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The Role of Co-management Platforms in Addressing Critical Issues Within Sri Lanka's Fisheries Sector

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Abstract

The coastal fisheries sector in Sri Lanka is crucial for food security and nutrition, employment creation, poverty reduction, and foreign exchange earnings. Co-management, a participatory approach involving fishers, the government, and other stakeholders, is widely acknowledged as an effective strategy for sustainable fisheries management. This study investigates how existing co-management platforms in Sri Lanka contribute to addressing key challenges within the coastal fisheries sector. A field survey was conducted with 115 fishermen from six Fisheries Management Committees in two selected Fisheries Management Areas. The study examined issues within the fisheries sector based on four themes of the Small-Scale Fisheries Guidelines adopted by the Food and Agriculture Organization: responsible governance of tenure, sustainable resource management, social development, employment, and decent work, and gender equality. These issues were identified through a previous study conducted by the Sri Lanka Forum of Small-Scale Fisheries in 2019. Both descriptive statistics and parametric hypothesis tests were employed to assess the perceived contribution of co-management platforms. The findings indicate that Sri Lankan coastal fishers generally view co-management mechanisms approvingly. Existing platforms demonstrate a high degree of effectiveness in resolving issues related to the responsible governance of tenure. However, their contribution is moderate in addressing challenges pertaining to sustainable resource management, social development, employment, and decent work. Furthermore, the contribution of co-management platforms is deemed unsatisfactory in ensuring gender equality. The study recommends that government agencies should actively engage in building awareness and educating fishing communities on gender equality and emphasise the importance of sustainable resource management, leading to improved well-being of fishing communities.

Keywords: sustainability, gender equality, fisheries management, governance of tenure

Introduction

The Sri Lankan fisheries industry is an important driver of the country's economic and social development, accounting for 1.2 % of GDP and supporting the livelihoods of over 2.7 million people through direct and indirect employment (Ministry of Fisheries, 2024). Sri Lanka's coastal fisheries sector, which falls within the category of small-scale fisheries (SSF), is essential for food security and nutrition, sustainable livelihoods, and poverty alleviation (Amarasinghe and Bavinck, 2017; Pittman et al., 2019). The SSF sector is

characterised by fishers using smaller vessels, low investment of capital, and conducting shorter fishing trips (Amarasinghe and Bavinck, 2017; Pathmanandakumar, 2017). Around 85.14 % of Sri Lanka's marine fishers are involved in small-scale fishing, accounting for 56.1 % of the country's total marine fish production (Ministry of Fisheries, 2024).

Globally, the sustainable development of small-scale fisheries remains a significant challenge, particularly in the contexts of poverty, high population growth, economic globalisation, and climate change (Evans et

al., 2011). Overexploitation of resources is a primary issue in the global SSF sector, and sustainable use of resources has become a primary area of concern (Basurto et al., 2017). Conflicts over fisheries tenure, access, and user rights in fisheries socio-economic systems are other salient issues in the sector in many countries, including Sri Lanka (Bavinck, 2015; Pethiyagoda and Amarasinghe, 2013; Wickramasinghe and Bavinck, 2015; Gammanpila et al., 2019; Ibrahim, 2020; Dahlet et al., 2021).

To amicably manage these issues and ensure sustainable use of resources, it is important to recognise the coastal zone as one ecosystem and ensure the involvement of all relevant stakeholders in the process of management decision-making (Amarasinghe, 2020). This kind of arrangement is generally termed as co-management. Co-management is recognised as one of the most equitable and rational governance regimes for addressing sustainability issues (Kosamu, 2015; Trimble and Berkes, 2015). It is often considered a relationship between a resource user group and other organisations for fisheries management in which some degree of responsibility and authority is conferred to all parties (Evans et al., 2011). According to Pittman et al. (2019), co-management is an important element of small-scale fisheries guidelines introduced by the FAO and the human-rights-based approach to fisheries.

Co-management is a broad concept encompassing different levels of power sharing and decision-making between the resource user group and the state. Therefore, fisheries' co-management can be classified into five broad types according to the roles that the government and fishers play (Sen and Nielsen, 1996).

- i. Instructive: This type of co-management regime is different from centralised management in the sense that the mechanisms exist for dialogue with users but is limited to the government informing fishers on the decisions they plan to make.
- ii. Consultative: Mechanisms exist for the government to consult with fishers, but all decisions are taken by the government.
- iii. Cooperative: This type of co-management is where government and fishers cooperate as equal partners in decision-making.
- iv. Advisory: Fishers advise the government of decisions to be taken, and the government endorses these decisions.
- v. Informative: The government has delegated authority to make decisions to fisher groups who are responsible for informing the government of these decisions.

