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Analysis of members' satisfaction in marine fisheries cooperative societies in Maharashtra, India

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Abstract

The satisfaction of members of marine fisheries cooperative was studied in Maharashtra State, India. Out of the total 304 registered societies, only 266 (87.5%) were functional. The satisfaction of members was analysed based on a sample of 156 members selected from the functional societies. The variables studied for satisfaction of members were "conduct of Annual General Meetings (AGM); functioning of the Board of Management (BOM); activities undertaken by cooperatives and the overall performance of the cooperatives" from the perspective of members by using a five-point Likert scale. The reliability and validity of the scale was ascertained by Cronbach's Alpha. Member's satisfaction scores were analysed by using factor analysis to find out the factors contributing to satisfaction of members. The sampling adequacy was tested through Kaiser Mayer-Ohlin measure and Bartlett's test of sphericity. The study revealed that members were highly satisfied with AGM and BOM, moderately satisfied with activities by cooperatives and dissatisfied with overall performance of cooperatives. It is suggested that cooperatives need to undertake various mandated activities, and develop infrastructure facilities for the benefit of their members to enhance their satisfaction.

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Introduction

Cooperative societies are formed with the primary aim of providing needs and enhance the quality of their members' livelihood (Abdulahi *et al*., 2015). The United Nations Organisation (UNO) declared the year 2012 as the International Year of Cooperatives, highlighting their contribution to socio-economic development, particularly their impact on poverty reduction, employment generation and social integration. Cooperative organisations are now widespread all over the world. In India, the first fisheries cooperative society was established in the year 1913 under the name of 'Karla Machhimar (fisher) Cooperative Society' in the Ratnagiri District of Maharashtra. Presently, the marine fisheries cooperative sector in India is comprised of one National Level Federation, 21 State Level Federations, 141 Central (District/Regional Level Federations) and 20,639 primary societies with membership of 31.78 lakhs (FISHCOPFED, 2020). Similarly in Maharashtra, there are 2,830 primary fisheries cooperative societies with 2,56,667 fisher members; 37 fisheries cooperative unions and two federations (DoF, 2020). There are 306 marine fisheries cooperatives spread across six coastal districts of Maharashtra State and among these 266 (87.9%) are reported to be functional with 1.14 lakh members (DoF, 2020).

In some villages of Maharashtra, more than one multipurpose cooperative societies are functioning and implementing various activities for their members (Wasave *et al.*, 2019). The primary objective of a fisheries cooperative is to improve social, welfare and economic status of its members through fish production, harvesting and marketing (Wasave and Sharma, 2016). It also aims to provide economic assistance to fishers; ensure reasonable profit margin by undertaking grading, preservation, storage, transport and processing of fish and supply necessary fishery requisites like nets, ropes and oil to improve efficiency. Further, cooperatives regulates fish markets by ensuring fair prices and maintaining long-term contracts with organised buying institutions (Wasave *et al*., 2025, 2017). There are only very few studies on fisheries cooperatives in Maharashtra. Nair *et al.* (2007) studied the performance of fisheries cooperatives in the Vasai Taluka of Thane District. The principles of a cooperative society include voluntary and open membership, as well as democratic membership control. Some fisheries cooperatives in Maharashtra State are helping members and their family to the extent of providing complete marketing infrastructure for the sale of the catch at remunerative prices (Abdulahi *et al*., 2015). As cooperative societies are burdened with the responsibility of satisfying the needs of their members and enhance the quality of member's livelihoods, they are however, lacking the financial capacity to provide adequate loans and access to credit which hinders their performance which ultimately leads to dissatisfaction among members (Christian *et al*., 2018). In this context, the present study was carried out in Maharashtra State in India to ascertain the level of satisfaction among the members of these cooperative societies.

