

CRAN POLICY RESEARCH ARTICLE

The Role of Fisheries Sector Development in Driving Inclusive Blue Economy Transformation in Somalia

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ABSTRACT

Somalia's fisheries sector is often described as one of the country's most underused blue economy assets. This article argues that the decisive constraint is not simply the availability of marine resources, nor the number of fishing vessels, but the weakness of the operating system that moves fish from harvest to safe food, income, markets, public revenue and long-term ecological value. Using a qualitative, descriptive-analytical and policy-documentary methodology, the article synthesises Somalia's fisheries legal framework, global responsible fisheries literature, value-chain analysis, market and cold-chain evidence, regional Western Indian Ocean experience and selected comparative lessons from other fragile or post-conflict coastal states. The findings show that Somalia's main losses are concentrated in the functions that follow capture: landing services, first handling, ice, cold storage, transport, product diversification, quality assurance, licensing, inspection, data, monitoring and market confidence. The article recommends a sequenced CRAN policy framework built around five functions: foundation, infrastructure, enterprise, sustainability and scale. It concludes that Somalia's fisheries future should be judged not only by catch volume, but by the country's ability to protect resources, reduce post-harvest loss, expand inclusive enterprise, build credible governance and convert marine potential into resilient coastal development.

KEYWORDS

Somalia fisheries; blue economy; coastal livelihoods; cold chain; value-chain development; fisheries governance; IUU fishing; inclusive enterprise; coastal resilience; CRAN policy research.

I. INTRODUCTION

A. Background of the Study

Fisheries occupy a strategic place in Somalia's development debate because they connect food security, coastal livelihoods, trade, public revenue, marine resource governance and climate resilience. Somalia's long coastline, commonly described in public sources as exceeding 3,000 kilometres, gives the country access to the Gulf of Aden, the Indian Ocean and wider Western Indian Ocean trade and ecosystem systems. This geography creates opportunities for artisanal fisheries, small pelagic production, demersal species, crustaceans, tuna-like species, cold-chain services, processing and domestic market expansion.

The opportunity remains only partially realised. In many coastal locations, fishing activity is still predominantly artisanal and locally organised. The sector remains constrained by weak landing services, limited ice, unreliable cold storage, variable road links, limited processing capacity, uneven quality standards, underdeveloped finance, incomplete data and inconsistent market access. These constraints reduce the ability of fishers, traders, processors and public institutions to convert catch into safe food, stable income and accountable public value.

The article approaches fisheries as a system rather than as a narrow production activity. A fishery becomes a development sector when marine resources are responsibly harvested, landed safely, preserved, recorded, processed, certified, traded, consumed and governed. For Somalia, the central policy question is therefore not whether the sea contains resources. It is whether the country can build the operating functions that convert those resources into inclusive and sustainable value.

This publication version is written for policymakers, public institutions, investors, development partners, researchers, private firms, civil society actors and coastal stakeholders. It aims to support practical dialogue rather than academic abstraction. Its contribution lies in tightening the sector argument, reducing repetition, strengthening evidence and offering a realistic implementation pathway.

B. Statement of the Problem

Somalia's fisheries sector faces a conversion problem. Fish may be caught but not landed under hygienic conditions. It may be landed but not preserved. It may be preserved but not transported reliably. It may reach markets without standardised product forms, consumer confidence, quality assurance or traceability. It may be traded without sufficient data, inspection or licensing transparency. At each point, potential value declines.

The conversion problem is compounded by institutional fragmentation. Fisheries governance requires coordination among federal authorities, state institutions, local administrations, port actors, fishers, traders, private investors and community organisations. Where roles are unclear, licensing is weak, landing records are incomplete and monitoring is irregular, the sector cannot attract responsible investment or protect the resource base.

There is also a sequencing problem. If Somalia invests mainly in boats, engines and gear, it may increase effort without reducing spoilage or expanding market value. If cold rooms are built without management models, energy systems and market routes, they may become underused. If export promotion moves ahead without quality control and traceability, buyers may remain cautious. The sector therefore requires a coherent package of public, private and community functions.

C. Objectives and Research Questions

Article objectives

- Analyse Somalia's fisheries sector as a complete value chain and governance system.
- Identify the constraints that reduce conversion of marine resources into food, income, public revenue and coastal resilience.

- Examine the role of landing sites, cold chain, processing, finance, licensing, data, inclusion and ecosystem protection.
- Draw comparative lessons from other fragile or coastal fisheries contexts.
- Present a CRAN policy framework for responsible, inclusive and well-governed blue economy development.

Guiding research questions

1. What systemic constraints limit Somalia's fisheries sector transformation?
2. Which post-harvest and governance functions should be strengthened first?
3. How can fisheries development support inclusive enterprise, investment and ecological sustainability?
4. What can Somalia learn from comparable fisheries governance experiences?
5. What practical sequencing framework can guide CRAN policy dialogue and investment planning?

II. LITERATURE AND CONTEXTUAL REVIEW

A. Blue Economy and Fisheries Development

The blue economy links ocean-based activity with improved livelihoods, economic growth and ecosystem sustainability. In fisheries, this means that growth must be assessed through more than the quantity of fish harvested. It must also consider food security, employment, public revenue, equity, ecosystem health and the distribution of value across the chain. This is consistent with the World Bank's framing of the blue economy as sustainable use of ocean resources for growth, livelihoods and ecosystem health (World Bank and UN DESA, 2017).

For Somalia, blue economy policy has a state-building dimension. Fisheries governance requires licensing, data, inspection, compliance, coastal service delivery and coordination across levels of government. If these functions operate transparently, fisheries can strengthen trust between coastal communities and public institutions. If they remain inconsistent, informality and mistrust can persist even where legal reform exists.

Global fisheries evidence also warns that marine potential should not be interpreted as permission for uncontrolled catch expansion. FAO's 2024 global fisheries report shows the importance of aquatic foods for nutrition and livelihoods, while also emphasising that many marine stocks require stronger management. For Somalia, this means the policy priority is not simply more production; it is better governance, better handling, better value retention and better protection of the resource base.

