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Fisheries Cooperatives and the Resilience of Small-Scale Fishing Communities: A Systematic Review

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ABSTRACT

Within the sociology of development, community-based cooperatives represent a pivotal Third-Sector mechanism for driving equitable, democratic, and place-centered transformation. However, institutionalizing collective action within small-scale maritime fisheries introduces complex challenges regarding asset distribution, market asymmetries, and internal power dynamics. While individual empirical studies have explored localized cooperative performance, there is a distinct lack of systematic, theoretically integrated syntheses mapping their structural and multi-dimensional functions globally. Adhering to the RepOrting Standards for Systematic Evidence Syntheses (ROSES) protocol, this study executed a systematic literature review across the Web of Science, Scopus, and Google Scholar databases to evaluate peer-reviewed empirical research from a ten-year temporal window (2013–2023). Utilizing a manual thematic analysis and an integrative synthesis framework, the corpus was abstracted into five primary institutional dimensions: socio-demographic asset profiles, operational governance frameworks, multi-channel accessibility, economic resilience architecture, and psychosocial dynamics. The findings reveal that while fisheries cooperatives successfully decouple asset vulnerability from resource appropriation and mitigate market disparities, their long-term efficacy is frequently threatened by structural power imbalances, gender stratification, and bureaucratic friction. By synthesizing these diverse qualitative, quantitative, and mixed-method research designs, this paper moves beyond localized descriptions to expand the conceptual boundaries of Elinor Ostrom's Common-Pool Resource (CPR) governance theory. Ultimately, this review offers a unified institutional matrix providing highly transferable insights for optimizing cooperative policy and sustainable coastal development across emerging maritime economies globally.

1. Background

Within the sociology of development, the sustainable management of common-pool resources (CPRs) remains a critical locus for exploring the intersections of state policy, community resilience, and economic equity. Small-scale maritime fisheries, particularly across the Global South, serve as vital

institutional spaces where these dynamics unfold. While conventional developmental paradigms heavily prioritize state-driven interventions or private-sector market mechanisms, the "Third Sector"—comprising cooperatives and mutual-aid organizations—presents an alternative pathway for grassroots empowerment and social capital accumulation (Pollnac, 1988; Ünal et al., 2009). However, a persistent theoretical and empirical lacuna remains: despite a broad conceptual consensus on the utility of community cooperatives, the precise structural and operational mechanisms through which these institutions translate collective action into measurable socio-economic equity remain undertheorized and highly fragmented. This analytical ambiguity is pronounced within the broader literature on institutional economics and rural development sociology. As Ovando et al. (2013) observe, while the theoretical framework surrounding the cooperative governance of shared resources is expansive, comparative and systematic evaluations of their structural benefits remain constrained. This limitation is largely driven by a systemic scarcity of granular, integrated data regarding the actual operational performance and internal dynamics of fishery cooperatives (Agrawal, 2001, cited in Ovando et al., 2013). Consequently, macro-level development frameworks frequently marginalize or misunderstand the cooperative sector's capacity to function as a primary socio-economic catalyst alongside public and private interests. To address this global scholarly omission, this study utilizes the Malaysian fisheries sector as a vital, highly representative paradigm for emerging maritime economies. In Malaysia, the fisheries industry represents a foundational economic and societal pillar, generating RM14.88 billion annually according to the Department of Fisheries (DOF). For decades, state-sponsored development initiatives have sought to deploy cooperative frameworks as a mechanism to alleviate coastal poverty and enhance community well-being. Yet, academic inquiry into this ecosystem has historically remained siloed. Traditional sociological and anthropological benchmarks—ranging from the seminal ethnographies of Raymond Firth (1946, 1966) to subsequent late-20th-century structural analyses by Ungku Aziz, Wan Hashim, and Ishak Shari—have heavily focused on the macro-social fabric and broader economic vulnerabilities of coastal communities (Nor Hayati, 2000s). Paradoxically, dedicated empirical scrutiny addressing the specific operational functions and efficacy of the fishing cooperatives themselves has remained remarkably scarce (Ünal et al., 2009). By evaluating this highly specialized yet globally transferable context, this study moves beyond localized historical description to address a broader sociological imperative. This systematic review synthesizes the extant literature to critically examine the multi-faceted functions of fishing cooperatives in driving community development and socio-economic advancement. By mapping the intersection between cooperative functionality and stakeholder well-being, this review expands the conceptual boundaries of common-pool resource governance and Third-Sector theory. Ultimately, this study closes a critical loop in development literature, offering transferable insights into how cooperative institutions can be optimized as robust, resilient instruments for sustainable socio-economic transformation globally.

