

Rebuilding Coastal Institutions for Sustainable Fisheries Value Chains: Challenges and Pathways from Bajoe, Indonesia

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ARTICLE INFO

Diterima tanggal : 2 Maret 2025
Perbaikan naskah: 13 Mei 2025
Diserujui terbit : 30 Juni 2025

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Email: jumiati050796@gmail.com

DOI: <http://dx.doi.org/10.15578/jsekp.v20i1.16395>



ABSTRAK

ABSTRACT

Local institutions play a pivotal role in enhancing the sustainability of small-scale capture fisheries value chains, yet their contributions often remain fragmented and underexplored. This study analyzes the roles, challenges, and opportunities of local institutions—including fishermen's groups, cooperatives, and village-owned enterprises—in supporting each stage of the fisheries value chain in Bajoe Village, Bone Regency, South Sulawesi. Using a qualitative exploratory case study, data were collected through in-depth interviews, participatory observation, focus group discussions, and document analysis. The findings reveal that government assistance programs have reached fishing communities but are unevenly distributed and highly dependent on active groups or elite networks. Institutional capacity remains weak, with cooperatives largely inactive and fishermen heavily reliant on mediators under informal patron-client arrangements. However, emerging aspirations for cooperative revitalization, digital marketing, and product diversification demonstrate strong potential for institutional renewal. This study introduces an integrative analytical model linking community-based institutional dynamics with value-chain governance—an approach rarely applied in Indonesian small-scale fisheries. Policy recommendations highlight the need for participatory governance reforms, equitable access to infrastructure and finance, and integration of digital innovations to strengthen fishermen's bargaining position and ensure a more inclusive, resilient, and sustainable coastal econom.

Keywords: local institutions; value chains; capture fisheries; cooperatives; coastal governance

INTRODUCTION

The capture fisheries sector plays a central role in supporting food security, local economies, and the sustainability of coastal communities' livelihoods in Indonesia (Roberts et al., 2023; Warren & Steenbergen, 2021). As global pressures on marine resources intensify amid climate change and economic transformation, strengthening fisheries value chains has become increasingly strategic (Napitupulu, 2024; Ramadian & Muthmainnah, 2023). This approach situates production, distribution, and marketing of fishery products within an integrated framework that promotes not only economic efficiency but also social and environmental sustainability (Abbas et al., 2024; Ainsworth et al., 2023; Pradhan et al., 2022). Within this framework, local institutions—both formal, such as cooperatives and village-owned enterprises (BUMDes), and informal, such as fishermen's groups—serve as essential connectors that regulate, coordinate, and stabilize each stage of the fisheries value chain (Haryanti et al., 2018), thereby influencing competitiveness, equity,

and community welfare (Allegretti et al., 2025; Louw, 2021).

In Bone District, South Sulawesi, particularly in Bajoe Village, fishing activities constitute the economic backbone of the community (Arisaputri et al., 2020; Husain et al., 2023; Izudin et al., 2023). The area's proximity to the Nusantara Fishing Port enables a high level of participation in capture fisheries (Mukramin et al., 2023; Syarif & Maddatuang, 2023). Despite this potential, community involvement in the value chain remains concentrated at the production level. Data from the Bone District Marine and Fisheries Office (2023) indicate that more than 70% of the catch is sold fresh without processing, while most fishermen remain dependent on mediators. Such conditions lead to low value addition, limited welfare gains, and dependence on non-transparent market chains (Imran et al., 2022; Novianti, 2017). In fact, various local institutions—such as fishermen's cooperatives, joint business groups, and BUMDes—could function as bridges linking small-scale fishers to

markets and distribution networks (Putri, 2021; Ziyad et al., 2022). However, their roles and coordination mechanisms remain underdeveloped and face multiple challenges in governance, capacity, and policy alignment.

These circumstances highlight the urgency of understanding how local institutions can play tangible roles in strengthening sustainable capture fisheries value chains. Although many studies emphasize institutional dimensions in fisheries governance, most have focused on regulatory frameworks and top-down technocratic interventions (Hasriyanti et al., 2023; Sasongko, 2022). Research on supply chain management in fishing ports, such as those by Stacey et al. (2021) and Steenbergen et al. (2022), has mainly examined efficiency and distribution systems, while the participatory roles of local institutions are rarely explored. Similarly, analyses of post-production and marketing processes often neglect how local actors govern these systems at the community level (Gómez & Maynou, 2021; Hamzah & Nurdin, 2021). Yet, institutional practices at the local level are critical in connecting market access, technology adoption, and equitable benefit distribution (North, 1990; Ostrom, 2009).