B. Value Chains, Cold Chain and Post-Harvest Loss

Value-chain analysis is important because it shows that fisheries value is created and lost across several functions. Inputs and production are only the first stage. Landing, first handling, cold storage, transport, processing, packaging, inspection, certification, distribution and consumption are equally important. If one link is weak, the whole chain performs below potential.

Post-harvest loss is not only a technical problem. It is an income problem for fishers, a market problem for traders, a nutrition problem for consumers and a confidence problem for investors. When fish must be sold quickly because it cannot be preserved, fishers lose bargaining power. When supply is inconsistent, traders cannot build stable markets. When hygiene is uncertain, consumers and buyers discount the product.

In Somalia's coastal climate, cold chain is especially decisive. Ice, shade, clean water, insulated boxes, cold rooms, chilled transport and hygienic market spaces determine whether fish becomes safe food and value-added product or whether it deteriorates before reaching a buyer. The same logic applies to export readiness: quality starts at landing; it cannot be fully repaired at the end of the chain.

C. Governance, IUU Fishing and Resource Management

Fisheries governance literature stresses that marine resources require rules, monitoring and legitimate institutions. In weakly regulated systems, individual actors may increase fishing effort in ways that undermine long-term stock health. Effective governance therefore includes licensing, gear rules, landing records, stock assessment, monitoring, control and surveillance, sanctions, co-management and community participation.

Somalia's 2023 Fisheries Management and Development Law provides a significant legal foundation. The law contains provisions on conservation and management, institutional arrangements, information systems, licensing and registration, monitoring, control and surveillance, and prohibitions linked to illegal fishing. The implementation challenge is to translate this legal architecture into daily routines at landing sites, ports, markets and offshore monitoring systems (Federal Republic of Somalia, 2023).

Illegal, unreported and unregulated fishing should be treated as an economic and governance risk, not only a marine enforcement issue. It can reduce revenue, weaken the position of small-scale fishers, distort markets, undermine stock information and damage investor confidence. A credible response requires transparent licensing, vessel identity, port controls, landing records, community reporting and regional cooperation.

D. Inclusion, Finance and Climate Resilience

Inclusive fisheries development requires attention to roles beyond fishers at sea. Women and youth often participate in processing, drying, packaging, trading, market sales, logistics, repair, refrigeration maintenance, digital records and small enterprises. These roles are not secondary in economic importance; they can reduce loss, increase product quality and expand market reach.

Finance must also fit fisheries realities. Small-scale fisheries face seasonal income, weather risk, market uncertainty and equipment breakdown. Standard short-term loans may be poorly matched to cash flow. More suitable instruments include leasing, group lending, Islamic finance, savings groups, partial guarantees, matching grants and business development services.

Climate resilience is now central to fisheries planning. Rising sea temperatures, storms, erosion, flooding and changing currents can affect both resources and infrastructure. Mangroves, reefs, seagrass beds and nursery areas should be treated as natural fisheries infrastructure. Their protection supports productivity, coastal protection and long-term value.

Literature theme	Main lesson	Practical implication for Somalia
Blue economy	Growth must connect livelihoods, public value and ecosystem health.	Measure success through jobs, nutrition, revenue, governance and sustainability.
Value-chain analysis	Value is created and lost across functions after catch.	Invest in landing, cold chain, processing, standards and markets together.
Institutional governance	Law becomes useful when it operates through routines.	Build licensing, data, inspection, MCS and co-management systems.
Inclusion and finance	Women, youth and SMEs add value beyond fishing itself.	Support enterprise roles, tailored finance and business services.
Climate resilience	Ecosystems and infrastructure are mutually dependent.	Protect habitats and design coastal assets for heat, storms and flooding.

III. CONCEPTUAL AND ANALYTICAL FRAMEWORK

A. Systems Perspective

The article uses a systems perspective. Marine resources become development outcomes only when ecological, economic and institutional functions operate together. A fish caught at sea has limited national value if it cannot be landed safely, preserved, recorded, transported, processed, certified, marketed and governed.

The systems perspective is appropriate for Somalia because constraints are interdependent. Weak landing sites reduce quality. Poor cold chain limits market reach. Limited data weakens planning. Unclear licensing reduces revenue and sustainability. Lack of finance prevents upgrading. Climate risk threatens both infrastructure and habitats. These constraints reinforce each other and should not be treated as isolated project issues.

B. Theory of Change

The theory of change is that fisheries transformation will occur when foundational governance, practical infrastructure, enterprise finance, market development and sustainability safeguards are sequenced as one investment package. Foundation strengthens rules and data. Infrastructure protects quality. Enterprise converts quality into value. Sustainability protects the resource base. Scale expands markets, income, revenue and nutrition outcomes.

The logic can be summarised as: resource base -> responsible harvesting -> safe landing -> preservation and cold chain -> processing and standards -> market access -> public value -> sustainable reinvestment. If any major link is skipped, transformation becomes fragile.

Dimension	Diagnostic question	Indicator of progress
Resource base	Are species, habitats and fishing effort understood well enough to guide decisions?	Landing records, species data, fisher registration, stock assessment and precautionary rules.
Value chain	Where is value lost between catch and consumption or export?	Reduced spoilage, higher product quality, better prices and expanded market routes.
Governance	Does law operate through routines at sea, ports and landing sites?	Licensing, inspection, sanctions, data sharing and co-management.
Finance	Can actors invest in equipment, storage, processing and working capital?	Leasing, guarantees, group lending and enterprise support.
Inclusion	Do women and youth access profitable roles beyond token participation?	Enterprise pathways in processing, logistics, records, repair and market services.
Sustainability	Are stocks and ecosystems protected while value grows?	Habitat protection, gear rules, size limits, seasonal measures and MCS.

IV. METHODOLOGY

A. Research Design

This article employs a qualitative, descriptive-analytical and policy-documentary research design. The design is appropriate because Somalia's fisheries sector is shaped by institutional recovery, fragmented data, uneven coastal infrastructure and evolving governance arrangements. A purely quantitative approach would risk overstating precision where the statistical base remains incomplete.