Benefits emerging from co-management of the fisheries sector comprise sustainable fishing, reduced cost of fisheries management, avoidance of violating the rules by fishers themselves (Gutiérrez et al., 2011), bringing in the wealth of knowledge and experience of fishers to the management process (Gutiérrez et al.,

2011; Gammanpila et al., 2019), empowerment of communities (Jentoft, 2005), ecological benefits (Pomeroy, 2003; Gutiérrez et al., 2011), social benefits (Gutiérrez et al., 2011; Quimby and Levine, 2018) and conflict resolution (Kaluma and Umar, 2021), increased compliance with regulations through peer pressure; and better monitoring, control, and surveillance by fishers (Gutiérrez et al., 2011).

Although the importance of co-management in fisheries is widely recognised, the effectiveness of co-management platforms in coastal fisheries in Sri Lanka has not been fully evaluated. Cohen et al. (2021) noted that very few examples of successful co-management initiatives can be observed in the coastal fisheries sector in Sri Lanka. Although people in these villages have collective groupings based on religious, ethnic, and provincial groups, the definition of artificial management units (e.g., land area, gear type) has been a critical impediment to co-management development (Deepananda et al. 2016a). However, there are few examples of successful co-management initiatives, which include beach seine fisheries (Deepananda et al., 2016a) and stilt fisheries of the southern coast (Deepananda et al. 2016b), and inland fisheries (Amarasinghe and De Silva, 1999; Fernando et al., 2015). These success stories cannot be generalised as these practices are specific to the selected segment of fisheries. A substantial research gap remains in understanding the effectiveness of general co-management approaches in Sri Lanka's small-scale fisheries sector.

This study aims to bridge this gap by evaluating the extent to which current co-management platforms are successful in addressing the key challenges within the SSF sector. In doing so, the study examines the structure, objectives, and functioning of current fisheries management mechanisms in the coastal fisheries in Sri Lanka. The specific objective of the study is to explore the role of the co-management platforms in resolving the existing issues in the coastal fisheries sector.

Materials and Methods

Ethical approval

Ethical approval for this study was obtained from the Ethical Approval Committee of the Sabaragamuwa University of Sri Lanka under approval number ERC/H/12/2023/10 dated 29-01-2023.

Selection of study area

The fisheries community participating in co-management platforms are quite limited in Sri Lanka, and therefore, the study area was confined to those coming under co-management platforms established by the Department of Fisheries and Aquatic Resources under the Fisheries and Aquatic Resources (Amendment) Act. Sections 31 and 32 of the Fisheries and Aquatic Resources Act (No. 2) of 1996 provide

authority to the Minister of the subject in charge of fisheries to designate Fisheries Management Areas (FMA), which included both waters and land adjacent to that, to manage fisheries in that particular area. According to the provisions of the said Act, FMA will have one or more Fishery Management Councils (FMCs) with the participation of relevant state officers and the community representatives. To date, the Minister in charge of Fisheries has designated 18 FMAs across Sri Lanka's fisheries districts. Of these, 13 are situated within lagoons. Three of the remaining five FMAs are still under scrutiny. The other two coastal FMAs concentrate on specific target fisheries, and do not adequately represent the diverse interests of small-scale fishers employing various fishing methods targeting a diversity of coastal fish species. Their unique management needs and challenges differ significantly from those of typical coastal fishers, hence they were excluded from this study.

Consequently, only 13 lagoon-based FMAs were considered for the study. While lagoon fisheries constitute a subset of coastal fisheries, lagoons are integral components of the broader coastal fisheries ecosystem. In terms of fishing methodologies, gear, fishing techniques, and target species, lagoon fishers share considerable similarities with other coastal fishers operating in near-shore waters. A substantial portion of lagoon fishers also venture into the sea during favourable weather conditions. Therefore, these thirteen lagoon-based FMAs provide valuable insights into co-management initiatives within the broader coastal fisheries sector (Fig. 1).



Fig. 1. Map of lagoon-based fisheries management areas of Sri Lanka (Lagoons are marked in red colour).

A two-stage cluster sampling method was employed to select study participants from 13 lagoon-based FMAs. The first stage involved the selection of primary clusters, which in this case were FMAs. Accordingly, the following 2 FMAs were randomly selected by applying simple random sampling.

- Chilaw Lagoon fisheries management area, which was established under Gazette Notification No. 1744/4 dated 08-02-2012.
- Puttalam Lagoon fisheries management area, which was established under Gazette Notification No. 1665/17 dated 04-08-2010.

The second stage involved the random selection of 3 secondary clusters (FMCs) each (a total of 6 FMCs) by applying the simple random sampling method within the selected 2 FMAs. The following FMCs were randomly selected from two identified FMAs (see Table 1).