Materials and methods

The coastal districts of Maharashtra comprises Mumbai suburban, Mumbai, Sindhudurg, Palghar, Thane, Ratnagiri and Raigad. To accomplish the objectives of the study, a proportionate number of marine fisheries cooperatives were selected from all coastal districts. From districts with 30 functional cooperatives, three were chosen; while from districts with 60 cooperatives, six were chosen. This method was consistently followed across other districts also. Thus, this study selected 39 active cooperative societies (around 15%) using a random sampling method.

The factors for measuring satisfaction level were collected through focused group discussion with key informants. These factors were grouped under four categories like satisfaction with Annual General Meeting (AGM), Board of Management (BOM), Activities Undertaken by Cooperatives (ACT) and Overall Performance (PER) of cooperatives. An interview schedule was administered to four members from selected cooperative societies (39) who were randomly chosen thus making a total of 156 respondents.

Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was applied to measure the suitability of data for factor analysis. Values greater than 0.5 are acceptable, between 0.5 and 0.7 are mediocre, between 0.7 and 0.8 are good, between 0.8 to 0.9 are the best (Kaiser, 1974).

Bartlett's test of sphericity was applied to check if there is a certain redundancy between the factors that we can summarise with a few numbers of factors. The null hypothesis of the test was that the factors are orthogonal, *i.e.* not correlated. Bartlett's test of sphericity tests the hypothesis that the correlation matrix is an identity matrix, which would indicate that factors are unrelated and therefore unsuitable for structure detection (Bartlett and Fowler, 1937). Bartlett's test of sphericity showed that chi-square was significant at 5% level. Based on this, the decision was made that factor analysis will be useful with data.

Factors for satisfaction level were identified with the help of factor analysis using SPSS software ver. Factor analysis extracts maximum common variance from all factors and puts them into a common score. This was done using Principal component analysis (PCA). PCA starts extracting the maximum variance and puts them into the first factor. After that, it removes that variance explained by the first factor and then starts extracting maximum variance for the second factor (Dunteman, 1989). This process goes up to the last factor.

Through use of factor analysis, a set of 23 factors covering four dimensions (AGM, BOM, ACT and PER) were selected and used to measure the level of satisfaction of members towards the functioning of cooperatives. Satisfaction of members towards these factors was studied using five-point Likert scale. The scale had the scores *i.e.,* highly satisfied (5), satisfied (4), moderately satisfied (3), dissatisfied (2) and highly dissatisfied (1). The obtained scores were normalised using the formula:

$$\text{Dimension value} = \frac{\text{Actual value - Minimum value}}{\text{Maximum value - Minimum value}}$$

The reliability of this scale was tested using Cronbach's Alpha (Cronbach, 1951) and the calculated value was found 0.785. Thus the scale was considered reliable.

$$\alpha = \frac{N\bar{c}}{\bar{v} + (N - 1)\,\bar{c}}$$

Here, N = Number of items.

$\bar{c}$ = Average covariance between item-pairs.

$\bar{v}$ = Average variance.

Normalised scores were between 0-1, where high level of satisfaction had score 1 and moderate satisfaction had score 0.5 and high dissatisfaction had score 0. Members' satisfaction scores were put forth for factor analysis to find out the factors contributing to the satisfaction of members with respect to Annual General Meeting (AGM), Board of Management (BOM), Activities Undertaken by Cooperatives (ACT) and Overall Performance (PER) of cooperatives.

Results and discussion

Members' satisfaction with AGM

The overall satisfaction score results presented in Table 1 revealed that cooperative members were moderately satisfied with an average score of 0.54. Cooperative members of Sindhudurg were relatively more satisfied than other districts with the score of 0.63. With reference to the decisions taken in AGM, cooperative members of all societies were moderately satisfied. Members of cooperative societies of Sindhudurg reported high satisfaction with a score of 0.82 for decision taken in AGM. However, satisfaction with reference to meetings being conducted as per rules and regulations, the score was 0.43 which was below moderate. Lowest score of 0.26 was achieved by members of Mumbai suburban District.