The article is not a new field survey, stock assessment or official economic valuation. It is a structured policy research article developed to support evidence-informed dialogue, strategic investment planning and coordinated sector action. The method is deliberately realistic: available fisheries figures may vary by source, location and period, and the article avoids presenting uncertain estimates as definitive facts. Where figures are used, they are treated as indicative orientation points.

B. Data Sources and Selection

The article relies on triangulation of secondary data and policy materials. Core sources include Somalia's Law of Fisheries Management and Development No. 008/2023, FAO fisheries and aquaculture references, World Bank blue economy and fisheries materials, regional Western Indian Ocean literature, value-chain and post-harvest loss literature, market and consumption analysis, IUU fishing materials and comparative fisheries governance experience from Sierra Leone and Mozambique.

The document selection protocol was purposive rather than probabilistic. Materials were selected because they directly addressed the article's research questions: fisheries governance, value-chain constraints,

blue economy development, market access, sustainability, inclusion, finance and Somalia's institutional context. Sources were excluded where they were promotional, unsupported, generic or not relevant to Somalia or comparable coastal contexts.

Data stream	Materials reviewed	Use in analysis
Legal and regulatory stream	Somalia fisheries law, responsible fisheries instruments and governance materials.	Assess law-to-practice gaps, licensing, data, MCS and co-management requirements.
Value-chain and market stream	Cold-chain, post-harvest loss, market access and quality standards literature.	Identify where fish loses value and where investment should be sequenced.
Blue economy and development stream	FAO, World Bank, AU and regional Western Indian Ocean sources.	Connect fisheries to nutrition, jobs, revenue, resilience and sustainable blue economy goals.
Place-based sector stream	Illustrative Somali coastal hubs including Mogadishu, Kismayo, Bosaso, Berbera, Merca, Eyl and Hobyo.	Ground analysis in realistic investment geography without unsupported site-specific claims.
Comparative stream	Sierra Leone and Mozambique fisheries governance and value-chain experience.	Benchmark Somalia's trajectory against comparable coastal and fragile-state lessons.

C. Data Analysis and Trustworthiness

The data were analysed through directed thematic content analysis. Initial codes were derived from the conceptual framework: resource base, landing and first handling, cold chain, processing, standards, licensing, data, IUU fishing, markets, finance, inclusion, climate risk and ecosystem protection. The analysis then examined how these themes interact across the fisheries system.

A second stage applied operational sequencing. Each constraint was assessed through the question: what must be built first for the next function to work? This produced the five-stage pathway used later in the article: foundation, infrastructure, enterprise, sustainability and scale. A third stage assessed institutional feasibility by distinguishing between functions that require public authority, private investment, community participation and development partner support.

Trustworthiness is supported through triangulation, conservative interpretation and transparency about limitations. No major conclusion is drawn from a single type of source. Legal materials are interpreted alongside value-chain logic, market constraints and sustainability considerations. Recommendations are linked to identifiable operational problems rather than general aspirations.

D. Limitations

The article does not provide a statistical estimate of national catch, stock biomass, sector GDP contribution or household-level fish consumption. Such estimates require dedicated empirical studies. Its contribution is different: it provides a structured sector diagnosis and practical development framework that can guide policy dialogue, investment design and further research.

Future work should build on this article through routine landing records, price data, fisher registration, stock assessment, value-chain cost studies, enterprise-level financial data and community-based monitoring. These systems are themselves part of the development agenda.

V. FINDINGS

A. Summary of Findings

Finding	Explanation	Strategic implication
Operating systems are the binding constraint	The sector has resource potential, but conversion into food, income, revenue and sustainable value is constrained by weak landing, preservation, processing, finance, data and governance functions.	Prioritise system functions rather than isolated production inputs.
Post-harvest functions determine value	Landing services, ice, first handling, storage, transport and quality assurance shape prices, safety and market confidence.	Upgrade landing and cold-chain corridors before pushing large-scale expansion.

Finding	Explanation	Strategic implication
Law must be operationalised	The 2023 law provides a foundation, but implementation depends on procedures, staff, records, inspection, licensing and coordination.	Convert legal reform into routines at sea, ports, landing sites and markets.
Markets require reliability	Domestic, inland, regional and export markets need consistent supply, product forms, hygiene and traceability.	Develop product diversification and market routes supported by cold chain.
Inclusion creates economic value	Women and youth can add value in processing, trading, packaging, logistics, repair, refrigeration, records and market services.	Design enterprise pathways from the start.
Sustainability protects public value	Stocks, habitats and coastal infrastructure are the natural and physical foundation of the fisheries economy.	Use precaution, co-management, habitat protection and climate-resilient assets.

B. Marine Resource Base and Ecological Context

Somalia's marine resource base includes large pelagics linked to migratory systems, small pelagics that may support food security, demersal and reef-associated species important for artisanal fishers, crustaceans such as lobster and shrimp, and ecologically sensitive groups such as sharks and rays. This diversity creates different opportunities and different responsibilities.

The main finding is that resource potential should be managed through data and precaution. Some species may support domestic nutrition if preservation and distribution improve. Some may support export earnings if traceability and standards are credible. Others require strict protection or carefully managed limits because of ecological importance, slow growth or vulnerability to localised overfishing.

Somalia should avoid equating fisheries development with catch expansion. Additional catch improves welfare only where handling, preservation, market access and sustainability systems are in place. Without these systems, increased production may raise spoilage, depress prices, intensify pressure on stocks and weaken long-term value. The responsible priority is to increase value per unit of fish before increasing effort.

Resource category	Examples	Development consideration
Large pelagics	Tuna-like species, bonito, Spanish mackerel and related migratory species.	High market potential; requires licensing, monitoring, traceability and regional cooperation.
Small pelagics	Sardinella, scads, mackerel, anchovies and similar species.	Important for affordable protein if preservation, processing and distribution improve.
Demersal and reef fish	Groupers, snappers, emperors and reef-associated species.	Important to artisanal fishers; vulnerable to localised overfishing.
Crustaceans	Lobster, shrimp and related products.	High export value; requires size limits, seasonal rules and traceability.
Sharks and rays	Various shark and ray species.	Ecologically sensitive; should not be treated as simple commercial growth stock.