Chilaw FMA

- Iranawila Fisheries Management Committee.
- Pambala St. Sebastian Fisheries Management Committee.
- Welihena Fisheries Management Committee.

Puttalam FMA

- Anawasala Lagoon Fisheries Management Committee.
- Wanathavilluwa Lagoon Fisheries Management Committee 3.
- Puttalam Lagoon Fisheries Management Committee 1.

The sample was selected as indicated in Table 1 by randomly selecting 40 percent of the total membership of each selected fisheries committee.

Table 1. Number of selected participants from each fisheries management committees.

Name of the FMC	Total number of members in the society	Sample (40 % of the membership)
Iranawila	65	26
Pambala	33	13
Welihena	34	14
Palakuda 1	52	21
Wanathawilluwa 1	50	20
Puttalam 1	52	21
Total	286	115

Data collection

To assess the effectiveness of co-management platforms in addressing key issues within Sri Lanka's small-scale fisheries sector, a pre-tested questionnaire with closed-ended questions was administered to 115 coastal fishermen from selected FMAs to elicit information on the contribution of co-

management platforms to address key issues in the fisheries sector. In addition to the survey, two focus group discussions were held in Puttalam and Chilaw Fisheries Management Areas to obtain information on current issues on SSF and existing co-management practices. Key-person interviews were held with state officers, academics, scientists, and leading fishermen to get more information about the role of co-management in fisheries. The current situation of co-management programs, the level of authority, the legal framework, and the recent history of co-management programs were obtained from the state officials. The scientists and academics were interviewed to obtain information on the existing co-management programs, best practices of co-management, and issues of small-scale fisheries. Leading fishers were contacted to get the information on the current situation of co-management programs, the level of authority, and issues of small-scale fisheries.

The major issues in coastal fisheries in Sri Lanka, under the key themes of the Small-Scale Fisheries Guidelines of the FAO, were investigated during a study carried out by the Sri Lanka Forum of Small-Scale Fishers (SLFSSF) in 2019 through focus group discussions conducted in 12 out of 15 fisheries districts in Sri Lanka, which included the study areas as well. The existing issues in coastal fisheries were identified from the findings of the SLFSSF study. The current relevancy of the identified issues was validated at the two focus group discussions held in Chilaw and Puttalam.

Data analysis

The perceived contribution of co-management to resolving key issues based on selected four key themes identified by the FAO's Small-Scale Fisheries Guidelines: responsible governance of tenure, sustainable resource management, social development, employment, and decent work, and gender equality (as identified in the 2019 study by the Sri Lanka Forum of Small-Scale Fisheries) was measured. Fisheries Management Committees' contribution to resolving issues was measured using the Likert scale, i.e., 1: Strongly disagree, 2: Disagree, 3: No opinion, 4: Somewhat agree, 5: Strongly agree.

Both descriptive statistics and parametric hypothesis tests were conducted to measure the perceived contribution of FMCs to resolving existing issues. The responses were subjected to numerical analysis using SPSS software. A simple index was subsequently generated to compare and measure the relative contribution of co-management platforms in tackling issues within these four thematic areas. The index is a "Weighted Composite Score Percentage Index". This type of index is applied to aggregate responses to multiple indicators (Combines responses across several dimensions into a single score), normalises the scores by scaling them to a percentage of the maximum possible score (converts the total raw score into a percentage by dividing by the maximum possible

score and multiplying by 100). This standardisation allows for easy interpretation and comparison.

In this study, a sample has been used to justify the actual situation of the entire population. For this purpose, the proportion hypothesis test (one of the hypothesis tests) has been selected as the statistical test to be applied by calculating the *P* value through the calculation of the *Z* value.

H_0 - The majority of respondents have no positive opinion on solving the issues on selected themes of Small-Scale Fisheries Guidelines.

H_1 - The majority of respondents have a positive opinion of solving the issues on selected themes of Small-Scale Fisheries Guidelines.

Indicators used to measure the variables are shown in Table 2.

Results

Study locations

Puttalam Lagoon is located on the northwest coast of Sri Lanka and has a surface area of 32,700 ha (Riyas et al., 2007) (Fig. 2). The lagoon is rich in natural resources such as fish, shellfish, coral reefs, sand dunes, mangroves, salt marshes, and beaches (Riyas et al. 2007). The main occupation of the people living in the area is fishing and trading fish (De Silva et al., 2017). Chilaw Lagoon (Fig. 3) is an intermittently closed small tidal lagoon on the west coast of Sri Lanka (Wijeratne et al, 2004). The lagoon is 4 Km long with an average width of 1.6 Km (Wijeratne et al., 2004). The fishing activities of these lagoons are done using outboard engine fibre reinforced boats (OFRP), motorised traditional boats (MTRB), and non-motorised traditional boats (NTRB) with a variety of fishing gear (De Silva and Sandaruwan, 2017).