Further inquiry with members revealed that dissatisfaction was mainly due to the manner in which the meetings are conducted. Members reported that the financial records are not discussed/ shown to the members and at times members are not allowed to

Table 1. Members' satisfaction score for AGM

Factors	Districts						
	Mumbai Suburban	Mumbai	Thane	Raigad	Ratnagiri	Sindhudurg	Maharashtra
Decisions taken in AGM (AGM1)	0.78	0.64	0.54	0.56	0.52	0.82	0.64
Meetings conducted as per rules and regulations (AGM 2)	0.26	0.51	0.54	0.50	0.36	0.44	0.43
Overall	0.52	0.57	0.54	0.53	0.44	0.63	0.54

speak on certain issues. Also, the decision taken in the meeting was not followed or suggestions given by members remain unattended.

In cooperative societies, the attendance in the AGMs was reported to be only 23.5%. It is necessary for the members to attend the meetings, as it provide an opportunity to evaluate the operations, finances and policies of the cooperative, as well as for expressing their needs and views (Meyer, 1994).

Members' satisfaction with BOM

Satisfaction of members with BOM was analysed with reference to 8 factors *i.e.* governance of cooperatives, relationship among members, maintaining democracy, availability of members, awareness about social issues, attending problems of members, developing infrastructure facility and conducting welfare activities (Table 2). Members' satisfaction scores with BOM ranged from 0.42 to 0.49 in all the districts which showed that they were not much satisfied.

With reference to developing infrastructure facilities and conducting welfare activities, the satisfaction score was least. This was because members expect the development of infrastructure facility through Government financial assistance schemes from the BOM. Besides, the members anticipate social and welfare activities to be undertaken by BOM.

Members' satisfaction with activities undertaken by cooperatives

Cooperative societies were found to undertake various activities for the development of their members. The activities are related to business, economics and welfare. The activities included input supply, marketing activities, transportation facilities, implementation of Government schemes, social and welfare activities, encouragement for educational activities, awareness activities in fisheries and organisation of training. Table 3 presents the satisfaction of members with regards to activities undertaken by cooperatives.

Overall satisfaction scores for activities undertaken by cooperatives was 0.56 indicating that members were moderately satisfied with the activities undertaken by cooperatives. The highest score (0.78) was received for the service provided for input supply followed by marketing (0.69). Regarding the organisation of training and providing transport facilities, members were dissatisfied.

Table 2. Members' satisfaction scores for BOM

Factors	Districts						
	Mumbai Suburban	Mumbai	Thane	Raigad	Ratnagiri	Sindhudurg	Maharashtra
Governance of cooperative (BOM1)	0.54	0.60	0.57	0.60	0.60	0.63	0.59
Relationship among members (BOM 8)	0.57	0.55	0.61	0.52	0.47	0.51	0.54
Maintaining democracy (BOM 2)	0.57	0.65	0.58	0.51	0.50	0.27	0.51
Availability of members (BOM 7)	0.44	0.46	0.49	0.43	0.42	0.47	0.45
Awareness about social issues (BOM5)	0.40	0.41	0.49	0.44	0.43	0.48	0.44
Attending problems of members (BOM 6)	0.40	0.40	0.40	0.43	0.49	0.50	0.43
Developing infrastructure facilities (BOM3)	0.31	0.39	0.33	0.38	0.36	0.22	0.33
Conducting welfare activities (BOM 4)	0.39	0.42	0.37	0.29	0.29	0.28	0.34
Overall	0.45	0.49	0.48	0.45	0.44	0.42	0.45

