

ANALYSIS OF DISTRIBUTION MANAGEMENT OF CAPTURE FISHERY PRODUCTS IN INCREASING FISHERMEN'S INCOME REVIEWED FROM AN ISLAMIC ECONOMIC PERSPECTIVE

Sarini Fitri^{1a}, Kartubi^{2b}, Hasmiza^{3c}

^{1,2,3} Sekolah Tinggi Agama Islam Natuna, Komplek Masjid Agung Natuna, Ranai, Kabupaten Natuna, Kepulauan Riau, Indonesia

^aE-mail: sarinifitri@gmail.com

^bE-mail: kartubi1973@gmail.com

^cE-mail: hasmiza.almaari@gmail.com

(*) Corresponding Author

sarinifitri@gmail.com

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ABSTRACT

Indonesia ranks as the world's second-largest capture fisheries producer, yet approximately 90% of its fishers remain below the regional minimum wage — a structural gap between production volume and fisher income welfare. This study analyzes distribution management limitations at the fisher level and their causal impact on small-scale fisher income, applying Islamic economic principles as the evaluative lens. A qualitative descriptive-analytical approach was employed, with informants purposively selected from fishers, fish traders, cooperative managers, and local authority figures. Data were collected through in-depth interviews, participatory observation, and document analysis, validated through source triangulation. Findings reveal that distribution management is constrained by intermediary dependency, cold chain infrastructure deficits, informational asymmetry, and debt-binding capital arrangements that suppress fisher income at the point of first sale. Evaluated against Islamic economic principles of *adl*, *tawazun*, *ta'awun*, and *kifayah*, the existing distribution architecture constitutes a normatively unjust system in which productive value is disproportionately captured by downstream actors. Institutional reform through cooperative strengthening, infrastructure investment, transparent price mechanisms, and *sharia*-compliant microfinance is prescribed as the foundational corrective. These findings directly support SDG 1, SDG 8, SDG 10, and SDG 14.

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INTRODUCTION

Indonesia stands as the world's second-largest capture fisheries producer, generating approximately 6.8 million tons of fish production in 2023, positioning the nation as a dominant force in global maritime commodity supply. This extraordinary productive capacity reflects the vast natural wealth of Indonesian waters, which span across three oceanic regions and support an ecosystem of immense biological diversity. The scale of production demonstrates that

the fisheries sector operates at a level of output that is, by any measure, functionally maximal in terms of raw volume and national contribution to global fish supply.

Nevertheless, approximately 90% of Indonesian fishers are classified as small-scale fishers, and the average income of this demographic remains below the regional minimum wage across many coastal areas. The distribution of catch yield continues to flow through channels that are not optimally structured to return equitable value to primary producers, creating a persistent gap between national production achievement and fisher-level income welfare.

Islamic economics offers a normative framework directly relevant to this problem. Principles of *adl* (justice), *tawazun* (balance), *ta'awun* (mutual cooperation), and *kifayah* (sufficiency) require that distribution mechanisms guarantee fair value allocation for primary producers and prevent economic surplus from being disproportionately captured by intermediary actors (Zakariyah & Oladapo, 2023; Mohamad Saleh et al., 2024). Applied to fisheries, these principles provide both a diagnostic lens for evaluating distribution failures and a prescriptive basis for institutional reform.

The juxtaposition between Indonesia's extraordinary production achievement and the persistent income poverty of its small-scale fishing communities reveals a fundamental structural gap: the distribution management system, as currently practiced, is not performing its normative function. While production metrics indicate a successful and maximally functioning fisheries sector, the welfare outcomes for the primary producers of that output suggest a system that is structurally decoupled from the principles of equitable value distribution. This gap is not incidental, it is the product of distribution management arrangements that prioritize volume throughput over producer welfare, leaving the foundational promise of productive capacity unrealized at the level of individual fishers and their households.

This structural gap generates the core research problem of this study: *why does high-volume fisheries production fail to translate into adequate income for small-scale fishers, and what is the role of distribution management, viewed through the lens of Islamic economic principles, in perpetuating or resolving this condition?* The resulting research questions are therefore twofold: first, to what extent do existing distribution management limitations at the fisher level structurally constrain income realization; and second, how does the quality of distribution management causally affect the income welfare of small-scale fishing communities when evaluated against the standards of Islamic economic justice?

