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REJUVENATING BENGAL FISHERIES

Blue Economy Boosting Aquaculture

A Research-based Recommendation Paper By
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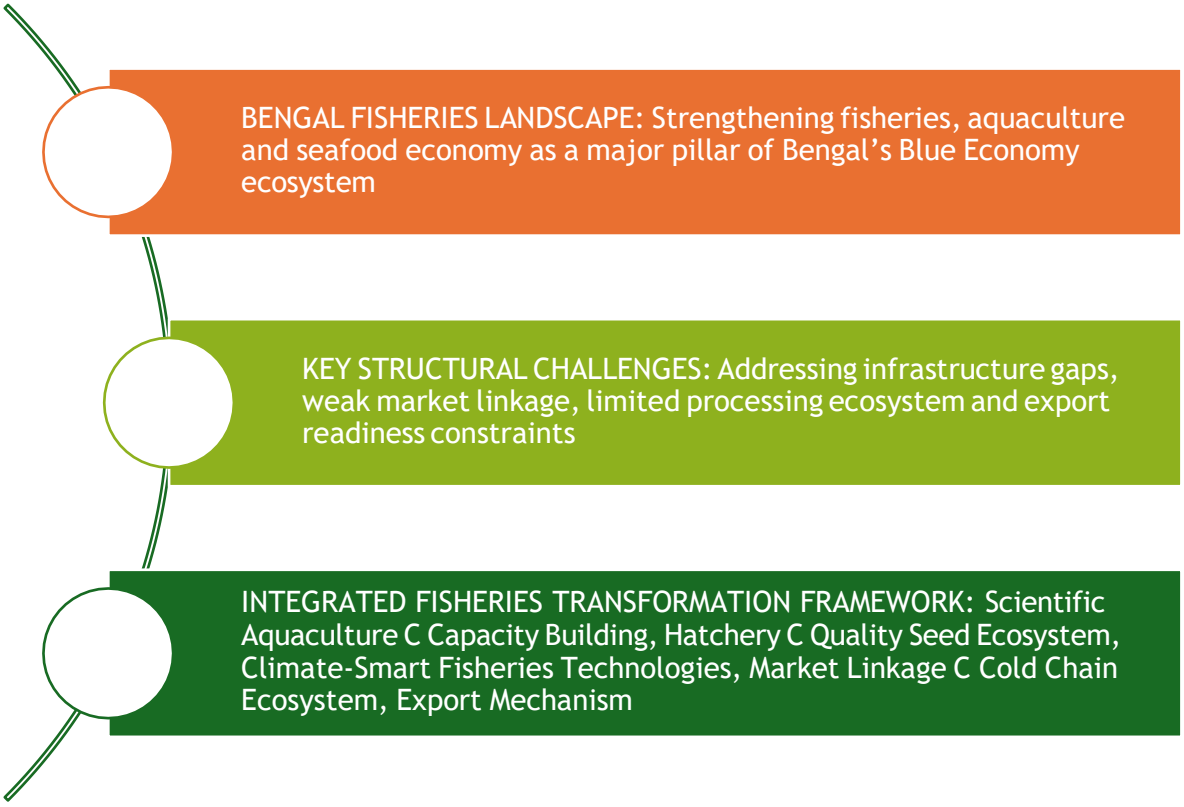
CONTENT

1. EXECUTIVE SUMMARY

West Bengal is among India's leading fish-producing states with strong inland fisheries, coastal aquaculture and seafood export potential. The sector plays a critical role in food security, rural livelihoods, employment generation and allied economic activity across the State. With extensive inland water resources, brackish water zones, Bay of Bengal coastline and strong domestic fish demand, Bengal possesses significant opportunities to emerge as a major Blue Economy and seafood export hub.