Puttalam Fisheries Management Area

The Puttalam Fisheries Management Area was established under Gazette Notification No. 1665/17, dated 04-08-2010. It covers the area of the Puttalam Lagoon and adjacent areas. Under the Puttalam FMA, an FCC and 16 FMCs operate.

Chilaw Fisheries Management Area

Chilaw Fisheries Management Area was established under Gazette Notification No. 1744/1 dated 08-02-2012. Under the Puttalam FMA, an FCC and 12 FMCs operate.

Courtney et al. (2019) advocate nine questions to measure the perception of the community on the role of the fisheries community organisation in fisheries management. The same nine questions were used in this study to review public perception of the role of fisheries committees and the extent of power sharing between the state and the fishers.

Table 2. Selected indicators to measure the contribution of co-management platforms.

Variable	Indicators
Community perception on the role of fisheries management	Courtney et al. (2019) advocate nine questions to measure the perception of the community on the role of the fisheries community organisations in fisheries management. The same nine questions were used in this study to review public perception of the role of fisheries committees. - The organisation allows me to state my opinion - My opinion is respected - Able to influence the work - Helps to connect with the government - Helps to cope with difficult situations - This reflects how I believe fishery should be managed - Allows me to actively engage in the fisheries management - Government agencies are genuinely interested - The community is genuinely interested
Contribution of the fisheries committees to resolving major issues related to the responsible governance of tenure	Sri Lanka Forum of Small-Scale Fisheries (SLFSSF) in 2019 identified the following main issues in fisheries with respect to responsible governance of tenure. - Acquisition of beach areas by other parties to expand marine tourism or other commercial activities - Lack of space for craft and gear repairs, and fish processing - Acquisition of access roads by other stakeholders - Illegal constructions on the beach - Illegal sand mining
Major issues related to sustainable resource management	The SLFSSF identified the following main issues in fisheries with respect to sustainable resource management (2019). - Use of destructive fishing gear - Coastal pollution - Weak post-harvest handling of fish - Poor concerns about protecting resources during the breeding season - Increase in fishing pressure
Major issues related to social development, employment, and decent work	The SLFSSF identified the following main issues in fisheries with respect to social development, employment, and decent work. - Lack of access to sufficient health facilities - Lack of social security such as insurance/ pension - Lack of facilities for children's education - Drug addiction / alcoholism - Occupational safety issues
Major issues related to gender equality	The SLFSSF identified the following main issues in fisheries with respect to gender equality. - Barriers for women to own resources/ properties - Limited representation in community organisations at the office-bearer level - Lack of capital for self-employment by women - Cultural / community barriers - Wage discrepancies

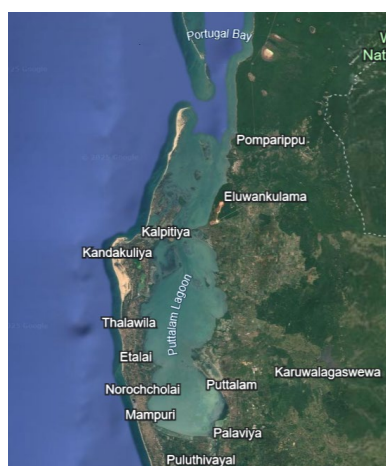


Fig. 2. Map of Puttalam Lagoon (Source: Google, 2025).

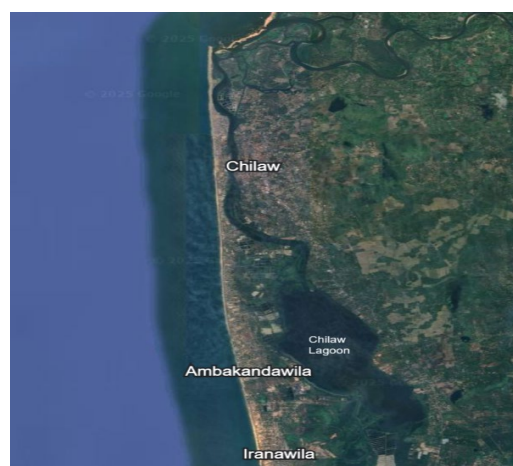


Fig. 3. Map of Chilaw Lagoon (Source: Google, 2025).