C. Place-Based Fisheries Geography

Named places make the analysis more realistic. Mogadishu, Kismayo, Bosaso, Berbera, Barawe, Merca, Eyl and Hobyo illustrate the diversity of Somalia's coastal fisheries geography. Some are larger urban or port-linked markets. Others are fishing towns or coastal hubs where artisanal activity, landing services, roads and local enterprise shape opportunities. The point is not that each location requires the same package, but that Somalia needs a hub-based strategy.

Mogadishu represents a large consumption and institutional market where restaurants, hotels, households, traders and public institutions can influence demand. Kismayo and Bosaso illustrate port-linked coastal trade possibilities. Berbera sits within a strategic Gulf of Aden corridor with port and logistics relevance. Merca, Barawe, Eyl and Hobyo illustrate smaller coastal towns where first handling, ice, roads, storage and cooperatives may be more immediate priorities.

A place-based strategy should avoid spreading small investments too thinly across the entire coast. It should identify priority hubs, define the minimum service package for each hub and connect hubs to inland and urban markets. It should also protect smaller communities from exclusion through feeder systems, mobile ice services, collection points, cooperatives and fair market access.

Location type	Illustrative examples	Potential role in sequencing
Large urban consumption market	Mogadishu and other major towns.	Demand aggregation, institutional buying, consumer awareness and formal market hygiene.
Port-linked coastal hub	Kismayo, Bosaso and Berbera.	Landing services, logistics, inspection, export readiness and regional trade links.
Artisanal fishing town	Merca, Eyl, Hobyo and similar coastal locations.	First handling, ice access, fisher organisation and local enterprise.
Inland market corridor	Road-linked cities and district markets.	Processed, dried, smoked, chilled or frozen products depending on infrastructure.
Ecosystem-sensitive area	Reef, mangrove, seagrass or nursery zones.	Co-management, habitat protection and precautionary harvest rules.

D. Value Chain, Landing Sites and Cold Chain

The most important economic losses often occur after capture. A fisheries economy is not built at sea alone; it becomes valuable when fish is landed safely, kept cold, handled hygienically, transported reliably, processed where appropriate, inspected credibly and sold in markets that trust the product. If any function is missing, the sector underperforms.

Landing sites are the first point where fish enters the formal or semi-formal value chain. Minimum services include clean water, shade, ice, washable surfaces, drainage, containers, waste management, weighing systems and sanitation. These are not luxury investments; they are the conditions required to protect fish quality and begin credible data collection.

Cold chain should be planned as a corridor rather than a building. A cold room disconnected from landing sites, transport routes or buyers may remain underused. Ice production without distribution does not reach fishers. Chilled transport without demand becomes expensive. Renewable energy systems without maintenance plans may fail. The planning question is therefore how fish will move from catch to buyer while maintaining quality.

Value-chain function	Current risk	Priority response
Inputs and production	Basic equipment, safety risks and weak maintenance.	Appropriate gear, repair services, engines, safety equipment and fisher training.
Landing and first handling	Poor hygiene, limited ice, weak records and rapid quality decline.	Clean water, ice, shade, containers, weighing, sanitation and landing records.
Cold chain and logistics	Spoilage, narrow markets and low bargaining power.	Ice plants, cold rooms, insulated boxes, chilled transport and service corridors.
Processing and standards	Limited value addition and weak buyer confidence.	Drying, smoking, freezing, packaging, inspection and quality assurance.
Markets	Unreliable supply, weak product forms and limited inland reach.	Domestic, inland, regional and export channels according to product type.
Public value	Lost revenue, weak data and sustainability risk.	Licensing, data, inspection, co-management and revenue systems.

E. Governance, Data, Monitoring and IUU Fishing

Somalia's fisheries law provides a basis for sector development, but governance becomes meaningful only when the law is translated into operating systems. This includes regulations, licensing forms, reporting obligations, inspection routines, sanctions, staffing, data sharing and coordination mechanisms. The law-to-practice gap is a central sector challenge.

Governance should clarify functions rather than titles. Who registers fishers? Who records landings? Who issues licences? Who monitors vessels? Who inspects ports and landing sites? Who manages data?

Who applies sanctions? Who coordinates with communities? Without clear answers, institutions may overlap, investors face uncertainty and fishers may experience governance as unpredictable.

Data systems should begin at priority landing sites. Fisher registration, vessel records, landing volumes, species composition, price information, effort indicators and inspection results can start with simple templates and trained officers. Over time, these records can develop into a national fisheries information system linked to licensing, planning and stock management.

A credible response to IUU fishing requires more than patrols. It requires clear zones, permit conditions, vessel identity, licensing records, port inspection, sanctions, information sharing and regional cooperation. Community reporting can support visibility, but it must be backed by formal procedures and protection from retaliation or local capture.

F. Markets, Export Readiness and Enterprise

Somalia's fisheries markets operate in layers. Domestic urban markets include households, restaurants, hotels, traders, institutions and retail points in major cities. Inland markets are less developed but strategically important for nutrition and income diversification. Regional and export markets can offer higher value, but only where quality, traceability and supply reliability improve.

Demand is shaped by availability, preservation, price, convenience, cooking knowledge, product form and trust. Where fish is unavailable, expensive, poorly preserved or difficult to prepare, consumption remains limited even if fish is nutritionally valuable. Market development should therefore include distribution, product development, consumer education and nutrition promotion.

Product diversification is essential. Fresh fish cannot serve all consumers and locations. Dried, smoked, frozen, chilled, filleted, packaged and ready-to-cook products can reach different markets. Small pelagic fish can support affordable protein if preservation improves. High-value products can support export earnings if they are managed responsibly.

Export development should be cautious and credible. Buyers need confidence that fish is legally caught, safely handled, properly preserved, inspected, certified and traceable. Export readiness is therefore an infrastructure, governance and standards issue as much as a market issue.