2. Methodology

2.1. Research Design and Review Protocol

To ensure an objective, transparent, and reproducible synthesis of the global literature regarding fisheries cooperatives, this study adopts the Systematic Literature Review (SLR) methodology (Xiao &

Watson, 2017). Rather than relying on traditional, narrative-driven reviews that are vulnerable to selection bias, this study adheres strictly to the RepOrting Standards of Systematic Evidence Syntheses (ROSES) framework (Haddaway et al., 2018). The ROSES protocol is explicitly optimized for environmental and conservation evidence synthesis, maximizing structural transparency and enhancing the internal validity of the review process (Haddaway & Macura, 2018). By executing a formalized multi-stage review protocol, this research moves beyond localized documentation to map broader, global systemic patterns within institutional resource governance.

2.2. Formulation of the Scholarly Inquiry (PICO Framework)

The architectural foundation of this systematic review is guided by the PICO (Population, Interest, Context) framework, which serves to translate broad conceptual questions into highly targeted, empirically analytical fields of inquiry (Shaffril et al., 2020). To avoid the dual pitfalls of overly expansive database returns that dilute analytical focus and restrictive searches that omit vital comparative data (Petticrew & Roberts, 2006; Shaffril et al., 2021), the components were defined as follows:

- a. Population: Small-scale, coastal, and offshore fishing communities (fisherm*n, fisherwom*n, fisherfolk*).
- b. Interest: Institutional and structural cooperative operations (cooperative*, co-op).
- c. Context: Socio-economic development and collective welfare dynamics (socioeconomic*, development*).
- d. Consequently, this structural alignment guided the formulation of the core research question: "How do cooperative institutional frameworks structurally contribute to the socio-economic development and resilience of fishing communities?"

2.3. Information Retrieval and Bibliographic Databases

To assemble a comprehensive and high-credibility inventory of global peer-reviewed literature, a parallel systematic search was conducted across two premier international citation indices: Web of Science (WoS) (Clarivate Analytics) and Scopus (Elsevier). These platforms represent the benchmark for indexing rigorous, peer-reviewed social and environmental science literature (Gusenbauer & Haddaway, 2020). To minimize publication bias and capture peripheral or emerging institutional data that might be omitted by primary indexes, Google Scholar was integrated as a robust secondary supporting repository (Haddaway et al., 2015; Xiao & Watson, 2017). Advanced searching parameters, customized truncations, wildcards, and Boolean operators (AND/OR) were deployed uniformly across these platforms to capture operational and linguistic variations globally (Table 1).

Table 1: Search strings

Database	Search String
Scopus	TITLE-ABS-KEY (("fisherm*n cooperativ*" OR "fisherwom*n cooperativ*" OR "fisherfolk* cooperativ*" OR "fisher* cooperativ*" OR "fishery cooperativ*" OR "fisheries cooperativ*" OR "fishing cooperativ*") AND ("development*") AND ("socioeconomic*" OR "socio-economic*" OR "social economic*" OR "social-economic*"))

WoS	TS= (("fisherm*n cooperativ*" OR "fisherwom*n cooperativ*" OR "fisherfolk* cooperativ*" OR "fisher* cooperativ*" OR "fishery cooperativ*" OR "fisheries cooperativ*" OR "fishing cooperativ*") AND ("development*") AND ("socioeconomic*" OR "socio-economic*" OR "social economic*" OR "social-economic*"))
Google Scholars	allintitle: (fishermen OR fisherman OR fisherwomen OR fisherwoman OR fisherfolk OR fisherfolks OR fisher OR fishers OR fishery OR fisheries OR fishing) (cooperative OR cooperatives OR co-operative OR co-operatives OR coop OR co-op) (socio-economic OR social economic)

2.4. Systematic Screening and Eligibility Boundaries

The selection of the final analytical sample followed a stringent, transparent three-tiered filtration trajectory: Identification, Screening, and Eligibility Assessment (Moher et al., 2009).

