsible financial practices within the community can foster a stronger and more sustainable cooperative ecosystem.

By acknowledging and addressing these challenges through collaborative efforts, Versova's fisheries cooperative societies can navigate towards a more secure and prosperous future, one that empowers the fishing community and unlocks the cooperative model's full potential for collective success.

Conclusion

Founded eight decades ago on the principle of co-operatives, today all these societies are providing various forms of assistance to thousands fisher folks of the Versova village. The societies basically formed for supply of single services are now providing all types of facilities like supply of diesel, fishing gears, transportation, ice, insurance, marketing facilities, rations, ferry boat service, auditorium services, subsidy, and loan to its fisher members. Since decades, society who has been involved mainly in production related activities along with various other form of businesses has a good economical position and also received several awards. Therefore, the other two societies have been started to working in more than one field to strengthen the financial position and get rewards from the society. One common thing noted was that economic performance of all three societies deteriorated drastically after lockdown due to decline of sale and profit. Most importantly, these 3 cooperatives regulate floor price in fisheries input and output supply market creating healthy competition and curb malpractices.

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