G. Finance, Inclusion and Sustainability

Many fishers, traders and processors cannot invest because financial products are not designed for fisheries realities. Boats, engines, nets, ice boxes, cold storage, processing equipment, transport and working capital all require finance. Yet fishing income can be seasonal, uncertain and exposed to weather, price changes and equipment failure.

A more realistic financing approach would combine leasing, group lending, Islamic finance, savings groups, partial guarantees, matching grants and business development services. Leasing can help fishers access engines or equipment without large upfront costs. Group lending can support processors and traders. Guarantees can reduce lender risk. Business training can improve repayment and market readiness.

Inclusion should be designed around value-chain gaps. Women and youth can participate in processing, drying, packaging, trading, logistics, cold-chain services, repair, digital records, quality control, market information and small enterprises. These roles can reduce post-harvest loss, improve product quality and expand participation beyond fishing itself.

Sustainability protects value. Climate risk, stock pressure and habitat degradation can undermine fisheries development if not addressed early. Size limits, seasonal rules, gear restrictions, protection of juvenile habitats, co-management and climate-resilient infrastructure should be integrated into investment design rather than treated as later add-ons.

VI. COMPARATIVE CASE PERSPECTIVE

A. Why Comparison Matters

A comparative lens makes the article less self-referential and helps identify which lessons are transferable to Somalia. No country provides a perfect model. However, fragile or coastal states facing governance recovery, IUU fishing, small-scale livelihoods and value-chain constraints offer useful benchmarks. This article draws cautious lessons from Sierra Leone and Mozambique because both illustrate the importance of combining legal reform, fisheries governance, community participation, infrastructure and market development.

The purpose is not to claim that Somalia should copy another country's model. Coastal geography, political settlements, administrative capacity, species composition and markets differ. The purpose is to show that fisheries reform usually succeeds when law, landing-site systems, monitoring, community legitimacy and market incentives move together.

B. Sierra Leone: Post-Conflict Recovery and Fisheries Governance

Sierra Leone offers a useful post-conflict comparison because it has also had to rebuild governance capacity while protecting fisheries revenue and livelihoods. The West Africa Regional Fisheries Program supported countries in the region to strengthen governance, reduce illegal fishing and improve the value generated from marine resources. For Sierra Leone, the relevance lies in the link between licensing, enforcement, community benefits and institutional credibility.

The transferable lesson is that enforcement cannot stand alone. If fishing communities do not see improved landing services, fair access, market opportunities and transparent rules, compliance remains difficult. Somalia can draw from this by ensuring that MCS investments are paired with landing-site improvements, fisher registration, grievance channels and visible benefits for small-scale actors.

Sierra Leone also shows that regional cooperation matters. IUU fishing often crosses national jurisdictions and uses gaps between enforcement systems. Somalia's location in the Gulf of Aden and Indian Ocean makes regional cooperation especially important, including coordination with neighbouring states, regional fisheries bodies, port controls and information-sharing platforms.

C. Mozambique: Western Indian Ocean Governance and Value-Chain Lessons

Mozambique is relevant because it sits within the Western Indian Ocean region and has experience with fisheries governance, coastal communities, small-scale fisheries and value-chain constraints. World Bank-supported SWIOFish programming emphasised governance and shared growth, reflecting the regional nature of fisheries resources and the need to connect management with livelihoods.

The transferable lesson is that infrastructure must be linked to community management and market systems. Landing places, cold chain, inspection and market access are more likely to work when they are embedded in local governance arrangements and supported by clear public roles. Somalia can use this lesson by designing each coastal hub package with management, maintenance, user rules, community participation and market linkages from the start.

Mozambique also illustrates the need to integrate resilience. Cyclones, coastal erosion and habitat pressure can disrupt fisheries systems. Somalia should treat climate-resilient design as part of fisheries investment: landing sites, drainage, cold rooms, roads and market spaces should be planned for heat, salinity, storms and flooding.

Case	Relevant experience	Lesson for Somalia
Sierra Leone	Post-conflict fisheries governance, licensing, IUU response and regional cooperation.	Pair enforcement with visible community benefits, data and landing-site services.
Mozambique	Western Indian Ocean context, coastal communities, governance and shared-growth	Link infrastructure to local management, markets, resilience and community

Case	Relevant experience	Lesson for Somalia
	programming.	legitimacy.
Somalia	Long coastline, uneven institutions, high value-chain losses and emerging legal framework.	Sequence foundation, infrastructure, enterprise, sustainability and scale; avoid isolated assets.

VII. DISCUSSION

A. Why the Systems Argument Matters

The findings show that Somalia's fisheries sector should not be approached as a single production problem. It is a system of linked functions. A weakness in one function affects the others. A boat grant may increase effort but not value. A cold room may remain underused if fish is not handled properly or markets are not connected. A law may remain symbolic if procedures, staff and data systems are absent.

The systems argument helps decision-makers avoid fragmented programming. It shifts attention from visible assets to operating models. It asks who will manage landing sites, how ice will be supplied, how user fees will cover maintenance, how data will be recorded, how women and youth will access enterprise roles, how products will reach markets and how ecosystems will be protected.

B. Sequencing as the Core Policy Principle

Somalia does not need to solve every fisheries problem at once. It needs to organise reforms and investments in an order that makes each step support the next. Foundation comes first: law implementation, fisher registration, landing records, licensing transparency and coordination. Infrastructure follows: landing sites, ice, cold rooms, water, drainage, roads and markets. Enterprise then converts quality into value through processing, packaging, logistics, finance and market linkages. Sustainability must be integrated throughout.

Sequencing does not mean that each phase must be completed everywhere before the next begins. It means that each investment package should include the minimum functions needed for success. A landing-site upgrade should include data, hygiene and management. A cold room should include energy, maintenance and market routes. A finance product should include training and demand analysis. A conservation measure should include local legitimacy and enforcement.

C. CRAN Policy Contribution

For CRAN publication, the value of this article is practical: it converts a broad blue economy debate into an operating framework. It helps policymakers and partners ask sharper questions before investing. It also helps private actors understand where commercial opportunity depends on public goods such as data, inspection, roads, cold chain and predictable licensing.