As shown in Figure 4, the results indicate that the perception of fishers on the role of fisheries committees is very positive. Notably, the two areas with slightly lower average scores (< 4) are related to handling difficult situations (3.96) and perceived genuineness of government involvement (3.82). Despite this, the average score for seven out of nine questions (>4) indicates a strong overall positive view of the fisheries committees. While fishers express satisfaction with the current level of power-sharing, focus group discussions and key informant interviews reveal that government agencies still hold primary decision-making authority. When the classification of Sen and Nielsen (1996) is taken into consideration, it is evident that the existing co-management platforms in the study area are more or less cooperative type of co-management platforms.

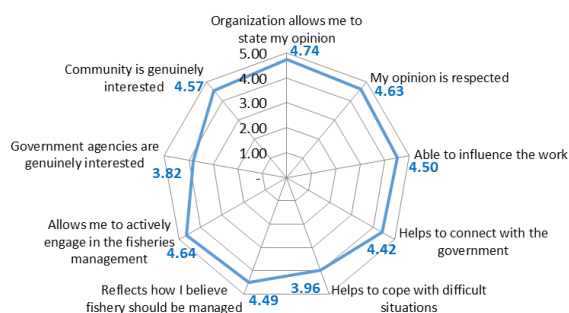


Fig. 4. Opinion of the survey participants on the role of the fisheries committees.

Contribution of the fisheries committees to resolving major issues related to the responsible governance of tenure

The results show that fisheries committees are seen to be very effective in addressing challenges related to the responsible governance of tenure. The mean value of contribution to resolving issues is above 4 for all identified issues, which indicates the very high contribution of fisheries committees to address the common issues, as shown in Figure 5.

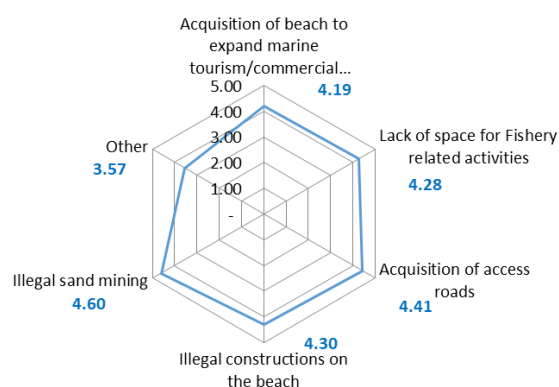


Fig. 5. Level of satisfaction of fishers on the contribution of the fisheries committees for addressing issues pertaining to the responsible governance of tenure.

According to the hypothesis test (Z test; Table 3), the majority of fishers of the FMCs (>50 %) believed that the FMCs are involved at satisfactory levels in resolving issues related to responsible governance of tenure. All issues are significant at a 0.05 probability level indicating the community members are of the opinion that FMCs are capable of resolving issues identified.

Table 3. The hypothesis test (Z test) for issues related to the responsible governance of tenure.

Issue	Z value
Acquisition of the beach to expand marine tourism / commercial activities	7.96*
Lack of space for fishery-related activities	8.39*
Acquisition of access roads	8.60*
Illegal constructions on the beach	7.53*
Illegal sand mining	8.17*

*Significant at 0.05 probability level ($P < 0.05$).

ns – not significant ($P > 0.05$).

Contribution of FMCs to resolve issues related to sustainable resource management

According to the results, the contribution of fisheries committees is relatively lower in resolving issues pertaining to sustainable resource management when compared with their contribution to issues related to the responsible management of tenure.

There is a relatively higher contribution in controlling the use of destructive fishing gear (3.7) and preventing coastal pollution (3.5). However, the contribution is low in respect of controlling the increase in fishing pressure (2.5) and tackling poor concerns about protecting resources (2.8)(Fig. 6).

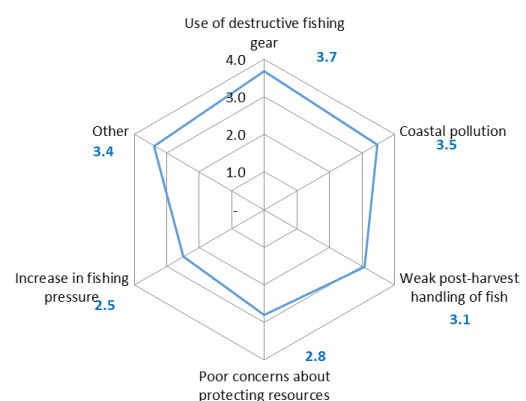


Fig. 6. Level of satisfaction of fishers on the contribution of the fisheries committees for addressing issues pertaining to sustainable resource management.