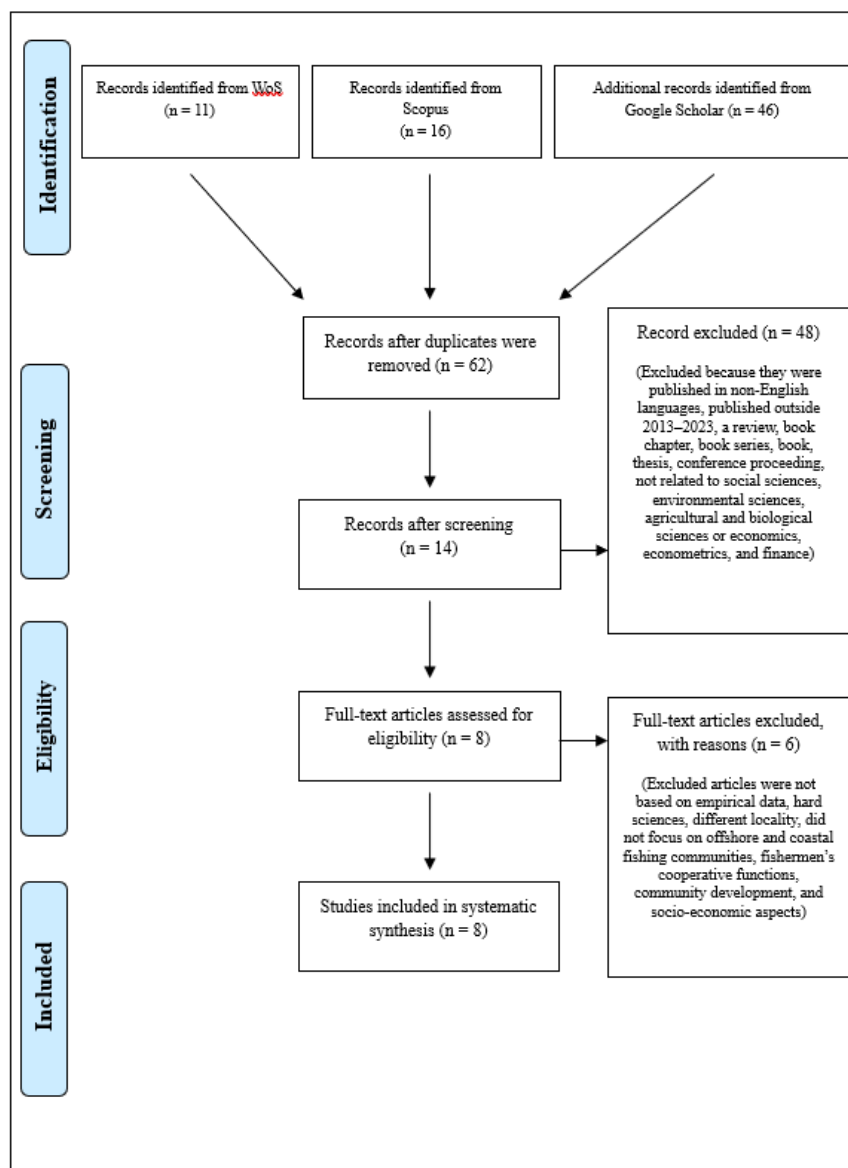


Figure 1. Flow diagram adapted from Shaffril et al. (2019)

1. Identification: Initial keyword deployment across the designated databases yielded a combined raw repository of 73 records (Scopus = 16, WoS = 11, Google Scholar = 46). After resolving cross-database duplications, 62 unique records were retained for formal evaluation.

2. Screening: Automated database filters were applied to restrict the literature to a defined ten-year temporal window (2013–2023). This bound ensures that the synthesized insights reflect modern socio-economic pressures and contemporary governance paradigms (Higgins et al., 2021). Document types were restricted strictly to peer-reviewed journal articles published in English, eliminating grey literature, conference abstracts, book chapters, and theses to maintain rigorous quality control (Okoli, 2015). Subject categories were bounded within relevant socio-economic, environmental, and agricultural domains, yielding 14 articles.

3. Eligibility Assessment: The remaining 14 full-text articles underwent manual, close-text evaluation by the research team to ensure explicit alignment with the core research question (Liberati et al., 2009). At this stage, 6 articles were excluded because they lacked empirical baseline data, focused exclusively on hard ecological variables without socio-economic evaluation, or departed from small-scale coastal and offshore community contexts. This iterative process resulted in a refined, highly specific core corpus of 8 empirical studies for systematic synthesis.

2.5. Methodological Quality Appraisal (MMAT)

To eliminate structural vulnerabilities and ensure that the final synthesized insights are derived from rigorous research designs, all eligible studies were subjected to an in-depth quality appraisal using the Mixed-Methods Appraisal Tool (MMAT) (Hong et al., 2018). The MMAT allows for the simultaneous, standardized evaluation of qualitative, quantitative, and mixed-method empirical structures.

The corresponding authors independently reviewed the full text of each paper—critically assessing the validity of the research settings, data collection protocols, analysis frameworks, and conclusions (Noory et al., 2021). This step serves as a critical defense against methodological weakness, ensuring that the final 8 synthesized studies meet the strict standards required to make legitimate, cross-contextual theoretical contributions to the global literature on common-pool resource management.

2.6. Data Extraction, Integrative Synthesis, and Thematic Analysis

Following the identification and quality appraisal of the final target corpus ($n = 8$), an integrative data extraction and synthesis protocol was executed to systematically map operational functions onto broader socio-economic outcomes. Because the selected empirical literature spans highly diverse methodologies—incorporating qualitative ethnographies, quantitative surveys, and mixed-method frameworks—this study adopts an integrative research approach (Whittemore & Knafl, 2005). The integration of disparate empirical designs is critical for overcoming the insular limitations of single-method studies, allowing for a comprehensive, multi-dimensional conceptualization of complex institutional phenomena across varying geographies (Flemming et al., 2019).