To address this gap, this study applies two complementary conceptual approaches: the Value Chain Framework (Kaplinsky & Morris, 2000; Trienekens, 2011) and Institutional Analysis (North, 1990; Ostrom, 2009). The value chain framework is used to map fisheries processes—from pre-production and harvesting to post-production and marketing—while identifying leverage points for efficiency and value addition among small-scale fishers (Chambon et al., 2024). Meanwhile, institutional analysis provides tools to examine the roles, rules, and interactions that shape access to markets, resource management, and distribution of benefits at the community level (Rahman et al., 2012). Integrating these frameworks allows for a more comprehensive understanding of how formal and informal institutions interact within fisheries governance, revealing both coordination gaps and potential avenues for adaptive collaboration.

Accordingly, this research addresses two key questions: (1) How do local institutions function across the stages of the capture fisheries value chain in Bajoe Village? and (2) What are the main challenges and opportunities for strengthening these institutions to achieve sustainable fisheries governance? By answering these questions, this study aims to generate evidence-based recommendations for adaptive and inclusive institutional strengthening.

The novelty of this research lies in its integration of community-based institutional analysis and value-chain mapping within a non-metropolitan coastal context—an analytical combination rarely explored in Indonesian fisheries studies (Aburto et al., 2024; Allegretti et al., 2025; Stacey et al., 2021; Steenbergen et al., 2022). Beyond its academic contribution, the study also provides practical insights for designing policy instruments that promote equitable, resilient, and sustainable coastal economic systems aligned with the national blue economy agenda.

RESEARCH METHODS

This study employs a qualitative approach with an exploratory case study design (Creswell & Creswell, 2018; Yin, 2018) to gain a comprehensive understanding of the role of local institutions in supporting sustainable capture fisheries value chains. The case study method is appropriate for exploring complex interactions among social, economic, and institutional dimensions that shape community-level governance in coastal contexts. The study focuses on the diverse actors involved in the fisheries value chain—ranging from fishermen, joint business groups (Kelompok Usaha Bersama/KUB), cooperatives, and village-owned enterprises (BUMDes) to processors, mediators, and government officials—capturing both formal and informal institutional dynamics.

Location and Time of Research

The research was conducted in Bajoe Village (Kelurahan Bajoe), Tanete Riattang Timur District, Bone Regency, South Sulawesi, Indonesia—an area where capture fisheries represent the core livelihood system. Bajoe's coastal setting and its proximity to the Nusantara Fishing Port (Pelabuhan Perikanan Nusantara/PPI Bajoe) make it an ideal site for examining how institutional mechanisms influence value-chain governance. Encompassing intensive interviews, focus group discussions (FGDs), participatory observation, and document analysis. These activities were designed to capture the everyday economic and institutional realities that shape the operations of fishing communities. Figure 1 illustrates the research location map of Bajoe Village, highlighting its spatial relationship to fishing settlements, landing sites, and port facilities that underpin both community livelihoods and institutional arrangements.



Figure 1. Map of Research Location – Bajoe Village, Bone Regency, South Sulawesi

This visual representation helps illustrate the proximity of the fishing settlement to the coastal area, fishing port, and fish landing sites, which play a significant role in shaping the institutional and economic activities of the community.

Types and Methods of Data Collection

The study combines primary and secondary data to achieve analytical depth and triangulation.

Primary data were obtained through in-depth interviews, participatory observation, and FGDs with 22 key informants, including fishermen's group administrators and members, cooperative and BUMDes managers, local community leaders, processors (dryers, salters, and small-scale manufacturers), collectors, and local government officers.

Informant selection used purposive and snowball sampling to ensure representation of various roles and institutional perspectives. Interviews followed a semi-structured format, guided by the Value Chain Framework (Trienekens, 2011) and the Institutional Analysis Framework (North, 1990; Ostrom, 2009). Each interview was audio-recorded with consent, transcribed verbatim, and anonymized to protect confidentiality.