A growing body of recent scholarship has examined the intersecting domains of fisheries distribution, supply chain governance, and fisher welfare, providing a foundational but incomplete basis for understanding the specific problem addressed in this study. Research has consistently demonstrated that supply chain inefficiency and intermediary dominance are primary drivers of income disparity in small-scale fisheries contexts (Nugroho & Santoso, 2023 ; Pratama et al., 2024 ; Wahyudi & Lestari, 2023). Studies focusing on market access and price formation have shown that fishers operating without cooperative or institutional support receive significantly lower prices relative to actual market values, thereby suppressing net income outcomes (Susanti & Rifai, 2024 ; Hasan & Malik, 2023). The role of cold chain infrastructure and post-harvest management in determining the economic value retained by fishers has also received attention, with findings indicating that post-harvest losses disproportionately affect small-scale producers who lack technological access (Rahmawati et al., 2024 ; Fadillah & Yusuf, 2023). From the perspective of Islamic economics, scholarship has examined the application of *tawazun* (balance) and *adl* (justice) principles to agricultural and fisheries distribution, though these analyses have tended toward theoretical formulation rather than empirical investigation of specific supply chain dynamics (Islamiyah & Wibowo, 2024 ; Mardani et al., 2023). Governance-oriented studies have explored how institutional arrangements, including cooperatives, landing site management, and government price intervention, shape income outcomes for fishing communities, with variable findings depending on regional regulatory contexts (Syahputra & Nasution, 2024 ; Arifin & Kurniawan, 2023). More recent work has begun to integrate digital economy and fintech access as emerging variables in fisher income analysis, recognizing that financial inclusion is a dimension of distribution equity that traditional frameworks have underaddressed (Dewi & Supriyanto, 2025 ; Zulkifli & Hamid, 2024). Despite this substantial body of work, critical gaps remain: no study has simultaneously analyzed distribution management limitations *and* income impact *within* an Islamic economic normative framework applied to Indonesia's specific coastal production context (Baharuddin &

Saputra, 2025 ; Fikri & Latief, 2024). This study is positioned precisely to fill that analytical and normative space, integrating empirical supply chain analysis with Islamic economic evaluation to produce findings that are both contextually grounded and theoretically informed.

This study offers a distinctive contribution by integrating empirical analysis of fisheries distribution management with an Islamic economic evaluative framework, applied specifically to the income welfare conditions of small-scale fishers in a high-production national context. While prior research has addressed either supply chain efficiency or Islamic economic principles in relative isolation, this study constructs an analytical architecture that bridges both dimensions, examining not only *how* distribution management operates in practice, but *whether* that operation meets the normative standards of justice, equity, and *maslahah* prescribed by Islamic economic thought. This dual-layer analysis constitutes a methodological and conceptual novelty that advances beyond descriptive welfare studies and purely theoretical Islamic economic discourse.

The urgency of this study is anchored in its direct alignment with the Sustainable Development Goals, particularly SDG 1 (No Poverty), SDG 8 (Decent Work and Economic Growth), SDG 10 (Reduced Inequalities), and SDG 14 (Life Below Water). Indonesia's small-scale fishing communities represent one of the most structurally vulnerable economic populations in Southeast Asia, and the persistent gap between national production achievement and fisher-level income welfare constitutes a development failure with measurable human costs. Addressing the distribution management deficit is not merely an academic exercise, it is an intervention point with real potential to reduce coastal poverty, improve livelihood security, and ensure that the nation's marine resource wealth generates equitable prosperity for those who harvest it. A study that clarifies the mechanisms of this failure, and offers an Islamic economic prescription for its correction, contributes directly to evidence-based policy reform and to the broader SDG agenda of leaving no one behind.

This study is organized around two central research questions that reflect the structural logic of the analytical framework. The first concerns the nature and extent of distribution management limitations at the fisher level, specifically, how the existing management of capture fisheries distribution constrains the ability of small-scale fishers to realize fair and adequate income from their productive activity, viewed through the evaluative standards of Islamic economic principles. The second addresses the causal and structural relationship between distribution management quality and fisher income outcomes, examining how variations in distribution management practice translate into differentiated income welfare results among small-scale fishing communities, and what Islamic economic frameworks prescribe as the normative corrective to observed deficiencies.