Table 3. Members satisfaction scores for activities undertaken by cooperatives

Factors	Districts						
	Mumbai Suburban	Mumbai	Thane	Raigad	Ratnagiri	Sindhudurg	Maharashtra
Supply of inputs (ACT2)	0.90	0.85	0.78	0.68	0.80	0.63	0.78
Social and welfare activities (ACT5)	0.85	0.63	0.63	0.63	0.68	0.62	0.66
Marketing activities (ACT1)	0.85	0.78	0.85	0.74	0.80	0.40	0.69
Encouragement for educational activities (ACT 6)	0.51	0.68	0.71	0.36	0.56	0.53	0.56
Awareness activities in fisheries (ACT 7)	0.18	0.63	0.58	0.64	0.51	0.69	0.56
Implementation of Government schemes (ACT 4)	0.42	0.65	0.38	0.58	0.51	0.47	0.50
Organisation of trainings (ACT 8)	0.38	0.20	0.45	0.28	0.33	0.56	0.43
Transportation facilities (ACT 3)	0.65	0.45	0.41	0.25	0.44	0.00	0.32
Overall	0.59	0.61	0.60	0.52	0.58	0.49	0.56

It was reported that trainings for members on administration, finance, fishing technology and marketing were not organised regularly by cooperatives. Majority of cooperatives does not have vehicles and hence, the members showed dissatisfaction with transportation facilities. Authorities of the cooperatives reported that they had their own limitations like less capital/human resources/support from members/technical and financial support. The study on perception of fishermen with cooperative services in Kerala State of India revealed that 90% of respondents were earning profit by selling fish through cooperatives and more than 80% respondents accepted that cooperatives were the best credit source, binding the fishermen and improving standard of living, besides that provision of credit and fish auctioning are the important services rendered by fishermen cooperatives. The members who are satisfied with the economic relations and the diversification of activities of their cooperatives are likely to participate more in the democratic process which is clear from low attendance in the meetings (Jeyanthi *et al*., 2017).

Members' satisfaction with overall performance of cooperatives

Satisfaction with the overall performance of cooperative societies was tested on the basis of factors *viz*., protection of members' interest, the overall working of cooperatives, reward, economic and technical soundness and advisory as well as support system. It is clear from Table 4 that overall satisfaction score was 0.53 indicating moderate satisfaction. For all the factors, the scores are between 0.51 to 0.56 which indicated that members were moderately satisfied with overall performance of cooperatives.

Cooperative members' expectations about the types and quality of services that should be offered and their criteria for performance of these services have a major impact on the level of satisfaction or dissatisfaction (Tilahun, 2007). The study of fishery cooperatives of Turkey (Unal *et al*., 2009) and the fruit and vegetable growers' cooperatives in the Mid-Atlantic United States (Bhuyan, 2007) reported that satisfactory performance of cooperative societies depend on the relationship between cooperative members and cooperatives. It is necessary that members are to be satisfied with the activities of the cooperatives, because highly committed and satisfied members are more likely to support their cooperative by participating in all activities.

The cooperatives will have difficulty to survive in the long run without active member participation and satisfaction (Bhuyan and Leistritz, 2001). It was also reported that membership commitment and satisfaction are key points for achievement of goals and objectives as well as success of a cooperative which reflect in members' satisfaction and *vice versa* (Bhuyan and Leistritz, 2001). Hence, the satisfaction of members creates positive attitudes towards the cooperatives and satisfied members are more likely to support their cooperative by participating in all cooperative activities.

The cooperative members will be satisfied if the board of directors and management undertake the best job of marketing by minimising operating costs and setting satisfactory pricing policies in place (Bruynis *et al.,* 2000). Another member satisfaction criterion is sound communication between members and cooperatives with respect to cooperative operations who work for concerns of their members. Similar results were reported while studying the member-fisher satisfaction recognition by fishery cooperatives of Turkey, mentioning that performance of cooperatives from members point of view was far below full potential due to factors like lack of solidarity, lack of business management skills, weak legislative support by the government, the tax system and the lack of training (Ünal *et al.,* 2009). However, the authors believe that if cooperatives encouraged by the government, academics and fishers, they have the potential to contribute significantly to local society and management bodies in Turkish small-scale fisheries. The fishermen's self-organisations like cooperatives, have the potential to reinforce production and sales systems, including marketing, while promoting sustainable use of fishery resources through various initiatives such as sales promotion, crisis handling and funding support (Unal *et al.,* 2009). However, the authors anticipated that skilful use of these enterprises increase fisherman satisfaction with organisation. The members satisfaction is prime goal of cooperatives however, the service quality plays a major role in getting customer satisfaction as there exists gap between what customer expects and what they perceive in various dimensions of service quality (Joshi and Sankaranarayanan, 2013). However, in order to enhance members' satisfaction, cooperatives should work on effective management and resource administration, ensuring timely service, adequate availability of provisions and offering special benefits to members (Tarekegn, 2017).