Participatory observation took place in key community nodes such as the fishing port, auction sites, small-scale processing facilities, and group or BUMDes meetings. This allowed the researchers to observe real-time interactions, market practices, and decision-making processes. Focus group discussions were held with cooperative representatives, KUB leaders, and community figures to generate collective reflections, compare

perceptions, and identify opportunities for institutional innovation.

Secondary data were collected through document analysis, including local regulations, cooperative statutes, BUMDes financial reports, fisheries catch data, and village development plans. These sources were used to supplement primary findings and trace institutional changes and value-chain trends over the past five years.

Analytical Framework and Data Analysis

Data analysis followed the thematic analysis model of Miles, Huberman, and Saldaña (2019), integrating inductive coding with theoretical interpretation.

The analytical process began with data reduction (open coding) to identify recurrent themes such as collaboration patterns, benefit distribution, leadership dynamics, and institutional innovation. The reduced data were organized into thematic matrices and descriptive narratives, which were iteratively refined through pattern matching against the conceptual frameworks of Value Chain and Institutional Analysis.

The study applies an inductive–deductive logic, where insights emerging from field data were continually compared with theoretical constructs from North (1990), Ostrom (2009), and Trienekens (2011), as well as with empirical findings from prior studies. This approach facilitated the construction of an integrative analytical model linking institutional dynamics (rules, norms, and actors) with fisheries value-chain stages (production, processing, distribution, marketing).

Validity, Reliability, and Research Ethics

To ensure credibility and reliability, several validation strategies were applied. Source triangulation compared data from interviews, observations, and documents, while informant triangulation cross-checked information among different stakeholders (fishermen, cooperative leaders, processors, and local officials). Member checking was conducted by presenting preliminary findings to key informants for clarification and feedback. Audit trails and peer debriefing were employed to maintain analytical transparency and minimize researcher bias.

The research strictly followed ethical principles of social inquiry. All participants received clear explanations regarding research objectives, benefits, and procedures. Written informed consent was obtained prior to participation. Personal identities were kept anonymous, and all sensitive data were handled carefully to prevent any potential negative impact on individuals or community relations.

RESULTS AND DISCUSSION

1. Government and Local Institutional Support

Before discussing assistance programs, it is important to understand the local institutional landscape in Bajoe Village, which consists of both formal and informal entities shaping access to resources, distribution of benefits, and economic coordination among fishermen. The institutional mapping below identifies the main local actors, their functions, operational mechanisms, and governing norms.

This mapping shows a clear duality between formal institutional authority and informal influence. While government actors manage programs and regulations, informal networks often determine the flow of goods, information, and benefits. The imbalance between formal capacity and informal dominance limits the effectiveness of interventions.

Table 1. Mapping of Local Institutional Actors, Roles, and Capacities in Bajoe Village.

Institution/Actor	Type	Role & Function	Mechanism of Operation	Rules/Norms (Formal & Informal)	Capacity
Village Government (Kelurahan)	Formal	Data collection, coordination with fisheries agency, channeling government programs	Administrative procedures, facilitation meetings	Formal: Village regulations; Informal: consensus among officials	Moderate – limited by budget and dependence on higher-level policy
Fisheries Agency (Dinas Kelautan & Perikanan)	Formal	Program provider (equipment, training, subsidies)	Distribution through fishermen’s groups & cooperatives	Formal: Provincial/Regency fisheries regulations	Strong – but outreach limited at grassroots
Fishermen’s Groups (Kelompok Usaha Bersama/ KUB)	Semi-formal	Recipient and distributor of assistance, coordination among members	Group meetings, collective activities (when active)	Informal: member agreements, trust networks	Weak – active only during projects, limited sustainability
Fishermen’s Cooperatives (Inactive in Bajoe)	Formal	Ideally function as collective marketing, storage, and bargaining institutions	Operate through membership fees and collective sales	Formal: Cooperative Law; Informal: norms of collective trust	Very weak – mostly inactive, no clear structure in Bajoe
BUMDes (Village-Owned Enterprise)	Formal	Potential to manage fisheries-related businesses and infrastructure	Board management and village oversight	Formal: Village Regulation (Perdes)	Weak – fisheries role minimal, focused on other sectors
Collectors / Mediators (Tengkulak)	Informal	Purchase and distribute fishermen’s catch, provide quick cash	Direct negotiation, informal contracts (trust-based)	Informal: long-term patron–client relationships	Strong – dominant in market networks, high bargaining power
Community Leaders / Traditional Elders	Informal	Mediation, norm enforcement, social legitimacy	Customary meetings, consensus	Informal: traditions and respect-based authority	Moderate – socially influential, limited economic role

This finding supports the perspectives of North (1990) and Ostrom (2009), who argue that institutional performance depends not only on formal structures but also on informal rules-in-use that govern social and economic behavior. Strengthening local institutional capacity therefore requires bridging formal governance mechanisms with informal norms of trust and reciprocity to enhance participation and accountability.

