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National Report on Strengthening Sustainable Aquatic Food Value Chains for Enhanced Food Security and Nutrition in Bangladesh

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Bangladesh

Bay of Bengal Programme Inter-Governmental Organisation

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National Report on Strengthening Sustainable Aquatic Food Value Chains for Enhanced Food Security and Nutrition in Bangladesh

Table of Contents

List of Figures

List of Tables

1. Introduction and Context

1.1. Overview of the country's demographic and economic profile (fisheries)

Bangladesh lies within the delta of three great rivers, the Ganges, the Brahmaputra (and Jamuna) and the Meghna covering an area of 14.4 million ha. In view of this important river system, inland fisheries and aquaculture are prime contributors to food security and employment[1]. Bangladesh's fisheries resources are mainly divided into two sub-groups: inland and marine fisheries. Inland fisheries are further divided into two as inland aquaculture and inland capture. Small-scale fisheries belong to both inland and marine capture. Fishers number 1.8 million, 1% of the total population. The country has a 3 306 km coastline and 39 868 km² EEZ. In 2020, the GDP per capita was USD 2 300, and the average GDP growth was 11.19%. GDP from fisheries is 2.92% and agricultural GDP from fisheries is 19.52%. The fish available for consumption is 26.0 kg/capita[2]. The sector achieved a 2.74% average growth rate in the last five years[3].

1.2. Key nutrition challenges (e.g., undernutrition, micronutrient deficiencies, and overweight/obesity).

Key nutrition challenges in Bangladesh include high rates of stunting and wasting among children under five, with significant regional disparities. Undernutrition is exacerbated by poor dietary diversity, with 70 percent of the diet comprising cereals, and inadequate protein and micronutrient intake. Poor sanitation and hygiene, which result in diarrhoea and other infectious diseases, also contribute to undernutrition. Poor maternal nutrition as well as gender inequality in decision making related to household production and consumption contribute to poor nutritional status of women and young children[4]. Another study[5] found that while the share of ever-married women aged 15–49 who were underweight declined sharply between 2007 and 2017–2018, the proportion of women who were overweight or obese increased.

1.3. Summary of the importance of aquatic foods in national diets and livelihoods

Fish and other aquatic foods are an important dietary staple in Bangladesh, and both capture fisheries and aquaculture contribute significantly to sustainable healthy diets and household income. Proximate, vitamin, mineral and fatty acid composition of 55 fish, shrimp and prawn species from inland capture, aquaculture and marine capture fisheries were evaluated. The study found that seven species for pregnant and lactating women (PLW) and six species for infants, all from inland capture, and all typically consumed whole with head and bones, could potentially contribute ≥25% of RNIs for three or more of these nutrients, simultaneously, from a standard portion, illustrating the diversity in nutrient content of fish species and in particular the rich nutrient composition of small indigenous species[6]. Other studies have also found that consumption of small indigenous species (SIS), is likely to promote a more all-inclusive nutrient intake[7]. There are 260 freshwater and 475 marine fish species in the country. About 12 exotic species are being cultured in the country[8].

2. Country Snapshot Table

Table 2.1: Country snapshot

Indicator	Year	Value	Source
Population	2023	171 million (2023)	WHO[9]
GDP per capita	2023	USD 2300	Globefish[10]
Fish production – Capture	2022	706 thousand tonnes (marine) 1322 thousand tonnes (inland)	FAO[11]
Fish production -- Aquaculture	2022	2.73 million tonnes	FAO[12]
Inland vs. Marine Share	2023-24	Inland Capture (28.13%) Inland Culture (59.34%) Marine Capture (12.53%)	Regional Workshop[13]
Top Capture Species	2022	Hilsa (Ilish), catfishes, shrimp/ prawns, bombay duck, and mola carplet,	Yearbook of Fisheries Statistics of Bangladesh[14]
Top Aquaculture Species	2022	Major carps (like Rohu, Catla, and Mrigal), exotic carps (such as Silver Carp and Common Carp), tilapia, and Pangas catfish	Yearbook of Fisheries Statistics of Bangladesh
Employment in Fisheries	2022	~17 million people	Yearbook of Fisheries Statistics of Bangladesh
Export Value	2023-24	USD 0.35 billion	Fisheries Department[15]
Import Value	2023	USD 0.3 billion	
Per-capita Fish Consumption		67.8 g/day	Regional Workshop[16]
Animal Protein from Fish	2021	~60%	Fisheries Department