The article also protects against over-claiming. It acknowledges that Somalia's fisheries data remain incomplete and avoids definitive numerical claims where evidence is uncertain. At the same time, it does not allow data weakness to become an excuse for inaction. It identifies the data systems that should be built as part of sector development.

VIII. CRAN POLICY AND INVESTMENT AGENDA

A. Priority Policy Actions

1. Operationalise the fisheries law through regulations, procedures and clear institutional roles.
2. Prioritise strategic landing-site upgrades in selected coastal hubs.
3. Build cold-chain corridors rather than isolated cold rooms.
4. Develop routine fisheries data systems starting with landing records and fisher registration.

5. Strengthen monitoring, control and surveillance through licensing transparency, vessel identity, port inspection and regional cooperation.
6. Support product diversification, quality assurance and traceability from the landing point onward.
7. Expand women and youth enterprise pathways in processing, logistics, cold-chain services, repair, digital records and market information.
8. Create fisheries-specific finance products using leasing, Islamic finance, group lending, guarantees and business services.
9. Protect sensitive stocks, habitats and coastal infrastructure through precautionary rules and co-management.
10. Establish a national coordination and learning mechanism linking federal, state, local, community and private actors.

B. Investment Agenda

Investment area	Description	Likely benefit	Safeguard
Landing-site package	Ice, shade, water, drainage, containers, weighing, records and sanitation.	Reduced spoilage and better price formation.	Local management and maintenance plan.
Cold-chain corridor	Ice production, cold rooms, insulated boxes and chilled transport.	Expanded urban and inland market access.	Energy model, spare parts and cost recovery.
Processing and packaging	Drying, smoking, freezing, filleting, packaging and inspection.	Value addition and enterprise growth.	Food safety and market demand validation.
Fisheries finance	Leasing, group lending, Islamic finance and guarantees.	Investment by fishers, traders and processors.	Business training and repayment design.
Data and licensing system	Registration, landing records, licence database and reporting.	Improved planning, revenue and management.	Privacy, transparency and institutional ownership.
Ecosystem protection	Co-management, habitat protection and climate-resilient design.	Long-term resource sustainability.	Community legitimacy and enforcement support.

C. Environmental and Social Safeguards

Safeguards should be integrated from the beginning. Infrastructure should avoid damaging sensitive habitats. Landing sites should include waste management and sanitation. Processing should manage water and waste responsibly. Finance should not encourage destructive gear or uncontrolled catch expansion. Women's participation should include safe market spaces, equipment access and decision-making opportunities.

Safeguards are not obstacles to investment. They reduce risk and improve long-term value. Investors benefit when resources are managed, communities support projects and products meet standards. Public institutions benefit when development does not create new conflicts or environmental damage. Communities benefit when growth strengthens livelihoods without undermining the ecosystems they depend on.

IX. IMPLEMENTATION ROADMAP

A. Short-Term Actions: 0-18 Months

The short-term phase should focus on feasible, visible and foundational actions. Priority activities include mapping landing sites, selecting pilot hubs, establishing simple landing records, training officers, clarifying licensing categories, upgrading basic hygiene services and building coordination routines. These actions create the minimum conditions for better planning and market confidence.

The government and partners should avoid launching too many sites at once. A small number of well-managed pilot hubs can demonstrate what works. Pilot selection should consider security, access, community demand, market connection, institutional presence and potential for learning.

B. Medium-Term Actions: 18-36 Months

The medium-term phase should build service corridors and enterprise systems. This includes renewable or hybrid cold rooms, ice distribution, chilled transport, processing pilots, finance products, market linkages, quality inspection and product diversification. Women and youth enterprise pathways should be integrated through targeted training, equipment access and market space.

This phase should also strengthen monitoring, control and surveillance. Licensing data, vessel information, port inspection and community reporting should begin to connect. IUU risk should be addressed through visible procedures and cooperation, not only statements.

C. Long-Term Actions: 36-60 Months

The long-term phase should focus on scale, export readiness, sustainability and institutional maturity. By this stage, successful hub models can be expanded, stronger processing facilities can be developed, traceability can improve and export pathways can be tested responsibly. Ecosystem protection and stock monitoring should be institutionalised.

Long-term success should be measured by system performance: lower spoilage, higher fisher income, more reliable domestic supply, stronger women and youth enterprises, improved data quality, transparent licensing, reduced IUU risk, functioning cold chain, better market confidence and healthier ecosystems.

Time horizon	Priority actions	Expected result
0-18 months	Pilot landing records, fisher registration, basic landing-site upgrades, licensing review and coordination routines.	Foundation for planning, hygiene and accountability.
18-36 months	Cold-chain corridors, processing pilots, fisheries finance, market linkages and inspection systems.	Reduced loss, improved market access and enterprise growth.
36-60 months	Scale successful hubs, improve traceability, strengthen export readiness, institutionalise co-management and stock monitoring.	Sustainable sector expansion and higher public value.

X. MONITORING, LEARNING AND ACCOUNTABILITY FRAMEWORK

A. Monitoring Approach

Monitoring should show whether the fisheries system is functioning, not only whether activities were completed. It is not enough to count boats, cold rooms or trainings. Monitoring should assess whether fish quality improves, spoilage declines, markets expand, women and youth enterprises grow, data are used, licensing becomes transparent and ecosystems are protected.

A practical framework should be simple enough for landing-site actors and institutions to use. It should combine administrative data, landing-site records, market information, community feedback and periodic technical assessment. The purpose is to support learning and adaptation, not only reporting.

Result area	Illustrative indicator	Potential data source
Landing and quality	Percentage of priority landing sites with ice, water, weighing and hygiene routines.	Landing-site inspection and management records.
Cold chain	Volume of fish handled through functioning ice or cold storage systems.	Cold-room logs, trader records and market data.
Market access	Number of market routes served with preserved or processed fish products.	Trader surveys and distribution records.
Inclusion	Number of women/youth enterprises operating in value-chain roles.	Enterprise registration, finance records and programme data.
Governance	Share of licensed vessels/fishers with updated records and reporting compliance.	Licensing system and landing records.
Sustainability	Use of size limits, seasonal measures, habitat protection and community reporting.	Co-management records, inspection reports and ecological monitoring.