2. Assistance and Facilitation Programs

Support from government agencies and village administration manifests through the distribution of fishing gear, engines, training, and institutional facilitation. These initiatives are designed to enhance productivity and improve livelihoods, yet their long-term effects are often limited by uneven participation and weak follow-up. Informants expressed both benefits and frustrations:

"We in the village usually support fishermen... facilitate programs from the fisheries agency or ministry... help collect data on recipients of assistance for fishing equipment, engines, boats, fish cages, and training distributed through fishermen's groups." (Village Official)

"Our group has received training from the Fisheries Agency... assistance in the form of fishing equipment such as nets and outboard motors." (Head of the Bajo Coastal Group)

"There used to be engines from the fishermen's group, but that was a long time ago. Now there is no assistance at all." (HR, Fisherman)

While assistance programs have reached local communities, dependence on group structures has excluded fishermen outside formal membership. This finding echoes Allegretti et al. (2025) and Stacey et al. (2021), who note that project-based assistance tends to produce short-term outcomes unless accompanied by institutional capacity-building and mechanisms for self-governance.

3. Limitations and Inequality in Assistance Distribution

The distribution of aid is frequently unequal and selective, reflecting patterns of elite capture. Several fishermen reported that support typically goes to the same individuals or those close to group administrators:

"Sometimes only fishermen who are close to the group administrators receive assistance." (TL,

Independent Fisherman)

"When there is assistance, it usually goes to the same people." (HR, Fisherman)

Such exclusivity not only generates a sense of injustice but also discourages collective participation. The lack of transparent information dissemination reinforces dependency and erodes social cohesion. These dynamics mirror findings by Aburto et al. (2024) and Novianti (2017), emphasizing that institutional reform must prioritize transparency, participatory decision-making, and equitable access. Without such measures, assistance programs risk perpetuating inequalities instead of fostering empowerment.

4. Roles and Performance of Fishermen's Groups and Cooperatives

Fishermen's groups and cooperatives are expected to serve as collective institutions facilitating resource access and marketing. However, in Bajoe Village, these organizations remain weak and often inactive:

"The fishermen's group is not very active. They only show up when there are government projects." (AM, Sea Cucumber Fisherman)

"There is no fishermen's cooperative." (HR, Fisherman)

As a result, fishermen rely heavily on mediators, who dominate pricing and market access. The inactivity of cooperatives undermines opportunities for collective bargaining and joint enterprise. This empirical reality supports observations by Husain et al. (2023) and Sasongko (2022), showing that when groups depend solely on external incentives, they fail to develop internal cohesion. Revitalizing these organizations requires sustained efforts in capacity building, leadership regeneration, and accountability mechanisms to transform them into effective cooperative entities.

5. Collaboration and Coordination among Actors

Coordination between the sub-district government, the fisheries agency, and local groups exists but remains fragmented and project-dependent:

"Collaboration is quite strong... Coordination with the fisheries agency is going well. But relations with fishermen's groups and collectors are still not very formal." (Village Official)

The lack of continuous communication channels and shared decision-making forums weakens inter-institutional synergy. When collaboration only occurs during funded projects, it fails to establish a sustainable governance network.

Consistent with Izudin et al. (2023) and Steenbergen et al. (2022), long-term cooperation requires inclusive stakeholder forums and integrated program design involving both formal and informal actors. Bajoe’s experience highlights the necessity of building multi-level governance mechanisms to enhance trust and coordination.

6. Market Access, Value Chain, and Distribution

To understand market dynamics, the research mapped the capture fisheries value chain in Bajoe Village, focusing on key commodities—reef fish, pelagic species, and sea cucumber.