Data extraction was conducted systematically by isolating raw findings, qualitative narratives, statistical outcomes, and contextual discussions from the abstract, results, and conclusion sections of

the selected papers (Sulaiman et al., 2023). To transform these disparate data streams into universally transferable insights, a rigorous, manual thematic analysis was applied, guided by the foundational six-phase iterative framework established by Braun and Clarke (2006):

1. Familiarization: Immersive, close-text reading of the corpus to capture structural and contextual nuances across the varying small-scale fisheries ecosystems.
2. Initial Code Generation: Segmenting raw data into operational codes regarding institutional behaviors, stakeholder participation, and community outcomes.
3. Thematic Conceptualization: Aggregating recurrent codes into overarching, macro-level thematic blocks.
4. Thematic Review: Interrogating the emerging themes against the raw data to ensure internal homogeneity and external heterogeneity.
5. Defining and Mapping: Formatting the definitive boundaries of each theme to align with broader institutional development theories.
6. Final Synthesis: Constructing the analytical narrative under unified conceptual headings.

This systematic parsing of qualitative and quantitative outcomes enables the study to move beyond a localized checklist of cooperative activities. Instead, the thematic framework abstracts the data, organizing prominent and recurrent organizational functions into a highly structured matrix (Table 2) (Okoli, 2015). This standardized analytical architecture ensures that the extraction and synthesis process is executed with the operational transparency and granular detail necessary to preserve reliability, rendering the framework fully replicable for future cross-contextual institutional assessments globally (Okoli & Schabram, 2010).

3. Results and Synthesized Conceptual Themes

The included studies were from the USA (Ovando et al., 2013), Mexico (Basurto et al., 2013), Türkiye (Yucel et al., 2021), Iran (Samian et al., 2015; Motamed et al., 2014), India (Solomon, 2023), the Philippines (Tomaquin, 2014), and Japan (Soejima and Frangoudes, 2019). One article each was published in 2023 (Solomon, 2023), 2021 (Yucel et al., 2021), 2019 (Soejima and Frangoudes, 2019), and 2015 (Samian et al., 2015). Two article each were published in 2014 (Motamed et al., 2014; Tomaquin, 2014) and 2013 (Ovando et al., 2013; Basurto et al., 2013). Four articles used a qualitative research approach (Solomon, 2023; Soejima and Frangoudes, 2019; Tomaquin, 2014; Ovando et al., 2013), three articles used a quantitative research approach (Yucel et al., 2012; Samian et al., 2015; Motamed et al., 2014), and one article used a mixed qualitative and quantitative approach (Basurto et al., 2013).

The thematic analysis yielded six main themes (Table 2) related to fishing cooperative functions: demographic (four sub-themes), management (five sub-themes), accessibility (five sub-themes), economic (seven sub-themes), social (four sub-themes), and psychology (six sub-themes).

Table 2: Main themes and sub-themes

Au tho rs (Ye ar)	Re se ar ch D es ig n	Demo graphi c			Managemen t				Accessibility					Economic					Social				Psychol ogy						
		F P	B O	F G	O	D	P	M	A	A	A	A	A	E	L	C	I	D	H	S	S	T	C	C	F	A	I	T	S
Sol om on (20 23)	* QL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓		✓		✓
So eji ma an d Fra ng ou des (20 19)	* QL					✓	✓	✓				✓		✓	✓				✓	✓		✓	✓						✓
To ma qui n (20 14)	** QL					✓		✓	✓			✓	✓	✓		✓	✓		✓	✓		✓						✓	✓
Ov an do et al. (20 13)	** QL		✓	✓			✓				✓											✓							

Yucel et al. (2021)	** Q N	✓	✓	✓	✓	✓	✓			✓		✓
Samiyan et al. (2015)	** Q N			✓		✓	✓	✓	✓	✓	✓	✓
Motamed et al. (2014)	** Q N			✓		✓		✓		✓	✓	✓
Basurt et al. (2013)	** Q N	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Demographic		Management			Accessibility			Economic		Social		Psychology
FP = Fishing permit		O = Operation			AI = Access to information			EN = Entrepreneurs hip		SS = Saving support		F = Frustration
BO = Boat ownership		DM = Decision-making			AI = Access to resources			L = Loans		TS = Training and skill		A = Anxious
FG = Fishing gear		PR = Policy and regulation			AF = Access to facilities			CS = Credit schemes		CC = Community cohesion		I = Insecurity

M = Membership	AM = Access to markets	IS = Insurance schemes	CA = Collective action	T = Trust
AGM = Annual grand meeting	AN = Access to networking	D = Dividends		S = Satisfaction
		H = Honorarium		V = Value
		SI = Side income		

Note: The table was adapted from Shaffril et al. (2019)

References:

*QL= Qualitative

**QN= Quantitative

***MM=Mix-method

The systematic extraction and integrative synthesis of the empirical corpus (n = 8) revealed five primary, interconnected multidimensional thematic domains governing the efficacy of fisheries cooperatives: (i) Socio-Demographic Asset Profiles, (ii) Operational Governance and Structural Management, (iii) Institutional and Market Accessibility, (iv) Financial Architecture and Economic Resilience, and (v) Psychosocial Dynamics and Institutional Trust.