The hypothesis test (Table 4) performed to investigate

the responses of fishers expressed under the role of FMCs for the identified sub-issue of sustainable resource management indicates that the contribution of FMCs to solving the problems of the use of destructive fishing gear and coastal pollution is at a satisfactory level while their role for solving issues related to post-harvest handling of fish was poor. They had poor concerns about protecting resources and controlling increased fishing pressure. The hypothesis test for issues related to sustainable resource management against opinions of resolving issues is unsatisfactory among the communities (<50 %) in the case of three issues: weak post-harvest handling, poor concerns about protecting resources, and an increase in fishing pressure.

Table 4. The hypothesis test for issues related to sustainable resource management.

Issue	Z value
Use of destructive fishing gear	6.52*
Coastal pollution	3.44*
Weak post-harvest handling of fish	0.22 (ns)
Poor concerns about protecting resources	-3.2 (ns)
Increase in fishing pressure	-5.6 (ns)

*Significant at 0.05 probability level ($P < 0.05$).

ns – not significant ($P > 0.05$).

Contribution of the FMCs to resolve issues related to social development, employment, and decent work

The contribution of the fisheries committees to resolving issues pertaining to social development, employment, and decent work is moderate. Within the issues related to social development, employment, and decent work, the contribution is relatively higher in addressing issues such as lack of access to health facilities (3.7), lack of access to children's education (3.7), and occupational safety issues (3.5) (Fig. 7).

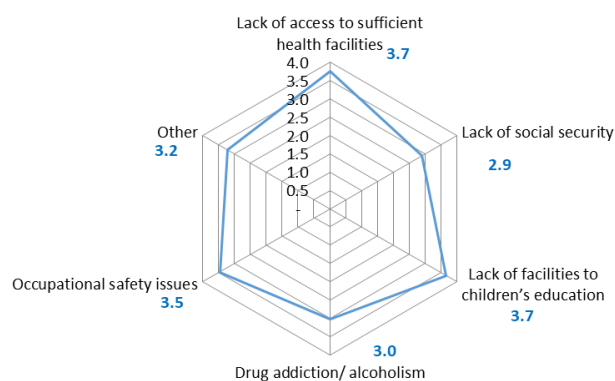


Fig. 7. Level of satisfaction of fishers on the contribution of the fisheries committees for addressing issues pertaining to social development, employment and decent work.

However, as the scores of all components are below 4, they cannot be considered satisfactory contributions. A hypothesis test was done at a significance level of 0.05 for the responses made under every sub-issue of social development, employment, and decent work, and the results in Table 5 were obtained. In social development, employment, and decent work, the results between descriptive analysis and hypothesis testing show a significant difference. According to the results obtained, the calculated Z value is larger than the tabulated Z value at a significance level of 0.05 for occupational safety issues, drug addiction / alcoholism, and lack of access to sufficient health facilities. It suggests that the community organisation's contribution to solving the problems of occupational safety issues, drug addiction / alcoholism, and lack of access to sufficient health facilities is at a satisfactory level according to the majority opinion (>50 %). The null hypothesis cannot be rejected for lack of social security and lack of facilities for children's education. Therefore, it suggests that the community organisation's contribution to solving the problems of lack of social security and lack of facilities for children's education is not satisfactory level according to the majority opinion (<50 %).

Table 5. The hypothesis test for issues related to social development, employment, and decent work.

Issue	Z value
Occupational safety issues	3.01*
Lack of social security	-0.2 (ns)
Drug addiction / alcoholism	1.72*
Lack of facilities for children's education	1.29 (ns)
Lack of access to sufficient health facilities	4.09*

*Significant at 0.05 probability level ($P < 0.05$).

ns – not significant ($P > 0.05$).

Contribution of FMCs to resolve issues related to gender equality

The study reveals that most fishers do not recognise gender inequality as a serious issue. The majority of fishers do not accept the existence of issues such as barriers to their own resources (92.17 %), cultural / community barriers (86.08 %), wage discrepancies (73.04 %), and limited representation in community organisations (53.91 %). Those fishers who accept the existence of these issues and perceive them as problems accept that the contribution of fisheries committees to resolve these issues is very low. The only considerable contribution seems to be the efforts to address issues related to the lack of capital for the self-employment of women (2.5). The focus group discussions and key person interviews with selected fishers also revealed that fishery committees play a positive role by helping members secure credit and other resources, making it easier for them to become self-employed. However, this is also not

at a satisfactory level. Their contribution to addressing other gender-related issues is extremely limited, with an average rating below 2.5. Figure 8 shows the contribution of FMCs to resolving gender-related issues.