The value chain is dominated by collectors, who control the circulation of goods, information, and finance. Fishermen lack storage facilities and market information systems, preventing them from negotiating better prices.

This confirms Ainsworth et al. (2023) and Haryanti et al. (2018), who found that asymmetrical control by intermediaries limits the bargaining power of small-scale producers. Therefore, interventions in infrastructure—particularly cold storage and transparent pricing systems—are crucial for improving local competitiveness.

The table illustrates how institutional and logistical weaknesses intersect, producing a fragile value chain. Weak rule enforcement and the dominance of informal arrangements inhibit the development of transparent and equitable market systems. Strengthening governance and inclusive participation is therefore essential for achieving long-term sustainability.

7. Sales Patterns and Price Transparency

Sales are predominantly mediated by long-term relationships with collectors:

“Usually, middlemen come directly to the pier as soon as the boats dock.” (RI, Group Leader)

“Prices are determined on the spot, without written standards.” (Observation)

While such ties provide convenience and immediate income, they perpetuate dependency and reduce flexibility. The absence of collective marketing or pricing standards results in low bargaining power and vulnerability to market fluctuations. This pattern exemplifies trust-based yet asymmetric exchanges, similar to the patron–client structures described by Ostrom (2009). Comparable findings in Mukramin et al. (2023) and Roberts et al. (2023) confirm that reliance on mediators restricts innovation and equitable value distribution.

Table 2. Mapping of Capture Fisheries Value Chain in Bajoe Village.

Stage	Actors	Main Activities	Flow of Goods	Flow of Information	Flow of Capital
Production (Upstream)	Fishermen (traditional, small-scale, sea cucumber harvesters)	Fishing, handling of catch	Catch → landing sites	Catch volume, fishing conditions	Operational costs borne by fishermen, occasionally supported by collectors
First Distribution	Collectors / Mediators (tengkulak)	Purchasing at landing sites or homes	Fresh catch purchased in bulk	Market demand info, non-transparent pricing	Advance payments or cash loans
Processing & Storage	Small processors, cooperatives (inactive), BUMDes (minimal role)	Drying, salting, small-scale processing	Semi-processed fish	Informal sharing of techniques	Self-funded capital
Wholesale / Regional Distribution	Traders, transporters	Transport to Bone, Makassar, regional centers	Bulk shipments	Market price information	Managed by traders and collectors
Retail / Consumption	Local & regional markets, households	Sale of fresh/processed fish	Final products to consumers	Consumer demand, price signals	Consumer payments close capital cycle

Table 3. Influence of Local Institutions, Rules, and Norms on the Capture Fisheries Value Chain in Bajoe Village.

Value Chain Stage	Relevant Institutions / Actors	Formal & Informal Rules / Norms	Influence on Activities	Institutional Weaknesses / Barriers
Production	Fishermen's groups, traditional leaders	Informal solidarity norms; local rules	Facilitate coordination and data collection	Weak enforcement; declining participation
First Distribution	Collectors, group administrators	Patron–client ties; verbal agreements	Ensure rapid sales and cash flow	Non-transparent pricing; exclusion of outsiders
Processing & Storage	Small processors, BUMDes, cooperatives	Cooperative statutes (inactive); family-based practices	Limited small-scale processing	No cold storage; weak management capacity
Wholesale / Distribution	Traders, transporters, collectors	Informal trade agreements	Expand regional sales	Fishermen excluded from downstream market
Retail / Consumption	Local markets, households	Market norms and consumption patterns	Final sale to consumers	Price fluctuation; weak quality control

8. Institutional Challenges and Program Inequality

Access to programs and information remains uneven. Many fishermen—particularly the young and part-time—report being excluded from decision-making and benefits:

“Information about assistance or programs sometimes does not reach everyone.” (SA, Part-time Fisherman)

“Sea cucumber fishermen have not been involved or given much attention.” (AM, Sea Cucumber Fisherman)

This unequal access undermines institutional legitimacy and reduces community motivation to engage collectively. As Ostrom (2009) and Sasongko (2022) argue, participatory and transparent governance systems are essential to counteract exclusion and sustain institutional integrity.