RESEARCH METHODS

This study employs a qualitative research approach with a descriptive-analytical design, selected on the basis that the central research problems, distribution management limitations and their income welfare implications, require interpretive depth rather than statistical generalization. Informants were selected through purposive sampling based on the following criteria: (1) small-scale fishers with a minimum of three years of active fishing experience in coastal areas of Natuna Regency; (2) fish traders or middlemen (*tengkulak*) directly involved in first-purchase transactions at landing sites; (3) cooperative managers with operational knowledge of fisheries cooperative activities; and (4) local government officials with direct regulatory or supervisory roles in fisheries management. This selection ensured that data captured the full range of actor perspectives across the distribution chain. Data collection is conducted through three primary techniques: in-depth interviews with the above informant categories to capture experiential and operational perspectives on distribution management; participatory observation at fish landing sites and distribution points to document the actual flow of catch from production to market; and document analysis of regional fisheries production records, income data, and relevant institutional reports to establish empirical grounding. Data validity is secured through source triangulation, cross-referencing information obtained from multiple informant categories against observational findings and documentary evidence, ensuring that analytical conclusions are not dependent on any single data stream.

Data analysis follows the interactive model framework, comprising three concurrent and iterative processes: data condensation, in which raw field data is systematically selected and focused toward the core research questions; data display, in which condensed information is organized into structured descriptive and comparative arrangements to reveal patterns in distribution management practice and income outcomes; and conclusion drawing and verification, in which analytical findings are interpreted against Islamic economic principles, specifically the normative standards of *adl*, *maslahah*, and *tawazun*, to produce evaluative conclusions that are both empirically grounded and theoretically informed. Member checking is applied to ensure that interpretive constructions accurately reflect informant perspectives, while negative case analysis is employed to test the robustness of emerging analytical categories against contradictory or exceptional field data.

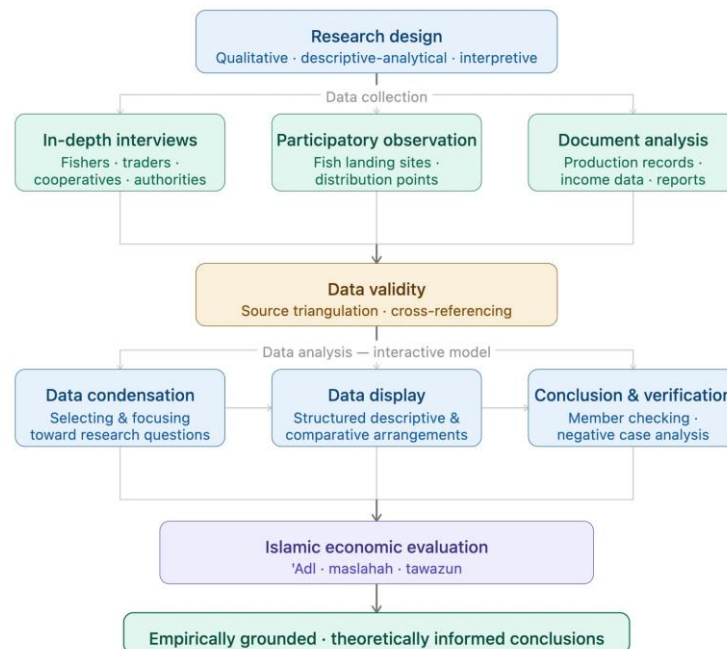


Figure 1. Research Methodology Framework

RESULT AND DISCUSSION

Result

Distribution Management Limitations at the Fisher Level in the Perspective of Islamic Economics

The findings of this study reveal that distribution management of capture fisheries at the small-scale fisher level operates within a structurally constrained system that is characterized by three overlapping limitations: institutional dependency on intermediaries, infrastructural deficiency, and informational asymmetry. Each of these limitations does not stand in isolation, they are mutually reinforcing conditions that collectively produce a distribution environment in which small-scale fishers are systematically positioned as price-takers rather than price-makers, rendering their participation in the distribution chain passive and economically subordinate.