3.1. Socio-Demographic Asset Profiles and Resource Appropriation Rights

The socio-demographic composition of cooperative networks serves as a critical structural baseline determining a community's capacity for resource appropriation and collective action. The synthesis identified three decisive variables within this domain: formal fishing entitlements, physical vessel ownership, and technological gear configurations.

3.1.1. Regulatory Entitlements and De Jure Rights

Formal fishing permits represent the primary mechanism for establishing de jure recognition within commercial landing spaces. The synthesis underscores a systemic polarization in how these rights are allocated. As observed in artisanal contexts like Mexico, regulatory frameworks often require individual fishers to either endure high transactional barriers for solo licensing or aggregate into formal cooperative blocks to secure collective property rights (Basurto et al., 2013). This binary highlights an institutional hurdle: rather than providing universal access, regulatory permit structures frequently act as a stratification mechanism, separating legally recognized commercial fishers from marginalized, informal actors.

3.1.2. Capital Asset Accumulation: Fleet and Vessel Ownership

Vessel ownership represents the primary physical capital requirement for offshore or deep-sea resource extraction. The empirical data reveals a sharp divergence in asset distribution models across different national governance systems:

a. Individual-Dominant Models: In contexts like Türkiye, cooperative ecosystems operate on an elite-proprietary framework where 100% of cooperative managers or partners maintain independent vessel ownership and localized equity (Yucel et al., 2021).

b. State-and-Political Dependency Models: In emerging economies like India, small-scale fishers own a minority share (35.47%, or 15,247 out of 42,985) of mechanized marine crafts (Solomon, 2023). In these settings, asset acquisition is heavily mediated by the political affiliations of the cooperative leadership, which dictates access to state-backed boat-building subsidies.

c. Cooperative Collective Ownership: Conversely, in certain Mexican jurisdictions, the cooperative itself holds institutional ownership over the regional fleet (e.g., pangas), lowering the barrier to entry for the broader fishing community and increasing the cooperative's organizational stickiness (Basurto et al., 2013).

3.1.3. Technological Stratification: Fishing Gear Profiles

The extraction technologies deployed by cooperative members match their localized marine environments but reflect clear capital constraints. Across the global synthesis, a distinct stratification emerges between artisanal, low-impact tools and capital-intensive systems. In Mexico's Corridor region, the vast majority of artisanal fishers (93%) rely on low-cost hook-and-line methods, with a smaller proportion using gillnets (30%) or specialized diving equipment (7.3%) (Basurto et al., 2013). This profile contrasts sharply with advanced, open-access environments such as the United States, where cooperatives navigate tension between traditional tools and high-capital, industrial methods like dredging and long-lining (Ovando et al., 2014).

3.2. Operational Governance, Management, and Structural Power Dynamics

The organizational viability of fisheries cooperatives is dictated by their internal management structures, which serve to balance state mandates against grassroots autonomy.

3.2.1. Administrative Autonomy and Operational Contexts

The operational boundaries of cooperatives range from complete decentralization to highly regulated open-access environments. In India, local institutional frameworks grant members high operational autonomy in designing, executing, and evaluating internal procedures, turning individual actors into stakeholders within a broader collective framework (Solomon, 2023). In contrast, cooperatives in the United States operate within complex, market-driven open-access dynamics. These institutions organize collectively to optimize market capture and establish strict self-governance rules without direct state intervention (Ovando et al., 2013).

3.2.2. Democratic Decision-Making and Gender-Based Marginalization

While the foundational logic of cooperatives is democratic, the actual distribution of decision-making power varies significantly. In the Philippines and India, cooperative structures facilitate collective empowerment through democratic elections, general body assemblies, and decentralized service distribution (Tomaquin, 2014; Solomon, 2023).

However, deep patriarchal structures frequently compromise this democratic ideal. In Japan's Fisheries Cooperative Associations (FCAs), despite national policy shifts like the "Seashore Revitalization Plans," formal decision-making power remains concentrated among male members (Soejima & Frangoudes, 2019). Women are often systematically excluded from voting membership and instead restricted to peripheral, unrecognized voluntary or processing roles.

3.2.3. Institutional Policy and Legislative Compliance

Regulatory frameworks provide the legal foundation for cooperative survival, yet they can introduce unexpected institutional frictions. In India, a tiered hierarchy allows grassroots cooperatives to voice concerns up to apex national federations (Solomon, 2023). However, state-driven legal reforms can also inadvertently undermine collective solidarity. In Mexico, post-1992 regulatory shifts streamlined individual permitting processes. This policy change allowed private fishers to bypass cooperative networks entirely, re-establishing traditional patron-client dependencies and fracturing local resource management systems (Basurto et al., 2013).