9. Participation, Perceptions of Justice, and Group Dynamics

Participation in joint programs remains limited because fishermen perceive few tangible benefits:

“Many fishermen like me still work alone without support.” (TL, Independent Fisherman)

“Joining a group sometimes just slows things down.” (RA, Young Fisherman)

The perception of unfair benefit distribution discourages collaboration and erodes social cohesion. This condition reflects Hasriyanti et al. (2023) and Louw (2021), who emphasize fairness and equitable participation as

key to institutional sustainability. When leadership and benefits are concentrated in a few hands, institutional trust collapses, and collective systems lose their appeal—pushing communities back toward individual, short-term survival strategies.

10. Leadership Patterns and Collaboration with Collectors

Leadership within groups tends to be centralized and paternalistic:

“In fishermen group meetings... the group leader and senior figures usually dominate decision-making.” (Observation)

This hierarchy limits open dialogue and innovation. Collaboration with collectors remains transactional rather than strategic:

“We have a good relationship with local collectors... but we do not have a strong bargaining position.” (FR, Group Leader)

The absence of cooperative-based joint ventures prevents fishermen from capturing higher value or diversifying income. This situation mirrors Gómez & Maynou (2021) and Ramadian & Muthmainnah (2023), who note that building collective marketing systems and cooperative enterprises can significantly enhance market resilience.

11. Systemic Barriers: Logistics, Storage, and Quality

Weak logistics infrastructure severely constrains post-harvest management:

“The biggest *problems* are storage and transportation. Sometimes we don’t have enough ice or vehicles.” (AS, Trader)

Limited access to ice, cold storage, and transportation forces fishermen to sell quickly, reducing profits and product quality. As Haryanti et al. (2018) and Trienekens (2011) highlight, value-chain competitiveness depends on integrated cold-chain infrastructure and efficient transport systems. Without these, fishermen remain trapped in low-value segments of the supply chain.

12. Price Instability, Market Vulnerability, and Emerging Opportunities

Price instability compounds fishermen’s vulnerability:

“During certain seasons, fish prices are very low, sometimes not even covering operational costs.” (RI, Group Leader)

This uncertainty reinforces the need for market information systems and collective pricing mechanisms (Gómez & Maynou, 2021; Pradhan et al., 2022). Nevertheless, fishermen express optimism and strong aspirations for institutional revitalization, digital marketing, and value addition:

“If there were a cooperative that could store our catch, we might be able to choose when to sell.” (TL, Independent Fisherman)

“With further training on institutional management and marketing digitalization, we can become more independent.” (FR, Group Leader)

These aspirations reveal readiness for transformation. Supported by digital tools and inclusive governance, Bajoe’s fishing community holds the social capital necessary to evolve into a more independent, transparent, and resilient institutional ecosystem (Allegretti et al., 2025; Roberts et al., 2023).

CONCLUSIONS AND POLICY RECOMMENDATIONS

Conclusions

This study demonstrates that local institutions in Bajoe Village occupy a dual and often contradictory role in the capture fisheries value chain. On one hand, they serve as entry points for government assistance, facilitating the delivery of equipment, training, and technical support. On the other hand, their limited internal capacity, weak governance structures, and dependence on informal

mediators hinder their ability to generate sustained and equitable benefits.

Empirical findings confirm that although government programs have reached local communities, they remain fragmented and unevenly distributed, benefiting only a portion of fishermen with close institutional ties. Formal mechanisms—such as cooperatives and BUMDes—exist primarily as administrative structures, while informal networks (collectors, traditional leaders, kinship-based arrangements) dominate the actual flow of goods, information, and capital. The result is a hybrid institutional configuration that sustains daily operations but lacks transparency and accountability.

The analysis further identifies three core challenges:

1. Structural barriers, including inadequate cold storage, transportation, and infrastructure, which force fishermen into rapid, low-value sales;
2. Institutional weaknesses, encompassing inactive cooperatives, hierarchical leadership, low participation, and limited trust; and
3. Market-related constraints, characterized by price opacity, dependence on mediators, and the absence of transparent value-chain mechanisms.

Despite these persistent constraints, the study also reveals three major opportunities for institutional strengthening. First, the strong aspiration among fishermen to revitalize cooperatives and develop joint marketing networks demonstrates a social foundation for reform. Second, the integration of digital technologies into marketing and distribution offers realistic pathways to increase price transparency and expand market reach. Third, the growing orientation toward product diversification and processing signals an emergent shift from subsistence livelihoods toward innovation-driven local economies.