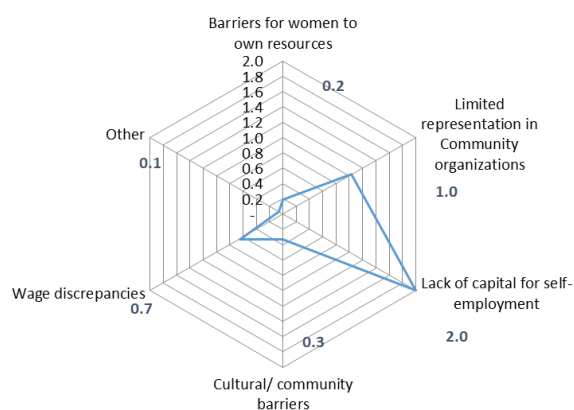


Fig. 8. Level of satisfaction of fishers on the contribution of the fisheries committees for addressing issues pertaining to gender equality.

The hypothesis test also found that the contribution to resolving gender-related issues is not satisfactory according to the majority opinion (Table 6). None of the comparisons were significant at 0.05 probability level ($P > 0.05$).

Table 6. The hypothesis test for issues related to gender equality.

Issue	Z value
Barriers for women to own resources	-6.0 (ns)
Limited representation in community organisations	-6.5 (ns)
Lack of capital for self-employment	-4.1 (ns)
Cultural / community barriers	-6.9 (ns)
Wage discrepancies	-6.0 (ns)

*Significant at 0.05 probability level ($P < 0.05$).

ns - not significant ($P > 0.05$).

Comparison of the FMCs to resolve different issues

A simple index was generated to compare and measure the levels of contribution of the co-management platform to solve the issues coming under four main selected themes of SSF guidelines namely, responsible governance of tenure, sustainable resource management, social development, employment, and decent work, and gender equality. This simple index was generated for all 5 questions given under 4 selected themes. For example, the responses of 115 participants pertaining to the responsible governance of tenure were analysed as shown in Table 7.

The same methodology was used for developing simple indexes for sustainable resource management, social development, employment and decent work, and gender equality. These indexes were used to compare and measure the levels of contribution of the co-management platform to solve the issues coming under four main selected themes of SSF guidelines (Fig. 9).

The results show that co-management platforms are effective in resolving issues related to responsible tenure management. However, their contribution is moderate in addressing sustainable resource management, and social development, employment, and decent work. The contribution of co-management platforms is not satisfactory in ensuring gender equality.

Discussion

It is widely accepted that co-management initiatives in all parts of the world have shown mixed results (Pomeroy, 2003; Pomeroy and Rivera-Guieb, 2009; Chabwela and Haller, 2010; Gutierrez et al., 2011; Kaluma and Umar, 2011; Trimble and Berkes, 2015; Tilley et al., 2019; Cohen et al., 2021). Lack of appropriate policies and legal frameworks to support communities, non-participation of resource users in management activities such as preparation of regulations, monitoring, and environmental management, inability of weakly supported community organisations to adequately represent the interests of communities, long-standing conflicts between small-scale fishers and other stakeholders, non-recognition of customary laws of communities by the state, and lack of adaptation to changing circumstances are generally considered as the major challenges to co-management (Chabwela and Haller, 2010; Sandström and Rova, 2010; Kaluma and Umar, 2011; Trimble and Berkes, 2015; Amarasinghe and Bavinck, 2017).

According to Viner et al. (2006), the success of co-management depends on factors such as the existence of enabling policy that defines the use rights of fisheries, external agent of change to initiate the co-management process, clear boundaries, user group membership, property rights, local leadership, government support, community participation and sustained financial resources. In light of these local and international experiences, the performance and sustainability of FMCs can be evaluated. This study found that the government policy and legal framework is supportive of co-management. However, challenges such as poor involvement of the community in the preparation of management plans and monitoring, and non-inclusion of customary laws in management plans exist in the study area. The study found that the Department of Fisheries and Aquatic Resources plays a commendable role as a change agent and promoter of co-management.

Nevertheless, the results of the study show that the fishing communities hold a generally positive

Table 7. Methodology of developing a simple index for the Responsible governance of tenure using Likert scores.

Respondent No.	Likert value of the response					Total	Count	Count × 5	%
	Acquisition of beach area by other parties (Likert value)	Lack of space for craft and gear repairs	Acquisition of access roads	Illegal constructions on the beach	Illegal sand mining				
1	5	5	5	4	5	24	5	25	96.0
2	3	4	3	3	4	17	5	25	68.0
3	4	4	5	5	5	23	5	25	92.0
4	4	4	5	4	5	22	5	25	88.0
5	4	4	4	5	5	22	5	25	88.0
6	3	4	4	4	4	19	5	25	76.0
115	4	4	4	5	2	19	5	25	76.0
Overall percentage									83.7