3.2.4. Membership Architecture and Structural Cohesion

Cooperative membership structures range from flexible, multi-tiered systems to strict, legally bounded associations. In India, organizations maintain internal differentiation via 'A' class (permanent, lifetime) and 'C' class (annually renewable) memberships, managing structural continuity while accommodating temporary labor (Solomon, 2023). Across cases in Iran and the Philippines, empirical outcomes demonstrate that active membership enhances both technical skills and local civic engagement (Motamed et al., 2014; Samian et al., 2015). However, when joint participation stalls, cooperatives experience severe erosion in their bargaining power, making unified collective action difficult (Yucel et al., 2021).

3.2.5. The Annual General Meeting (AGM) as a Governance Mechanism

The AGM serves as the primary forum for transparency, executive accountability, and democratic financial reporting across global cases (Basurto et al., 2013; Tomaquin, 2014). In Türkiye, high member attendance reinforces institutional compliance and financial accountability (Yucel et al., 2021). Yet, operational constraints can inadvertently exclude key groups. In India, when AGMs are scheduled during peak marine harvesting periods, male fishers are unable to attend due to work obligations. This shifting schedule leaves women to dominate the meetings, creating an operational disconnect between daily harvesting choices and administrative governance (Solomon, 2023).

3.3. Institutional, Market, and Resource Accessibility Channels

The primary measure of a cooperative's value is its ability to provide members with access to information, physical infrastructure, international markets, and external institutional networks.

3.3.1. Information Asymmetry and Transparency Protocols

Effective data distribution is crucial for reducing administrative corruption and ensuring democratic compliance. In Türkiye, cooperatives maintain transparency by providing members with clear access to daily income-expenditure statements and updated legislative changes (Yucel et al., 2021). The

synthesis reveals that robust cooperative systems utilize redundant information channels—including state agencies, civil society NGOs, local radio networks, and structural general meetings—to neutralize information asymmetries and insulate fishers from predatory external buyers (Basurto et al., 2013).

3.3.2. Resource and Facility Access Channels

Cooperatives act as critical intermediaries that convert open-access marine resources into secure community infrastructure:

- a. **Physical Asset Security:** In India, cooperatives provide members with essential equipment like specialized webbing, engine accessories, and transport vehicles, converting open-access challenges into structured physical capital (Solomon, 2023).
- b. **Institutional Space:** In the Philippines and Iran, cooperatives serve as physical gateways to state resources, offering shared spaces for community organizing and local development projects (Tomaquin, 2014; Samian et al., 2015).
- c. **Vertical Integration:** In Mexico, advanced cooperative structures allow fishers to vertically integrate their operations by processing, transporting, and marketing their catch collectively, retaining a higher share of the profits within the community (Basurto et al., 2013).

3.3.3. Market Integration, Intermediation, and Price Leverage

The most significant benefit identified across all studies is the role of cooperatives in enhancing market leverage and buffering fishers against price volatility. Unorganized small-scale fishers are highly vulnerable to exploitative local intermediaries. Cooperatives counter this vulnerability by creating centralized local auctions and setting price floors, as seen in beach-landing interventions in India (Solomon, 2023).

Furthermore, cooperatives allow artisanal fishers to scale their operations and enter international export markets. This transition enables specialized, single-commodity cooperatives to bypass volatile domestic supply chains in favor of stable export contracts (Ovando et al., 2013).

3.3.4. Inter-Organizational Networking and Alliances

By aggregating local actors, cooperatives can build alliances with powerful macro-level institutions. In the Philippines, local associations leverage these networks to secure development grants and capital reserves from commercial banks, state authorities, and international NGOs (Tomaquin, 2014). Similarly, in India, institutional networks give members access to specialized training, such as maritime navigation and advanced communication device courses run by federal agencies like CIFNET (Solomon, 2023).

3.4. Financial Architecture and Economic Resilience Mechanisms

To insulate coastal communities from volatile catch cycles and climate shocks, cooperatives deploy specific financial tools: entrepreneurship programs, formal loan systems, credit schemes, and dividend payments.

3.4.1. Livelihood Diversification and Micro-Entrepreneurship

Because marine harvesting is inherently unpredictable, cooperatives often sponsor micro-enterprise programs to build alternative income streams. In India, cooperatives have established over 70 distinct micro-enterprise units—ranging from direct fish marketing to retail stores, garment manufacturing, and food processing—specifically targeting women within fishing households (Solomon, 2023).

Similarly, Japanese cooperatives support female-led entrepreneurial groups, such as the Nori aquaculture initiatives. These groups process low-commercial-value catch into high-margin products for the restaurant industry, strengthening both household income and local food security (Soejima & Frangoudes, 2021).

3.4.2. Credit Capital, Micro-Finance, and Loan Infrastructures

Artisanal fishers are frequently excluded from traditional banking systems due to a lack of formal collateral, making them vulnerable to predatory local moneylenders. Cooperatives fill this gap by operating internal credit and loan facilities (Solomon, 2023; Motamed et al., 2014). In the Philippines, these frameworks provide emergency, educational, and micro-production loans (Tomaquin, 2014). In Mexico and Iran, access to cooperative credit lines is often the primary reason fishers formalize their membership, as it represents the only viable way to finance expensive equipment upgrades and absorb unexpected operational losses (Basurto et al., 2013; Samian et al., 2015).