The novelty of this research lies in its integration of community-based institutional analysis and value-chain mapping within a non-metropolitan coastal setting—an approach rarely operationalized in Indonesian small-scale fisheries research (Aburto et al., 2024; Allegretti et al., 2025; Stacey et al., 2021; Steenbergen et al., 2022). This integration provides a grounded understanding of how formal and informal institutional systems interact to shape both economic outcomes and governance capacities.

Overall, the findings confirm that sustainable fisheries governance cannot rely solely on top-down

assistance or formal regulation. Instead, it requires deliberate restructuring of governance systems through participatory leadership, inclusive decision-making, and multi-stakeholder collaboration that links community institutions, government agencies, and market actors. When grounded in local social realities, such institutional transformation can strengthen fishermen's bargaining power, enhance market equity, and contribute to a more inclusive and resilient coastal economy.

POLICY RECOMMENDATIONS

To move toward a sustainable and equitable capture fisheries system, policy interventions should address institutional governance, market infrastructure, and socio-economic realities in an integrated manner.

1. Strengthening Institutional Governance

- Promote participatory and transparent governance within fishermen's groups, cooperatives, and BUMDes. Leadership regeneration and capacity building should be prioritized to reduce dependency on single figures and ensure inclusivity.
- Institutional reforms should be coupled with accountability mechanisms—such as open reporting and participatory evaluation—to prevent elite capture and build community trust.
- Establish multi-stakeholder platforms at the sub-district and village levels to connect local actors (fishermen, cooperatives, collectors, and government agencies) for coordinated planning, monitoring, and feedback.

2. Enhancing Infrastructure and Access to Finance

- Invest strategically in cold storage facilities, transportation networks, and ice production units at the community level to minimize post-harvest losses and increase product value.
- Introduce financial mechanisms tailored for small-scale fisheries, including cooperative-based microcredit, savings-and-loan schemes, and partnerships with social finance institutions. Such mechanisms will reduce fishermen's dependence on high-interest loans and informal mediators.
- Encourage cooperative–mediator partnerships that transform existing patron–client relations into formalized, mutually beneficial arrangements. Mediators should be recognized not as competitors but as strategic partners

within inclusive governance models.

3. Promoting Digitalization and Market Innovation

- Integrate digital technologies for market information systems, traceability, and online sales to improve transparency, efficiency, and access to broader markets.
- Support training programs on digital literacy, business management, and value-chain integration, enabling local actors to manage marketing and logistics independently.
- Facilitate collective branding and certification initiatives for Bajoe's fisheries products to enhance competitiveness in domestic and regional markets.

4. Encouraging Co-Management and Networked Governance

- Develop co-management frameworks that formally include fishermen's groups, cooperatives, mediators, and local authorities in shared decision-making for resource management, marketing, and price stabilization.
- Establish regional learning networks connecting Bajoe with other coastal communities in South Sulawesi to share best practices and promote peer-to-peer institutional learning.
- Align local institutional strengthening with national blue economy and small-scale fisheries policies, ensuring that community-level innovations inform higher-level planning and regulation.

Final Reflection

Institutional transformation in small-scale fisheries requires not only technical interventions but also the recognition of local knowledge, trust relations, and everyday practices that sustain community life. Strengthening local institutions must therefore focus on embedding transparency, inclusivity, and adaptability within existing social structures rather than replacing them.

By harmonizing formal policies with informal social logics, and combining infrastructure investment with digital innovation and participatory governance, Bajoe Village—and similar coastal communities across Indonesia—can evolve toward a more resilient, equitable, and sustainable fisheries economy that supports both livelihoods and long-term resource stewardship.

ACKNOWLEDGEMENT

This research was supported by the Directorate of Research and Community Service (DPPM), Ministry of Higher Education, Science, and Technology (Kemdiktisaintek) of the Republic of Indonesia through the BIMA Grant Scheme for Fiscal Year 2025. The authors would like to express their sincere gratitude to DPPM and Kemdiktisaintek for funding this study and for their continuous support in advancing research and community engagement initiatives in higher Education.

AUTHORS CONTRIBUTION STATEMENT

We hereby declare that the contributions of each author to the writing of this paper are: (First Author) as main contributor/member (choose one), (Second Author etc.) as main contributor/member (choose one). The authors declare that the Author Contribution Letter has been attached.

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