B. Learning Questions

- Which landing-site service packages reduce spoilage most effectively?
- Which cold-chain models are most affordable and maintainable in different coastal contexts?
- Which product forms are most acceptable in urban and inland markets?
- Which finance products work best for fishers, traders and processors?
- How can women and youth enterprises move from informal participation to profitable roles?
- Which governance routines most improve compliance and trust?
- How can ecosystem protection be linked to livelihood incentives?

XI. RISK MANAGEMENT AND SAFEGUARDS

A. Main Sector Risks

Fisheries investment can create new risks when it is not sequenced or governed carefully. Increased fishing effort without catch data and controls can place pressure on stocks. Landing infrastructure without maintenance and management arrangements can become underused. Cold rooms without reliable energy and spare parts can fail. Finance without market analysis can create debt stress. Export promotion without resource safeguards can accelerate extraction of high-value species. Inclusion without real market roles can become symbolic rather than transformative.

For a CRAN policy publication, risk management is not a peripheral concern. It is central to the credibility of the investment argument. Responsible fisheries development should demonstrate that economic value can be increased while protecting small-scale livelihoods, coastal ecosystems and public revenue. This requires clear safeguards at design stage rather than corrective measures after problems appear.

The most important risk is fragmented implementation. Many fisheries projects fail not because the assets are technically wrong, but because they are not connected to the operating model around them. A landing site, ice plant, cold room or finance product needs ownership, management, maintenance, rules, data, market links and user confidence. Without these elements, physical assets alone cannot create sustained value.

Risk	How it appears	Safeguard
Overfishing	Increased effort without catch records, size rules, seasonal measures or stock indicators.	Introduce landing records, species data, precautionary rules, fisher registration and co-management.
Infrastructure failure	Cold rooms, landing sites or market spaces become underused or poorly maintained.	Require management plans, user rules, maintenance budgets, local technicians and cost-recovery models.
Market mismatch	Products do not match buyer preferences, price levels, hygiene expectations or product forms.	Conduct market testing, consumer education, product diversification and quality assurance before scale.
Elite capture	Benefits are concentrated among powerful actors or better-connected businesses.	Use transparent criteria, community oversight, fair access rules and targeted enterprise support.
Debt stress	Fishers and traders take finance products that do not match seasonal cash flow.	Use grace periods, leasing, group lending, Islamic finance, guarantees and business training.
Data weakness	Records are collected but not verified, used or fed back to users.	Keep templates simple, verify data, train officers and return information to communities and managers.

B. Environmental and Social Safeguards

Environmental safeguards should begin with site selection. Landing sites, cold rooms and markets should avoid damaging mangroves, reefs, seagrass beds, nursery areas and drainage systems. Infrastructure

should include waste management, sanitation, water handling and drainage. Processing facilities should manage liquid and solid waste responsibly. Fisheries finance should not support destructive gears or uncontrolled harvesting of sensitive species.

Social safeguards should protect small-scale fishers, women traders, youth enterprises and poorer coastal households from exclusion. Public investments should not turn common landing spaces into private monopolies. Market improvements should not displace women without providing safer and better alternatives. Licensing and enforcement should be transparent so that compliance does not become a burden only on small actors while larger operators remain unmonitored.

Safeguards also strengthen investment confidence. Investors benefit when communities support the project, when resources are managed and when products meet standards. Public institutions benefit when growth does not generate conflict or environmental damage. Communities benefit when new infrastructure and finance improve livelihoods without undermining the marine systems on which they depend.

XII. STAKEHOLDER RESPONSIBILITIES AND COORDINATION

A. Why Coordination Matters

Fisheries governance is inherently multi-level. Federal institutions are responsible for national policy, legal frameworks, international obligations, maritime zones and overall coordination. State and local authorities are closer to landing sites, communities, markets and day-to-day enforcement. Municipal authorities influence hygiene, market spaces, waste management and local services. Communities contribute knowledge, compliance and stewardship. Private actors bring logistics, processing, distribution, finance and market access.

Coordination should be functional rather than ceremonial. High-level meetings are useful, but routine cooperation is more important. Fisheries institutions need shared templates, inspection schedules, landing-site records, licensing information, referral procedures, reporting calendars and learning reviews. The most practical question is not only which institution has authority, but which institution performs which function and how the functions connect.

A CRAN policy approach can help by turning coordination into a visible operating model. The article therefore recommends a coordination matrix that clarifies responsibilities for policy, landing services, data, licensing, inspection, MCS, finance, market development, inclusion and sustainability.

Actor	Core responsibility	Practical contribution
Federal fisheries institutions	Set national policy, legal standards, licensing categories, MCS frameworks and international coordination.	Provide regulations, data architecture, inspection protocols and national reporting.
Federal Member States and local authorities	Support implementation at landing sites, local rules, community engagement and market services.	Manage landing records, local coordination, site services and compliance feedback.
Municipal authorities	Support hygiene, waste management, market spaces, drainage and local services.	Link fisheries infrastructure to urban service delivery and public health.
Fishers and community organisations	Provide local knowledge, co-management, compliance support and landing data.	Participate in rules, reporting, stewardship and conflict resolution.
Private sector and finance actors	Invest in logistics, processing, cold chain, packaging, transport and enterprise services.	Use responsible investment criteria and respect public standards.
Development partners and research actors	Support systems, capacity building, evidence, pilots and learning.	Avoid isolated assets and invest in scalable operating models.

B. Coordination Principles

- Start with priority hubs rather than attempting nationwide systems at once.
- Use simple templates before building complex databases.

- Link licensing to landing records and inspection where feasible.
- Make community benefits visible so that compliance is connected to service delivery.
- Use joint learning reviews to adjust investments before scaling.
- Ensure private investment follows public rules on safety, labour, environment and resource protection.