Indicator	Year	Value	Source
Estimated Fish Loss & Waste	2022	20-45%	World Bank / FAO Estimates[17]
Women's Participation (Post-harvest)	2022	~60% ~1.4 million	Sector Reports[18]
Key Compliance Measures	Ongoing	HACCP, BMP, Anti-IUU Efforts	Govt. Reports
Major Environmental Risks	Ongoing	Overfishing, Pollution, Habitat Loss, Climate Change	National Reports[19]

3. Aquatic Food Production and Utilization

3.1. Trends in capture fisheries (inland and marine) and aquaculture

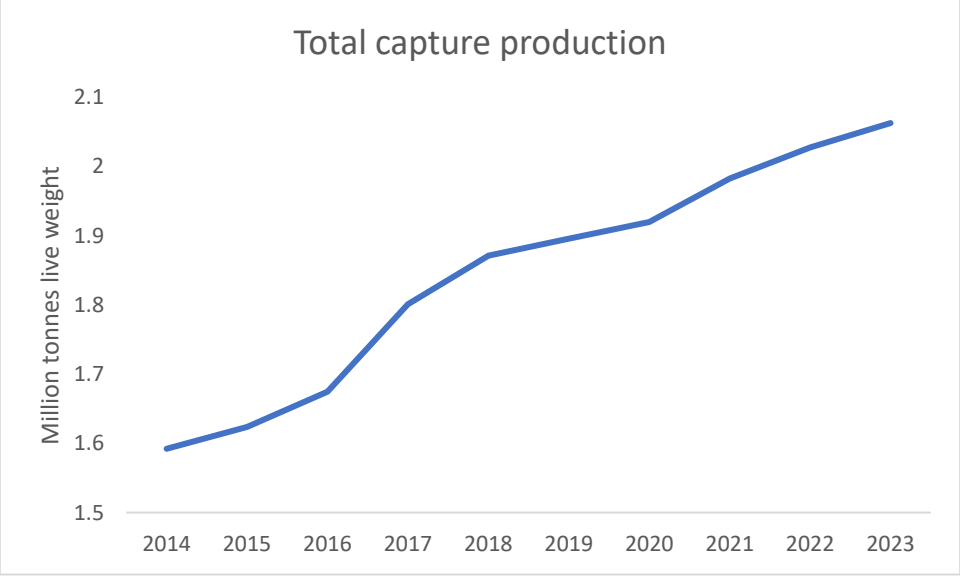


Figure 3.1: Trends in capture fisheries

Data Source: FishStatJ[20]

The top ten species and their production are presented in the figure below. It may be noted that the top four species contributed about 88% of the total catch in 2023.