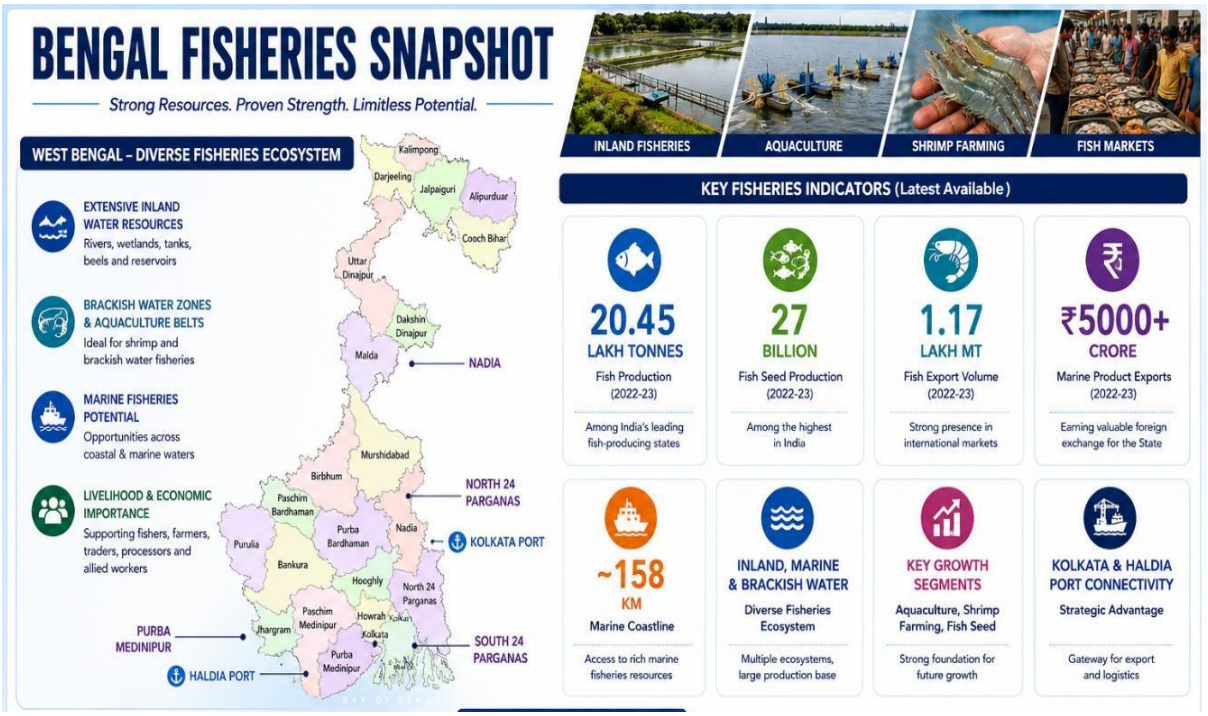
However, despite strong fisheries potential, several structural and infrastructure gaps continue to affect productivity, value addition, cold-chain integration, market access and export competitiveness across the fisheries ecosystem. Traditional aquaculture practices, fragmented market systems, limited processing infrastructure and weak logistics connectivity continue to constrain the sector's long-term economic potential.



2. BENGAL FISHERIES LANDSCAPE

West Bengal is among India's leading fish-producing states with strong inland fisheries, coastal aquaculture, and seafood export potential. The sector remains a major source of food security, livelihoods, rural employment, and allied economic activity across the State.

With extensive inland water resources, the Bay of Bengal coastline, brackish water zones, and strong domestic fish demand, Bengal possesses significant opportunities to emerge as a major Blue Economy and seafood export hub.