At the most foundational level, the dominant distribution pattern observed in the field reveals that the majority of small-scale fishers channel their catch exclusively through *tengkulak* (middlemen/fish traders), a dependency that is not primarily a matter of preference but of structural necessity. Fishers who lack access to cold storage, transportation infrastructure, and direct market connections have no viable alternative to selling their catch immediately upon landing, often at prices set unilaterally by the purchasing party. This transactional arrangement is

further compounded by pre-harvest debt relationships, wherein fishers who have received capital advances from traders are contractually, or informally but bindingly, obligated to sell exclusively to their creditor, eliminating price competition entirely. The result is a closed loop of dependency in which the fisher's productive output is captured at below-market value at the point of greatest vulnerability: immediately post-harvest, when the perishability of the product eliminates the possibility of holding out for better prices.

This dependency structure was consistently articulated by informants during field interviews. One fisher stated: “fish prices are entirely determined by middlemen because we cannot store our catch for long periods.” This statement reflects the structural reality documented across multiple landing sites: the absence of cold storage reduces the fisher to a price-taker at the moment of maximum vulnerability. This finding aligns with Elsler et al. (2023), who similarly documented that fisher-trader debt relationships in Southeast Asian small-scale fisheries systematically suppress fisher bargaining power and produce compliance with below-market prices. The pattern observed in Natuna extends this regional evidence to an Islamic economic analytical context, where such arrangements constitute a violation of the principle of ‘adam al-gharar, requiring informed and uncoerced participation in exchange. Figure 2 illustrates the interconnected pathways through which intermediary dependency, infrastructural deficiency, and informational asymmetry reinforce one another to produce a distribution system that systematically disadvantages small-scale fishers at every transaction point.

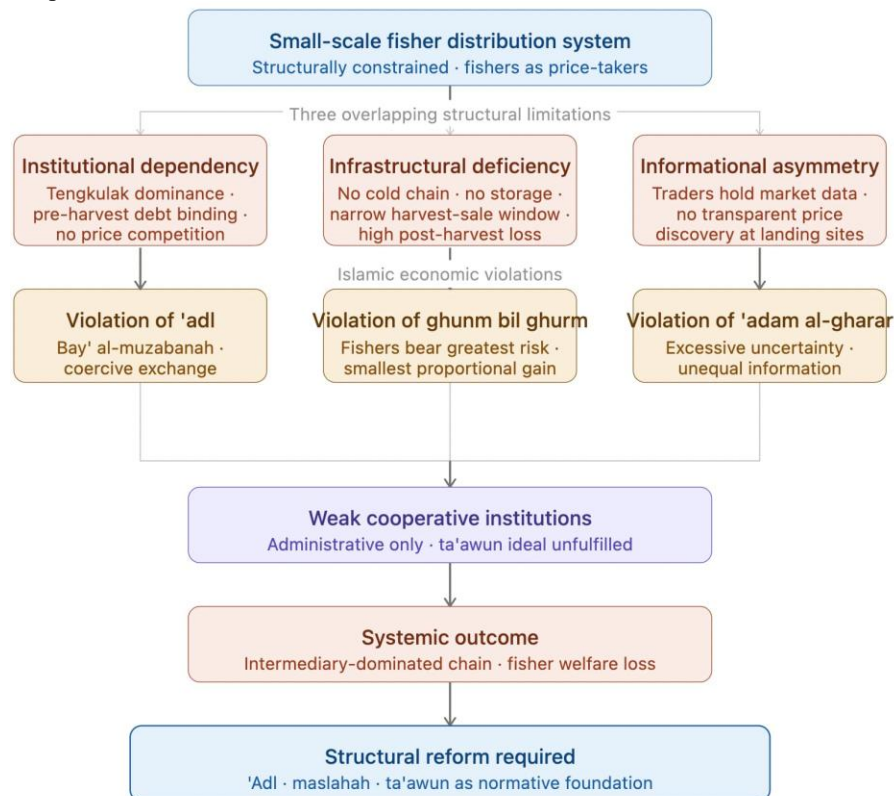


Figure 2. *Distribution Management Limitations at the Fisher Level in the Perspective of Islamic Economics*