In the present study, the overall satisfaction score was 0.61, indicating that members of cooperative societies of Maharashtra are satisfied with the performance of cooperatives. The members were found satisfied (score: 0.56) with activities undertaken by cooperatives and AGM, while members showed less satisfaction with BOM (score: 0.45). Dissatisfaction of members was majorly due to ignoring the needs of the members and also due to less participation of members in functioning of the cooperative which is clear from the low attendance in the meetings.

KMO measure of sampling adequacy in this study was found to be 0.833 and thus sampling was concluded to be adequate. Bartlett's test of sphericity showed that chi-square was significant at 5% level

Table 4. Members' satisfaction score for overall cooperative performance

Factors	Districts						
	Mumbai Suburban	Mumbai	Thane	Raigad	Ratnagiri	Sindhudurg	Maharashtra
Protection of members interest (PER 4)	0.51	0.47	0.54	0.48	0.46	0.59	0.51
Overall working of cooperatives (PER 1)	0.54	0.62	0.55	0.55	0.52	0.53	0.56
Reward (PER 3)	0.54	0.52	0.55	0.53	0.57	0.54	0.54
Economic and technical soundness (PER 2)	0.54	0.50	0.60	0.49	0.55	0.56	0.55
Advisory and support systems (PER 5)	0.50	0.48	0.56	0.47	0.49	0.54	0.51
Overall	0.53	0.52	0.56	0.51	0.52	0.55	0.53

(Table 5). Member's satisfaction scores were put forth for factor analysis to find out the factors contributing to the satisfaction of members. The scores on 23 factors related to the satisfaction level of members with cooperative performance were included for factor analysis and is presented in Table 6. Six factors extracted through factor analysis were able to achieve satisfaction to the extent of 80.81%. Table 6 presents the rotated matrix of factors for satisfaction level.

Factor 1: The factor analysis explained 37.17% variance with highest satisfaction of members with Cooperative meetings being conducted as per rules and regulations (AGM2) and decision taken in AGM (AGM1), whereas, Members dissatisfaction was found with Governance of cooperatives (BOM1), Awareness activities in fisheries (ACT7), Implementation of Government schemes (ACT4), Organization of trainings (ACT8), Protection of members interest (PER4), Reward (PER3) as well as Economic and technical soundness (PER2).

Table 5.Kaiser-Meyer-Olki and Bartlett's Test for factor analysis

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.833
Bartlett's Test of Sphericity	Approx. Chi-Square	2.540E3
	Df	276
	p	<0.001