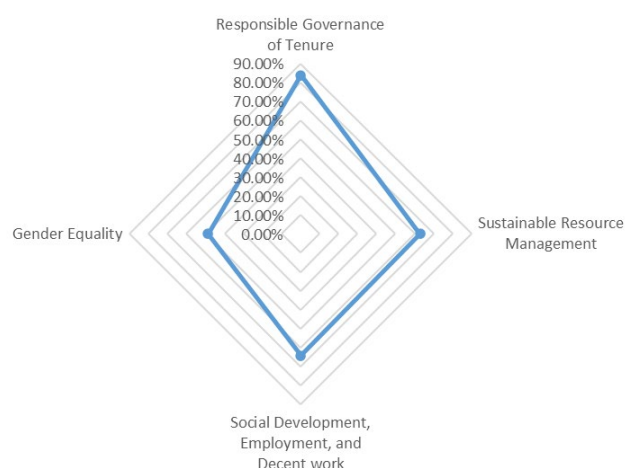


Fig. 9. Contribution of co-management platforms to address different issues.

perception of the fisheries committees' role in managing fisheries. The fishers appreciate the committees' openness to their opinions and feel they have some influence over decision-making. This can be considered as a positive development toward co-management.

Fisheries committees' contribution to resolving issues pertaining to responsible governance of tenure is outstanding. In addressing these issues, the strength of the community against external forces is highly important. In most of the cases, the threats to tenure rights come from outside sources such as commercial industries, state agencies. The results show that the FMCs provide a platform for fishers to rally around to fight against external sources. The FMCs must have positively affected to strengthen the unity and bargaining power of fishers. With respect to the

contribution of the FMCs to resolve issues pertaining to sustainable management of resources, it is observed that the contribution is high with respect to issues that are clearly visible and commonly accepted, including the use of destructive fishing methods, and coastal pollution. However, but the contribution is low in handling less visible issues including such as high fishing pressure, weak fish handling, and the need to protect resources. These results suggest that the FMCs do not adequately address the issue related to sustainable management of resources, which is the most important expectation of co-management. This raises questions about the overall success of FMCs.

According to the results, the contribution of FMCs to resolve issues related to social development, employment, and decent work is moderate. Issues such as lack of facilities for children's education and lack of social security are not properly addressed by the FMCs. However, it is interesting to note that the fishers rate high contributions to resolve some issues, which are not directly related to fisheries such as lack of access to health facilities. Focus groups and interviews also revealed that fishermen value the role of fisheries committees in strengthening their community. These committees promote collaboration and allow them to tackle issues beyond fishing. However, their effectiveness varies depending on the nature and the scale of the problem. For instance, fisheries committees have limited power in addressing issues such as social security as resolving such problems always needs the support of the state and other external agencies. The community has little power to address them independently. The committees are most successful in situations where the community can develop its own solutions.

The study reveals that most fishers do not recognise

gender inequality as a serious issue. One reason for this view is that although gender-related problems exist, the male-dominated fisher communities do not perceive them as issues. Most of the fishers are of the view that issues such as wage discrepancies and cultural and community barriers are normal. The only considerable contribution seems to be the efforts to address issues related to lack of capital for self-employment. The focus group discussions also revealed that FMCs play a positive role by helping members secure credit and other resources, making it easier for them to become self-employed. However, this is also not at a satisfactory level. Their contribution to addressing other gender-related issues is extremely limited.

Overall, co-management has been largely successful in addressing issues related to the responsible management of tenure. An enabling policy framework, strong involvement of relevant state agencies, preparation of development and management plans with the involvement of FMCs, a clear definition of user rights, clear boundaries, and property rights of small-scale fishermen, sustained financial resources, and incentives for participation in co-management should be enhanced to improve the effectiveness of fisheries committees to resolve issues beyond the tenure rights.

Conclusion

This study reveals that coastal fishers in Sri Lanka generally look favourably on co-management as a resource management platform. Further analysis reveals key areas of effectiveness and areas requiring improvement. Fishers perceive fisheries committees as highly effective in handling issues pertaining to responsible governance of tenure, while they are considered to be moderate in their contribution toward sustainable resource management. The contribution to social development, employment, and decent work is rated as moderate, often due to the need for external support beyond the committees' capabilities. The majority of fishers do not acknowledge the existence of gender-related issues within their communities. It can be concluded that gender equality is seen as a low-priority area in coastal fisheries mainly due to the male-dominant nature of fisheries operations and cultural reasons. Based on these findings, it is recommended that state agencies should actively engage in educating and raising awareness about gender-related issues within fishing communities. State agencies should play an active role in co-management to prioritise issues requiring external support for effective resolution of identified issues. By addressing these areas, co-management platforms can further improve their overall contribution to resolving the critical issues in Sri Lanka's coastal fisheries sector.

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