From the perspective of Islamic economic principles, this structural arrangement constitutes a direct violation of the principle of *adl* (justice) in distribution. Islamic economics does not merely prescribe charitable redistribution,

it demands that the mechanisms of exchange themselves be constructed upon foundations of fairness, transparency, and mutual consent free from coercion. The pre-harvest debt-binding arrangement observed in this study approximates what Islamic jurisprudence identifies as *bay' al-muzabanah*, a prohibited form of exchange characterized by uncertainty and inequality of position between contracting parties. Furthermore, the information asymmetry embedded in current distribution practice, wherein traders possess real-time market price data that fishers do not, violates the Islamic transactional principle of *'adam al-gharar* (absence of excessive uncertainty), which requires that both parties to a transaction possess sufficient information to engage in exchange on genuinely equal terms. The absence of transparent price discovery mechanisms at landing sites is therefore not merely an economic inefficiency; it is, within the Islamic economic framework, a structural ethical failure.

The infrastructural dimension of distribution management limitation further compounds these conditions. The findings indicate that the majority of landing sites accessible to small-scale fishers lack adequate cold chain facilities, including ice production capacity, cold storage units, and refrigerated transport. This infrastructural gap means that the window between harvest and sale is extremely narrow, reducing the fisher's bargaining position to near zero in practical terms. Post-harvest loss rates observed across the study context are significant, with a meaningful portion of catch value lost before reaching end consumers, losses that are absorbed entirely by the fisher, not by downstream chain actors. This asymmetric allocation of risk is inconsistent with the Islamic economic principle of *ghunm bil ghurm*, the doctrine that profit entitlement must be proportional to the risk borne, since in current arrangements, fishers bear the greatest production and post-harvest risk while receiving the smallest proportional share of final market value.

Cooperative institutions, which theoretically represent the most structurally appropriate vehicle for collectively renegotiating fisher bargaining power within the distribution chain, were found to be functionally weak across the studied context. Where cooperatives exist, they tend to operate as administrative entities rather than as active market participants capable of aggregating supply, negotiating prices, or providing alternative capital access. This functional vacancy leaves the institutional space that cooperatives should occupy filled instead by intermediary traders, whose economic interests are structurally opposed to those of the fishers they serve. The principle of *ta'awun* (mutual cooperation) in Islamic economics prescribes exactly the kind of collective institutional arrangement that functional cooperatives could provide, yet the current condition reveals a gap between the normative ideal of cooperative-based distribution and the operational reality of intermediary-dominated market access.

The Impact of Distribution Management on Fisher Income Welfare in the Perspective of Islamic Economics

The second dimension of this study's findings addresses the causal relationship between the quality of distribution management and the income welfare outcomes experienced by small-scale fishers. The central finding is unambiguous: the structural limitations in distribution management identified in the first research dimension produce direct, measurable, and persistent negative impacts on fisher income, impacts that are not random or incidental but are systematically reproduced by the architecture of the existing distribution system. The average income of small-scale fishers across the studied coastal context remains below the regional minimum wage, a condition that persists despite Indonesia's status as the world's second-largest capture fisheries producer and despite the individual fisher's consistent productive contribution to that national output.

The income impact mechanism operates primarily through price suppression at the point of first sale. Because small-scale fishers sell almost exclusively through intermediaries under conditions of infrastructure deficit and debt dependency, the price they receive for their catch consistently represents only a fraction of the actual end-market value of the same commodity. The margin between first-sale price and retail or export price is captured almost entirely by downstream chain actors, traders, processors, and exporters, who add logistical value but who also extract economic rent disproportionate to their productive contribution. This margin extraction is the primary income transfer mechanism that explains why high national production volume does not translate into adequate household income at the fisher level. In Islamic economic terms, this represents a failure of *tawazun* (balance) in the distribution of economic output, a condition in which the productive contribution of the primary actor is systematically undercompensated relative to the contributions of intermediary actors. This finding is consistent with van Anrooy and

Briones (2024), who documented similar income suppression mechanisms in Indonesian blue swimming crab value chains, and with Phelan et al. (2023), who identified debt-mediated price dependency as a structural feature of small-scale fisheries inequity across Southeast Asia. Figure 3 maps the causal pathways through which distribution management failures translate into income welfare deficits, showing how price suppression, debt-service obligations, and income volatility combine to reproduce below-minimum-wage household income conditions despite consistent productive output.