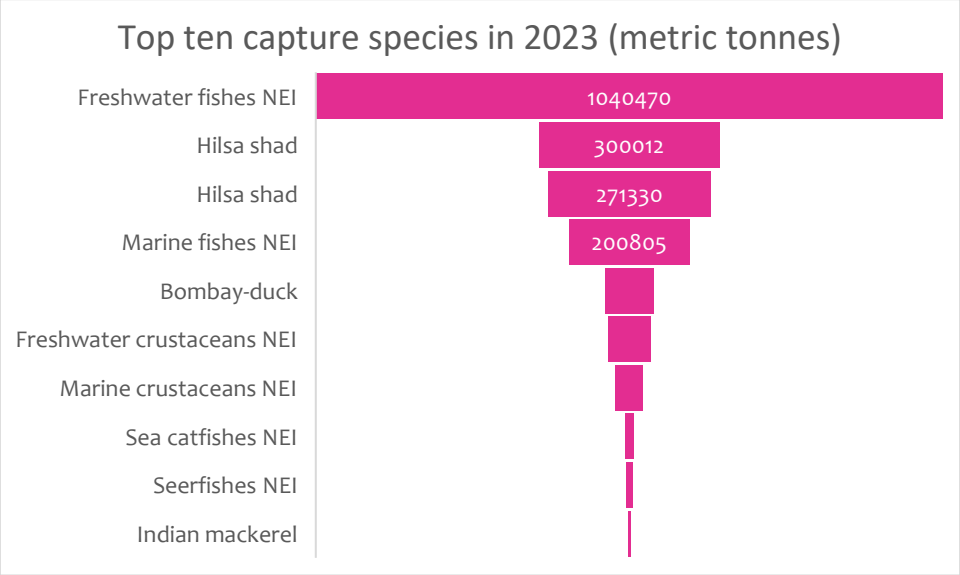


Figure 3.2: Top ten capture species in 2023

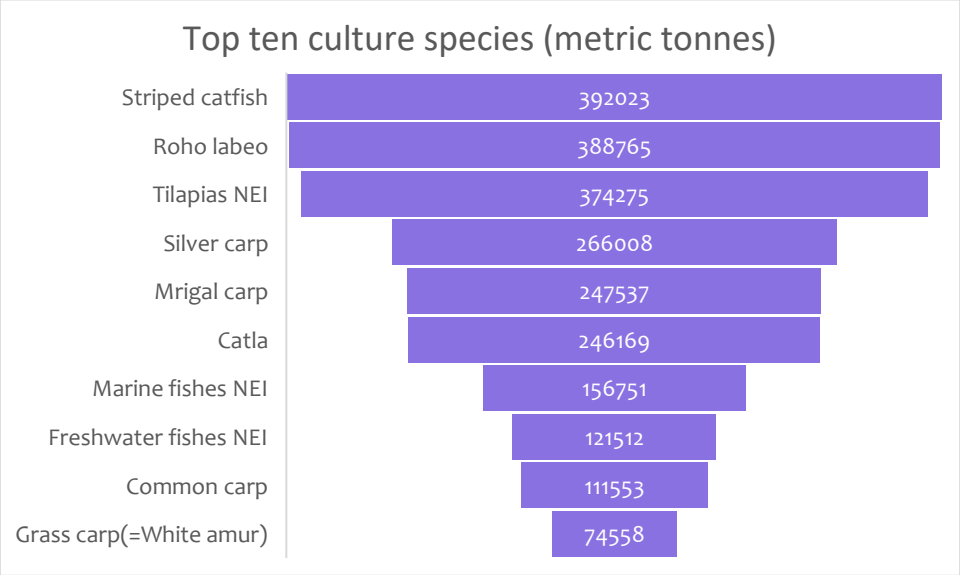


Figure 3.3: Top ten culture species in 2023

3.2. Main species and product forms

Trends: Aquaculture is dominant, producing 2.68 million tonnes (68% of total production), while capture fisheries contribute 1.28 million tonnes. Aquaculture is the primary growth engine of the sector.

Main Species & Product Forms:

- **Aquaculture:** Indian Major Carps (*Rohu, Catla, Mrigal*) and *Tilapia*[21] are staples for the domestic market.[22]
- **Capture:** ***Hilsa Shad*** is the national fish and a cultural icon. Various carp and catfish species are also important.[23]

- **Products:** The domestic market is dominated by fresh fish. Traditional dried and fermented fish (shutki) are significant for local consumption. For export, frozen shrimp is the key commodity.[24]
- **Bangladesh ranks as 3rd in Tilapia contribution to Asia and 4th in the world. It is the world's leading Hilsa producer.**

3.3. Major production zones and seasonal characteristics

- **Aquaculture:** Widespread across the country, with high concentrations in Mymensingh, Jessore, Satkhira, and Khulna.[25]
- **Capture:**
    - **Inland:** Major production areas include the haor basins (Sylhet), beels, and major rivers (Padma, Jamuna, Meghna). Production peaks during the monsoon (July–October).[26]
    - **Marine:** The Bay of Bengal.[27]
- **Seasonality:** A government-imposed seasonal ban on Hilsa fishing serves as a key management tool.[28]

3.4. Processing, preservation and domestic consumption practices

Processing: Traditional drying and fermentation methods are vital for preservation. Modern freezing techniques are primarily used for the export-oriented shrimp sector.

Domestic Consumption: Per capita consumption is 27.5 kg/year. Fish provides around 60% of the country's animal protein. Wet markets are the dominant retail channel.[29]

The figure below illustrates the Hilsa value chain in Bangladesh, beginning with fish harvested by fishermen and brought to landing centres for auction, where middlemen play a central role in distribution. From there, Hilsa moves either toward depots and processing plants for export or through paikars and wholesalers to reach distant market retailers. Ultimately, the fish is delivered to consumers through multiple interconnected channels that reflect both domestic and export-oriented trade flows.