3. KEY CHALLENGES ACROSS BENGAL FISHERIES ECOSYSTEM

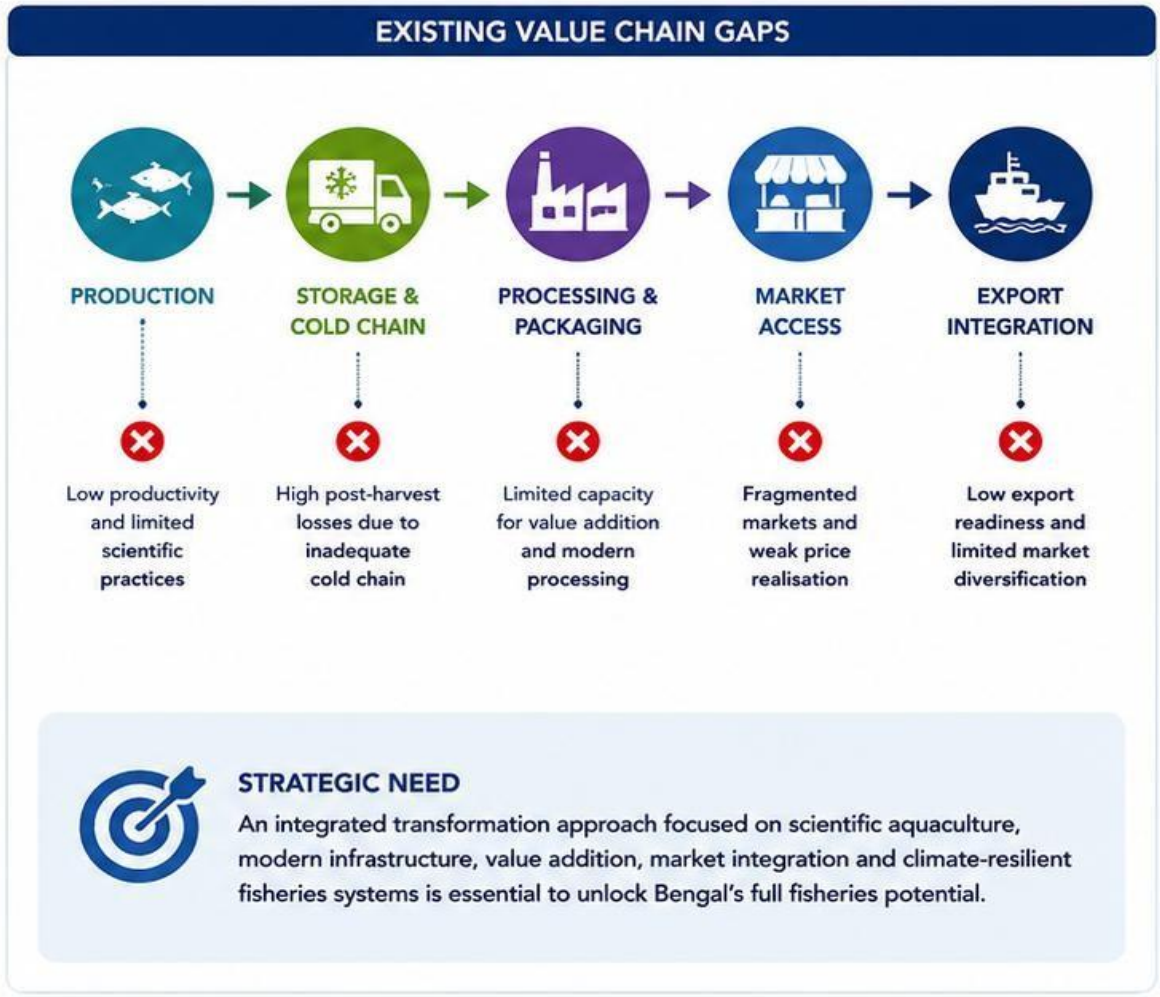
Despite strong fisheries potential, several structural and infrastructure gaps continue to affect productivity, value addition, market access, and export competitiveness across the fisheries sector in West Bengal.

Traditional farming practices, weak cold-chain systems, limited processing infrastructure, inconsistent seed quality, and fragmented market linkages continue to constrain the sector's full economic potential. Climate risks, disease outbreaks, and limited adoption of scientific aquaculture practices further increase vulnerabilities across coastal and inland fisheries systems.

3.1 Challenges

 **AQUACULTURE PRACTICES** Limited adoption of scientific fish farming and Best Management Practices	 **HATCHERY & SEED ECOSYSTEM** Inconsistent seed quality and limited hatchery modernisation
 **PROCESSING & VALUE ADDITION** Limited seafood processing and value-added infrastructure	 **INFRASTRUCTURE GAPS** Inadequate cold storage, ice plants and logistics network
 **MARKET LINKAGE CHALLENGES** Dependence on intermediaries, fragmented market systems and limited price realisation for fishers	 **EXPORT READINESS GAPS** Limited branding, traceability and export competitiveness

3.2 Existing Value Chain Gaps



4. INTEGRATED FISHERIES TRANSFORMATION FRAMEWORK

The proposed framework aims to transform West Bengal's fisheries sector into a modern, technology-driven, climate-resilient, market-linked, and export-oriented Blue Economy ecosystem by strengthening the complete fisheries value chain from production to processing, branding, logistics, commerce, and exports.

The framework focuses on scientific aquaculture, fisheries infrastructure modernisation, digital integration, processing ecosystems, market linkage, export readiness, and fisher income enhancement while positioning Bengal as a leading fisheries and seafood economy.

4.1 Scientific Aquaculture & Capacity Building

FOCUS AREAS	CAPACITY BUILDING ECOSYSTEM
• **Best Management Practices (BMPs)** • **Scientific Pond management** • **Water quality management** • **Disease prevention and biosecurity** • **Feed optimisation systems** • **Climate-resilient aquaculture practices** • **Fisheries entrepreneurship and digital literacy**	• Fisheries training centres and demonstration units • Exposure visits to leading aquaculture and seafood hubs in India • International best-practice exposure and technical collaboration • Industry-linked fisheries skill development programmes • SHG-led fisheries enterprise training

4.2 Hatchery & Quality Seed Ecosystem

FOCUS AREAS
• **Modern hatchery systems** • **Broodstock management** • **Nursery ecosystem strengthening** • **Quality fish seed production** • **Disease-free seed ecosystem** • **Localised fish seed supply systems**