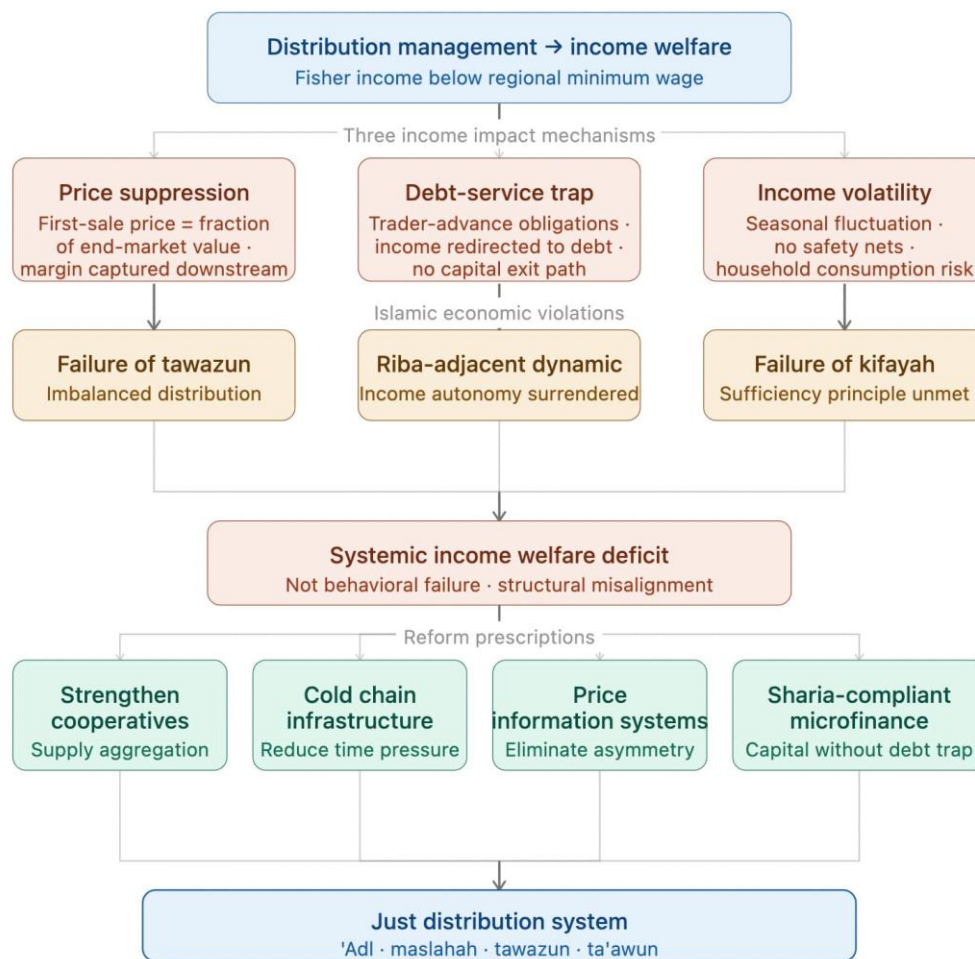


Figure 3. *The Impact of Distribution Management on Fisher Income Welfare in the Perspective of Islamic Economics*

Beyond price suppression, the income welfare impact is further intensified by the debt-service obligations embedded in pre-harvest capital arrangements. Fishers who access operating capital through trader advances repay those advances in the form of obligatory below-market sales over extended periods, meaning that a portion of each catch's value is perpetually redirected toward debt service rather than household income. This cyclical dynamic makes income improvement structurally difficult to achieve independently, the fisher cannot accumulate sufficient surplus to exit the debt-dependency cycle without access to alternative capital sources, yet alternative capital sources are inaccessible precisely because the fisher lacks the collateral and formal financial documentation that formal financial

institutions require. This debt trap condition is analogous to what Islamic economists identify as a *riba*-adjacent structural dynamic: not necessarily explicit interest-bearing lending, but a functional equivalent in which capital access is conditioned upon the surrender of price freedom and income autonomy in ways that reproduce economic subordination over time.