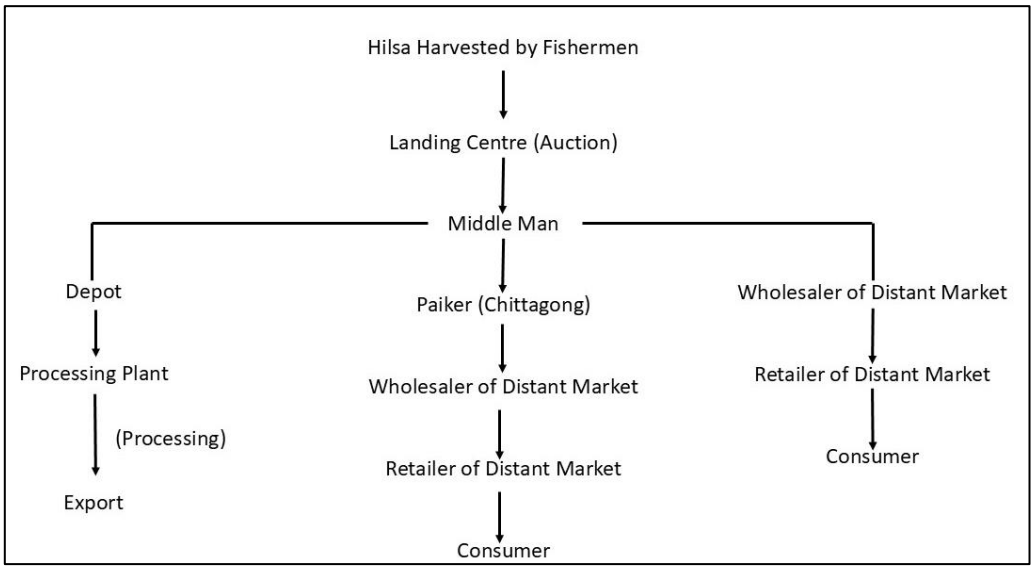


Figure 3.4: Hilsa Fishery Value Chain

4. Trade and Market Dynamics

4.1. Overview of fish exports (species, value, markets)

Exports[30]: Bangladesh's seafood exports were valued at approximately 4531.86 crore Taka (USD 0.35 billion) in 2023; 77407.94 metric tonnes by volume. Major export items of fish products are raw shrimp block frozen, IQF shrimp and white fish, PUD and P&D shrimp block frozen, consumer pack of raw frozen shrimp, chilled & frozen Hilsa, dry, salted and dehydrated fish, live fish, eel fish & crab and a little quantity of value-added fish and shrimp products. Production of Crab through fattening in 2023-24 was 10781.71 MT of which 7988.72 MT was exported by earning Tk 699.98 crore. DoF has three inspection and quality control stations located at Khulna, Chittagong and Dhaka facilitated with testing laboratories. DoF is entrusted with the responsibility to ensure the quality of the products as Competent Authority. During FY 2024–25, Bangladesh's fish and fisheries products earned BDT 4,496.38 crore, reflecting the continued significance of export-oriented aquaculture commodities.