4.3 Climate-Smart Fisheries Technologies

TECHNOLOGY	FUNCTION
Solar Aeration Systems	Maintains dissolved oxygen and reduces fish mortality
Solar Water Pump Systems	Supports water circulation and climate-resilient pond management
IoT Water Monitoring Systems	Real-time monitoring of pH, temperature and dissolved oxygen
Biofloc Aquaculture Systems	Water-efficient and high-density fish farming
Smart Advisory Systems	Real-time alerts, disease warnings and weather advisories

4.4 Integrated Digital Fisheries Platform

CORE FUNCTIONS	STRATEGIC BENEFITS
• Real-time fisheries advisories **• Disease and weather alerts** **• Digital market linkage** **• Fish price and demand information** **• Fisheries scheme integration** **• Insurance and financial linkage** **• Digital traceability systems** **• Online buyer-seller connectivity**	• Better decision-making for fishers • Faster response to climate and disease risks • Improved market access and price discovery • Stronger digital fisheries ecosystem

4.5 Fisheries Infrastructure, Market Linkage & Cold Chain Ecosystem

The framework proposes development of an integrated fisheries logistics and commerce ecosystem connecting fish farmers, traders, processors, retail markets, institutional buyers, and export channels.

STRATEGIC INTERVENTIONS

- **Integrated fish logistics and cold-chain corridor linking production clusters with Kolkata and Haldia**
- **Fisheries collection and aggregation hubs near major aquaculture districts**
- **Live fish transport and vending systems for urban markets**
- **Modern hygienic wholesale fish markets and retail fish hubs**
- **Bengal Fisheries Buyer–Seller Meets connecting fishers, processors and institutional buyers**
- **Bengal Fisheries & Seafood Conclave for investment and export promotion**
- **Direct linkage with hotels, restaurants, supermarkets and organised retail chains**
- **State fisheries e-commerce platform with locality-wise and fish variety-wise online marketplace**
- **Digital buyer-seller and bulk procurement platform for fisheries trade**
- **Fisheries logistics and delivery integration for urban fish commerce**
- **Reduction of intermediary dependency through direct farm-to-market systems**

4.6 Processing, Branding & Value Addition Ecosystem

The framework proposes transition from traditional raw fish trading towards a modern processing, branding, and value-added seafood economy.

FOCUS INTERVENTIONS

- **District-level fish processing and packaging hubs near major fisheries clusters**
- **Modern hygienic fish cutting, grading and packaging units**
- **Frozen, chilled and ready-to-cook Bengal fish product lines**
- **Bengal-origin seafood branding and retail packaging initiative**
- **Exposure visits to leading seafood processing hubs in India**
- **Technical partnerships with established seafood processing companies**
- **Women-led fish drying, packaging and processing enterprises**
- **Fisheries MSME clusters linked with cold-chain and logistics systems**
- **Retail linkage with hotels, supermarkets and organised fish retail chains**
- **Promotion of traditional Bengal fish products in modern packaged formats**

4.7 Export-Oriented Fisheries Ecosystem

The framework aims to position West Bengal as a leading seafood processing and export hub through export-oriented fisheries infrastructure, branding, traceability, and global market integration.

EXPORT INFRASTRUCTURE & SYSTEMS	EXPORT PROMOTION & MARKET ACCESS
• **Development of seafood processing and freezing hubs in coastal fisheries clusters** • **Integrated cold-chain connectivity from farm to port** • **District-level seafood aggregation, grading and packaging centres** • **Quality testing, traceability and certification support systems** • **Port-linked seafood logistics ecosystem around Haldia and Kolkata**	• Bengal Seafood Expo and international Buyer–Seller Meets • Participation in global seafood expos and trade fairs • Bengal seafood branding and packaging initiative • Export-focused fisheries investment summits • Market linkage with hotels, retail chains and international distributors

4.8 Expected Outcomes

Way Forward

5. CONCLUSION

The proposed framework is aligned with the Government of India's Blue Economy vision and NITI Aayog's strategy for technology-driven, sustainable, and export-oriented fisheries development focused on strengthening seafood exports, fisheries infrastructure, market integration, and globally competitive fisheries ecosystems.

Rejuvenating Bengal Fisheries therefore presents an opportunity to transform the State's fisheries sector into a modern, technology-driven, climate-resilient, and export-oriented Blue Economy ecosystem. Through scientific aquaculture, infrastructure modernisation, digital integration, processing and market reforms, the framework aims to strengthen fisher livelihoods, enhance seafood exports, promote rural industrialisation, and position West Bengal as a leading fisheries and seafood hub in India.

ROYAL EXCHANGE