XIII. EVIDENCE GAPS AND FUTURE RESEARCH

A. Priority Evidence Gaps

The article deliberately avoids false precision. Somalia needs stronger fisheries statistics, but weak data should not paralyse action. Instead, evidence gaps should be converted into an investment agenda. The most important gaps concern catch volumes by species and location, fishing effort, post-harvest loss, price formation, household consumption, women's enterprise roles, youth employment, cold-chain costs, stock condition and IUU risk.

Routine landing-site data are the most practical starting point. A basic system could record fisher identity, vessel type, gear, species group, approximate volume, landing price, buyer type and destination. This would not immediately produce a full stock assessment, but it would improve planning, investment selection and market understanding. Over time, routine records could be linked with inspection, licensing and research.

Future research should also examine business models. Many fisheries investments fail because they assume that infrastructure will automatically be used. Studies should therefore analyse who pays for ice, who manages cold rooms, how user fees are set, how maintenance is financed, how traders respond to product forms and how women and youth can access profitable market functions.

Evidence gap	Key question	Suggested method
Catch and effort data	What species are landed, where, by whom and with what gear?	Landing records, fisher registration and periodic technical surveys.
Post-harvest loss	Where does loss occur and what is its value?	Landing-site observation, trader interviews, cold-chain studies and market records.
Market demand	Which product forms are acceptable and affordable in different markets?	Consumer surveys, trader data and product pilots.
Finance and enterprise	Which products match fisheries cash flow and risk?	Loan performance data, enterprise records and business model studies.
Gender and youth roles	Which value-chain roles generate income and mobility?	Enterprise mapping, qualitative interviews and programme monitoring.
Sustainability and habitats	Which stocks and ecosystems require priority protection?	Stock assessment, habitat mapping, co-management records and MCS data.

B. Research Ethics and Data Use

Future data systems should respect privacy and community trust. Fisher registration and landing records should not be used only for control or taxation. They should also return value to users through better services, market information, safety support and transparent planning. If communities see data collection only as extraction, reporting quality will decline.

Evidence generation should also avoid overstating certainty. Fisheries data are inherently dynamic because catches vary with season, weather, effort, markets and ecological conditions. CRAN can support policy dialogue by presenting evidence clearly, noting limitations and encouraging learning-oriented data systems rather than one-time reports.

XIV. CRAN PUBLICATION USE AND DISSEMINATION

As a CRAN policy research article, this paper can be used in three ways. First, it can support national and state-level policy dialogue by providing a structured explanation of the fisheries system. Second, it can

support investment conversations by showing why infrastructure, finance and markets must be designed together. Third, it can guide research and monitoring by identifying the minimum evidence systems needed for better planning.

The article should be disseminated as a policy-facing publication rather than a technical stock assessment. The strongest audience includes fisheries institutions, coastal administrations, development partners, investment actors, universities, civil society organisations and private firms involved in logistics, food systems and coastal enterprise. A shorter two-page policy brief can later be derived from this full article for meetings and media use.

For publication under CRAN's research and learning platform, the article should maintain a clean policy research layout, a strong abstract, a clear methodology, useful tables and a reference list that readers can verify. It should avoid decorative design that does not carry content. Its credibility should come from clarity, evidence, realism and practical recommendations.

XV. COMPREHENSIVE ACTION MATRIX

No.	Priority	Action	Lead/support actors	Time horizon
1	Law implementation	Prepare regulations, procedures, licensing forms, inspection checklists and sanctions guidance.	Ministry, FMS, legal advisers	0-18 months
2	Landing records	Pilot simple fisher registration, landing volume, species and price records in selected hubs.	Fisheries officers, local authorities, communities	0-18 months
3	Landing-site package	Install or upgrade water, shade, ice access, weighing, drainage, containers and sanitation.	Government, municipalities, partners	0-24 months
4	Cold-chain corridors	Connect ice, cold rooms, insulated boxes, transport routes and buyers.	Private sector, investors, partners	18-36 months
5	Quality and traceability	Develop hygiene routines, inspection, product handling and simple traceability protocols.	Fisheries and food safety authorities	18-36 months
6	Enterprise inclusion	Support women and youth in drying, packaging, logistics, repair, cold-chain services and records.	SMEs, cooperatives, finance providers	6-36 months
7	Fisheries finance	Design leasing, group lending, Islamic finance, guarantees and business development support.	Banks, MFIs, investors, partners	6-36 months
8	IUU response	Link licensing, vessel identity, port inspection, community reporting and regional cooperation.	Fisheries, maritime and port authorities	0-60 months
9	Ecosystem safeguards	Protect mangroves, reefs, nursery areas and sensitive species through co-management and precaution.	Communities, environment and fisheries actors	12-60 months
10	Learning and scale	Review pilots, document lessons and expand only where operating models work.	CRAN, government, partners	18-60 months

XVI. CONCLUSION

Somalia has a significant opportunity to develop fisheries as part of a resilient and inclusive blue economy. The opportunity is not defined only by coastline, species diversity or maritime geography. It is defined by the country's ability to build the functions that turn marine resources into safe food, stable livelihoods, responsible enterprise, public revenue and long-term ecological value.

The article's main conclusion is that fisheries transformation should be organised around systems. Production inputs matter, but they are insufficient without safe landing, cold preservation, quality assurance, processing, market access, licensing, data, monitoring, finance, inclusion and ecosystem protection. Development partners and investors should therefore avoid isolated assets and support connected service packages.

For CRAN publication, the practical message is clear: Somalia's fisheries strategy should begin with priority coastal hubs, simple data systems, credible legal implementation, landing-site services and cold-chain corridors. It should then build enterprise, finance, quality standards and sustainability safeguards.

This sequence is realistic because it does not wait for perfect data or perfect institutions, but it does build the routines that stronger evidence and better governance require.

Fisheries development should ultimately be measured by the quality of the system: whether fish is protected, landed, preserved, processed, certified, traded, consumed and governed in ways that improve food security, create dignified work, expand inclusive enterprise, protect ecosystems and strengthen public value for Somalia.

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