The findings further reveal that income variability, as distinct from absolute income level, constitutes a secondary but significant welfare dimension. Small-scale fishers experience substantial income volatility tied to seasonal catch fluctuations, weather-dependent fishing schedules, and price instability in the absence of forward contracts or price stabilization mechanisms. Without buffer savings, institutional safety nets, or cooperative income-smoothing arrangements, this volatility translates directly into household consumption insecurity during low-catch periods. Islamic economic frameworks address this dimension through the principle of *kifayah*, the sufficiency principle, which holds that an economic system is normatively inadequate if it fails to guarantee a base level of material sufficiency for all participants. The income volatility documented in this study constitutes a failure of *kifayah* at the systemic level: the distribution management system, as structured, does not provide the income stability that would be necessary for fishing households to meet their basic needs with reasonable consistency across seasonal cycles.

The discussion of these findings within the Islamic economic framework ultimately points toward a systemic prescription rather than an individual corrective. The income welfare deficit observed in this study is not primarily a consequence of fisher-level behavioral or productivity failures, it is a consequence of a distribution management architecture that is structurally misaligned with the Islamic economic principles of justice, balance, transparency, and collective welfare. Reforming this architecture requires interventions at multiple levels simultaneously: strengthening cooperative institutions as genuine market actors capable of providing capital, aggregating supply, and negotiating price; investing in cold chain and landing site infrastructure to reduce the time-pressure that eliminates fisher bargaining power; establishing transparent price information systems at landing sites to eliminate informational asymmetry; and developing *sharia*-compliant microfinance instruments that provide capital access without the income-surrendering conditions of trader-advance arrangements. These prescriptions are not merely policy recommendations, within the Islamic economic framework, they represent the institutional prerequisites of a distribution system that can legitimately claim to operate in accordance with the normative principles of *adl*, *maslahah*, *tawazun*, and *ta'awun* that Islamic economics places at the center of a just economic order.

CONCLUSION

This study concludes that distribution management limitations at the small-scale fisher level, encompassing intermediary dependency, infrastructural deficiency, informational asymmetry, and debt-binding capital arrangements, constitute the primary structural barrier preventing Indonesia's extraordinary capture fisheries production capacity from translating into adequate income welfare for its fishing communities. The Islamic economic evaluation framework applied in this study affirms that the existing distribution architecture systematically violates the principles of *adl*, *tawazun*, *ta'awun*, and *kifayah*, producing not merely economic inefficiency but a normatively unjust distribution of productive value. These conditions directly undermine the achievement of SDG 1 (No Poverty), SDG 8 (Decent Work and Economic Growth), and SDG 10 (Reduced Inequalities), as approximately 90% of Indonesian fishers remain trapped in below-minimum-wage income conditions despite their central role in sustaining the world's second-largest capture fisheries sector.

The impact of distribution management quality on fisher income welfare is both causal and structural, operating through price suppression at the point of first sale, asymmetric risk allocation, and cyclical debt dependency that collectively reproduce economic subordination across generations of coastal fishing households. Reforming this system through cooperative institutional strengthening, cold chain infrastructure investment, transparent price discovery mechanisms, and *sharia*-compliant capital access instruments represents not only an economic development imperative but a direct pathway toward realizing SDG 14 (Life Below Water), ensuring that the sustainable use of marine resources generates equitable prosperity for those who depend upon them most. In this respect, the findings of this study offer both diagnostic clarity and normative direction for policy actors committed to building a fisheries

distribution system that is simultaneously productive, just, and aligned with the universal agenda of sustainable human development.

This study has several limitations that should be acknowledged. First, the research is conducted within the specific coastal context of Natuna Regency, and findings may not be fully generalizable to other Indonesian fisheries regions with different infrastructure conditions, regulatory environments, or market structures. Second, the qualitative design, while appropriate for the interpretive aims of this study, does not produce quantitative estimates of income loss attributable to specific distribution management failures; future research employing mixed methods could strengthen the causal evidence base. Third, the Islamic economic evaluation framework applied here draws primarily on normative theoretical sources; empirical testing of specific Islamic finance instruments in the studied context remains a productive direction for follow-up inquiry. Despite these limitations, the convergent validity produced through triangulation across informant categories, observational data, and documentary evidence supports confidence in the analytical findings.

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