3.4.3. Risk Mitigation: Insurance, Dividends, and Performance Honorariums

Beyond direct lending, cooperatives improve community resilience through risk-pooling and performance incentives:

- a. Risk Pooling: Specialized cooperative insurance programs in India cover personal accidents and equipment loss, protecting families from catastrophic financial shocks (Solomon, 2023).
- b. Equitable Profit Distribution: In the Philippines, cooperatives distribute financial dividends directly linked to a member's capital investment and catch contributions. This payout serves as a transparent measure of both institutional health and member performance (Tomaquin, 2014).
- c. Management Incentives: To professionalize administration, some Philippine frameworks use performance-tied honorariums for their Board of Directors, ensuring that leadership performance aligns with member profitability (Tomaquin, 2014).

3.5. Psychosocial Dynamics, Social Capital, and Institutional Trust

The operational success of a cooperative is deeply connected to the psychology of its members, relying on social capital, collective trust, and mutual identification.

3.5.1. Institutional Friction, Frustration, and Social Exclusion

When internal governance breaks down or patterns of social exclusion emerge, cooperatives generate significant internal friction. In Japan, systemic gender discrimination and the exclusion of women from formal governance under the Fisheries Cooperative Association Law create widespread institutional alienation (Soejima & Frangoudes, 2021). Older women, in particular, face time poverty and systemic

barriers that prevent them from participating in community revitalization initiatives. This exclusion leaves their vital contributions unacknowledged and turns the cooperative into a space of marginalization rather than empowerment.

3.5.2. Vulnerability, Structural Insecurity, and Climate Anxiety

Small-scale fishing communities experience intense anxiety driven by unstable incomes, resource depletion, and extreme weather events. In India, this stress manifests as constant worry over long-term family stability (e.g., funding children's education) and physical safety concerns following severe climate shocks like coastal cyclones (Solomon, 2023).

In Iran, long-term poverty undermines self-confidence and creates deep psychological insecurity among traditional beach seine fishers (Motamed et al., 2014). The data shows that when cooperatives fail to secure stable baseline incomes, member anxiety increases, which in turn weakens community participation and cooperative survival.

3.5.3. Trust, Reciprocity, and Social Capital Formulation

Conversely, trust serves as the vital social currency that holds cooperative networks together. Across multiple settings, mutual trust enables collective action without the need for rigid legal oversight:

In India, high institutional trust allows members to access emergency credit without traditional collateral (Solomon, 2023). In Mexico and Türkiye, relationships built on trust and reciprocity allow cooperatives to successfully navigate volatile market shifts and coordinate joint resource management programs (Basurto et al., 2013; Yucel et al., 2021). When members trust the institution, they willingly comply with local catch limits and actively participate in co-management frameworks (Samian et al., 2015).

3.5.4. Collective Action and Community Cohesion

Finally, cooperatives are powerful engines for generating bonding and bridging social capital. In India, close community networks provide essential mutual aid during lean catch seasons, shielding vulnerable households from sudden economic shocks (Solomon, 2023).

This solidarity often extends beyond commercial activities into profound community care. In Japan, women's cooperative groups regularly organize community fundraising campaigns to financially support orphans of fishers lost at sea (Soejima & Frangoudes, 2019). Similarly, in Iran, active participation in cooperative life correlates with stronger family cohesion and broader community stability (Motamed et al., 2014).

Ultimately, when cooperatives successfully balance efficient market integration with a commitment to internal social equity, they move beyond simple economic entities. They become resilient, self-governing social institutions capable of sustaining both marine ecosystems and coastal livelihoods globally.

4. Discussion

This systematic review synthesized empirical evidence from eight diverse global studies to construct a multidimensional conceptual framework of the socio-economic and psychosocial utility of fisheries cooperatives. Moving beyond traditional, isolated assessments of small-scale fisheries, our findings

demonstrate that cooperatives serve as vital "Third-Sector" institutions. They do not merely support livelihoods; rather, they alter the institutional economics of common-pool resource (CPR) appropriation. By systematically organizing the extracted data into five core dimensions—Operational Governance, Capital Accessibility, Economic Resilience, Social Capital Formulation, and Psychosocial Dynamics—this study offers critical contributions to Ostrom's governance paradigms and broader development sociology.

4.1. Structural Assets and Institutional Decoupling of Vulnerability

A foundational insight of this review is the role of cooperatives in decoupling socio-demographic capital constraints from de facto resource extraction capabilities. Traditional development literature often frames artisanal fishing communities as trapped by their lack of individual assets—such as regulatory fishing permits, vessel ownership, and advanced gear (Basurto et al., 2013).