Table 6. Rotated Component Matrix of factors for satisfaction level

Factors	Component					
	1	2	3	4	5	6
AGM1	.888	.231	.061	.175	.190	-.145
AGM2	.908	.296	.030	.068	.175	-.018
BOM1	-.739	-.055	-.030	.174	-.153	.063
BOM2	.407	.663	.318	-.413	.038	.027
BOM3	.085	-.025	.122	.187	.865	.029
BOM4	-.209	-.062	.782	.051	-.120	.163
BOM5	-.035	.222	.866	.010	.108	-.102
BOM6	.151	.921	.238	-.039	.061	-.033
BOM7	.332	.822	.019	-.042	.027	.019
BOM8	.429	.693	.094	-.095	-.178	-.177
ACT1	-.643	-.036	.011	.626	.161	-.005
ACT2	-.062	.366	.711	-.254	-.088	-.187
ACT3	-.454	-.076	.156	.090	-.585	.261
ACT4	.351	.042	.810	.000	.102	.143
ACT5	.735	-.003	-.189	.289	.476	-.042
ACT6	.783	.286	-.065	.214	.012	-.110
ACT7	.772	.373	-.088	-.070	.166	-.083
ACT8	-.279	-.055	.052	-.064	-.071	.876
PER1	.828	.242	.070	.191	-.012	-.124
PER2	.239	-.244	-.059	.727	.027	.262
PER3	.607	.303	.038	-.575	-.353	.065
PER4	.695	.140	.063	-.366	-.305	-.268
PER5	-.211	-.042	.010	-.804	-.094	.366

Extraction Method: Principal Component Analysis. a. Rotation converged in 10 iterations.

Factor 2: Factor 2 explained 16.63% variance and four satisfaction level factors loaded with this factor. Under this factor, satisfaction level factors with their loading factors are: Attending problems of members (BOM6), Availability of members (BOM7), Relation with members (BOM8) and dissatisfaction was found with Developing infrastructure facilities and Transportation facilities (BOM4).

Factor 3: Factor 3 explained 11.73% variance and four satisfaction factors were loaded with this factor. Under this factor, satisfaction level factors with their loading factors are Awareness about social issues (BOM5) and Implementation of Government schemes (ACT4) and high dissatisfaction was found with, Social and welfare activities (ACT5) and Awareness activities in fisheries (ACT7).

Factor 4: Factor 4 explained 6.22% variance and four satisfaction level variable loaded with this factor. Under this factor, satisfaction level factors with their loading factors are: Economic and social soundness (PER2) and Marketing activities (ACT1) and high dissatisfaction with Advisory and support systems (PER5) as well as Protection of members' interest (PER4).

Factor 5: Factor 5 explained 5.04% of the variance, with members expressing satisfaction in Developing infrastructure facilities (BOM3) as well as Social and welfare activities (ACT5), but dissatisfaction with transportation facilities (ACT3).

Factor 6: Factor 6 explained 4.59% variance and one satisfaction level variable loaded with this factor. Under this factor, members showed satisfaction with Organisation of trainings (ACT8) as well as Advisory and support systems (PER5).

The results obtained with rotated matrix of factors for satisfaction level of members of cooperative societies revealed that, members showed high satisfaction with AGM, Decisions taken in the meeting, Attending problems of members, Availability to the members, Awareness about social issues, Implementation of government schemes, Economic and social soundness of cooperatives as well as Marketing activities., . Members were moderately satisfied with cooperatives for Developing infrastructure and Transportation facilities, Input supply, Encouragement by cooperatives for educational activities, Reward as well as Advisory and support systems of cooperative society for their members. However, the members were dissatisfied with Governing of cooperatives, Awareness activities in fisheries, Advisory and support system, Protection of members interest and Relationship with members.

Factor analysis revealed that members were highly satisfied with the Annual General Meeting decisions and the Board of Management's relationship with members. However, they were only moderately satisfied with Infrastructure development, Transportation and Input supply, while dissatisfied with Governance, Member protection and Economic and technical soundness of cooperatives. To improve satisfaction, cooperatives should enhance input supply, including diesel and fishing accessories, provide advisory services and conduct awareness programs as well as trainings in fisheries in collaboration with Government and NGOs. Members also expect better marketing, training programs, and effective implementation of Government schemes. Government of India's Prime Minister Matsya Sampada Yojana (PMMSY) aims to develop fisheries infrastructure and cold storage and cooperatives should take the initiative to implement this. Additionally, improving governance, involving members in decision-making, safeguarding their interests, and strengthening economic and technical aspects are crucial for ensuring maximum satisfaction and cooperative growth.

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