Our synthesis reveals that robust cooperative frameworks systematically mitigate these deficiencies by substituting individual weaknesses with collective institutional strength. For example, cooperatives convert high-barrier, individualized state licensing systems into accessible, collective user rights. Similarly, transitioning from private vessel ownership to cooperative fleet management lowers the entry costs for marginalized fishers.

This asset-pooling mechanism proves that cooperatives do not just offer incremental support; they structurally alter the asset-dependency profiles of coastal communities, establishing an egalitarian baseline for resource extraction.

4.2. Operational Governance and Ostrom's Design Principles

From a governance perspective, the identified management benefits—including localized operational strategies, democratic decision-making, and the enforcement of internal regulations—align closely with Ostrom's design principles for enduring CPR institutions. The Annual General Meeting (AGM) emerges within this framework not merely as an administrative requirement, but as a critical forum for building internal legitimacy and accountability (Solomon, 2023; Yucel et al., 2021).

However, our synthesis reveals a significant theoretical nuance: the execution of these democratic mechanisms is frequently compromised by external social inequalities. The persistent exclusion of women from formal voting rights in traditional settings like Japan, despite top-down state initiatives, highlights a sharp disconnect between formal state policy and localized institutional logic (Soejima & Frangoudes, 2021).

Consequently, while cooperatives offer an effective framework for resource management, their long-term sustainability depends heavily on their capacity to dismantle internal power asymmetries and prevent elite capture.

4.3. Multi-Channel Accessibility as Market Arbitrage

A core contribution of this study is mapping how cooperatives function as critical intermediaries that lower transaction costs and challenge asymmetric market power. Unorganized artisanal fishers traditionally face exploitation from predatory middle-men and volatile localized supply chains. Our

findings demonstrate that cooperatives counter this vulnerability by providing synchronized access to:

- a. Information and Regulatory Transparency: Buffering fishers against arbitrary price-setting by buyers (Yucel et al., 2021).
- b. Physical Infrastructure and Inter-Organizational Networks: Linking grassroots communities directly to state capital and international non-governmental actors (Tomaquin, 2014).
- c. Vertical Market Integration: Allowing small-scale operations to pool their catch, establish local auction price floors, and gain entry into high-value export markets (Ovando et al., 2013).

By providing these channels, cooperatives act as engines of market arbitrage, shifting economic leverage from external capital owners back to local resource appropriators.

4.4. Financial Architecture and Macroeconomic Shock Insulation

In the domain of financial economics, this review highlights the role of cooperatives in building systemic resilience against cyclical catch failures and macroeconomic shocks. Small-scale fishers have long been plagued by informal indebtedness due to a lack of formal credit lines. Cooperatives address this structural trap through sophisticated, multi-tiered financial interventions.

The deployment of institutional micro-credit schemes and accessible loan portfolios satisfies immediate capital demands, while tailored risk-pooling mechanisms, such as cooperative insurance programs, insulate households from catastrophic equipment loss (Solomon, 2023). Crucially, our synthesis shows that by fostering female-led self-help groups (SHGs) and localized micro-enterprises, cooperatives drive income diversification away from pure marine extraction. This financial cushion stabilizes household consumption and provides communities with the economic flexibility needed to survive ecological downturns.

4.5. Social Capital Dynamics and the Psychosocial Institutional Friction

Finally, this study breaks new ground by connecting the tangible socio-economic outputs of cooperatives with their underlying psychosocial impacts. Sociological literature has long celebrated cooperatives as engines for generating bonding capital (internal community cohesion) and bridging capital (collective action) (Solomon, 2023). These assets manifest in deep expressions of community solidarity, such as mutual aid during lean seasons or collective welfare funds for families lost at sea (Soejima & Frangoudes, 2019).

Yet, a critical finding of our systematic review is that cooperatives also introduce distinct psychosocial institutional friction. When cooperatives struggle with heavy state bureaucracies, unequal power dynamics, or unstable resource conditions, they generate significant member frustration, livelihood anxiety, and structural insecurity (Motamed et al., 2014).

This insight adds an important dimension to Third-Sector theory: cooperatives are not frictionless solutions to development challenges. Instead, they are high-stakes arenas where interpersonal trust, mutual reciprocity, and member satisfaction must be actively maintained to prevent organizational erosion.

4.6. Limitations and Future Research

While this systematic review provides a rigorous integration of global empirical evidence via the ROSES protocol and MMAT appraisal, certain limitations must be acknowledged. First, the final sample ($n = 85$) is bounded within a specific ten-year temporal window (2013–2023), which may omit long-term historical transitions in cooperative evolution. Second, the included studies rely heavily on localized convenience or purposive sampling within coastal zones, which limits immediate statistical generalizability to inland or industrial fisheries.

Future empirical research should deploy comparative, longitudinal research designs across the Global South to track how macro-level climate shocks and state-driven digitalization policies affect the internal trust networks and financial stability of these vital community institutions.

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