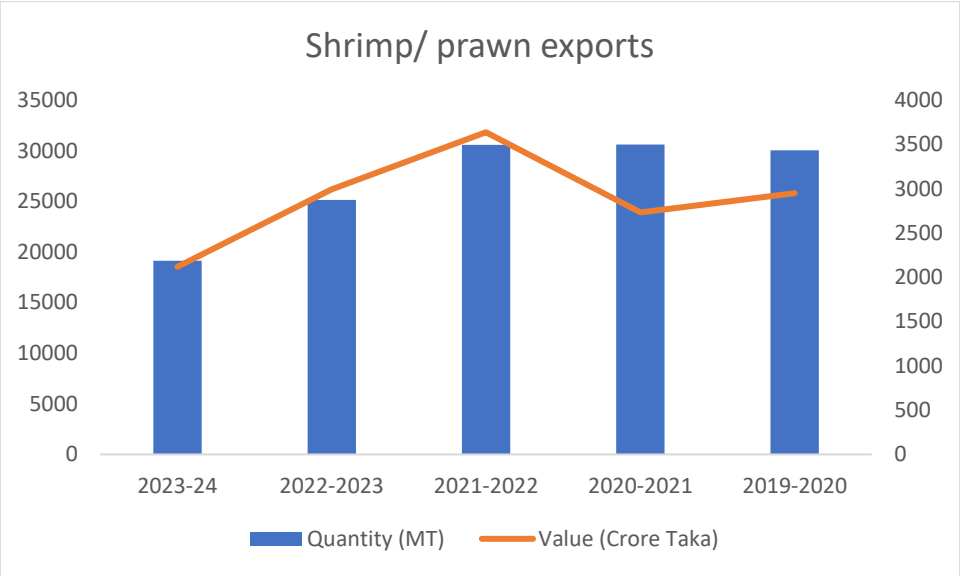


Figure 4.1: Shrimp/ prawn exports

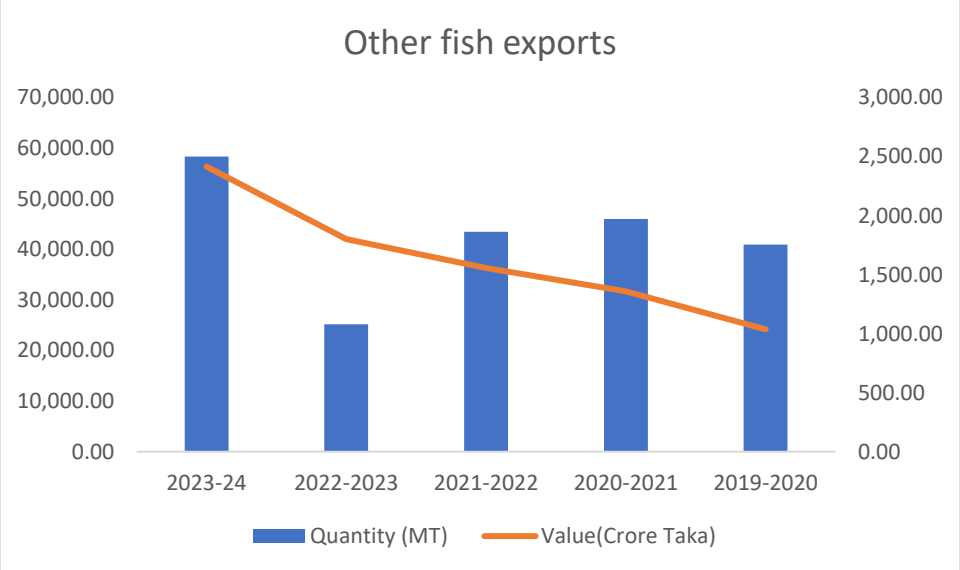


Figure 4.2: Other fish exports

Major importing countries are European countries, USA and Japan. About 98% of total fish products are exported to those countries. Remaining are exported to the countries in Southeast Asia and Middle East.

The following charts based on data from FishStatJ show the major export and import partners by volume.

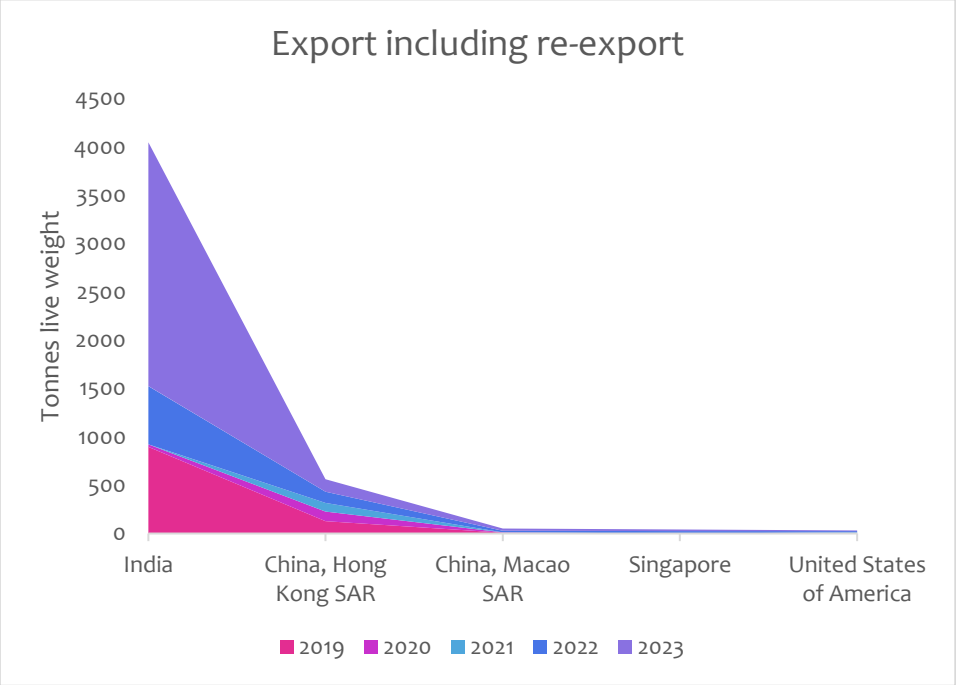


Figure 4.3: Top five export (including re-export) partners

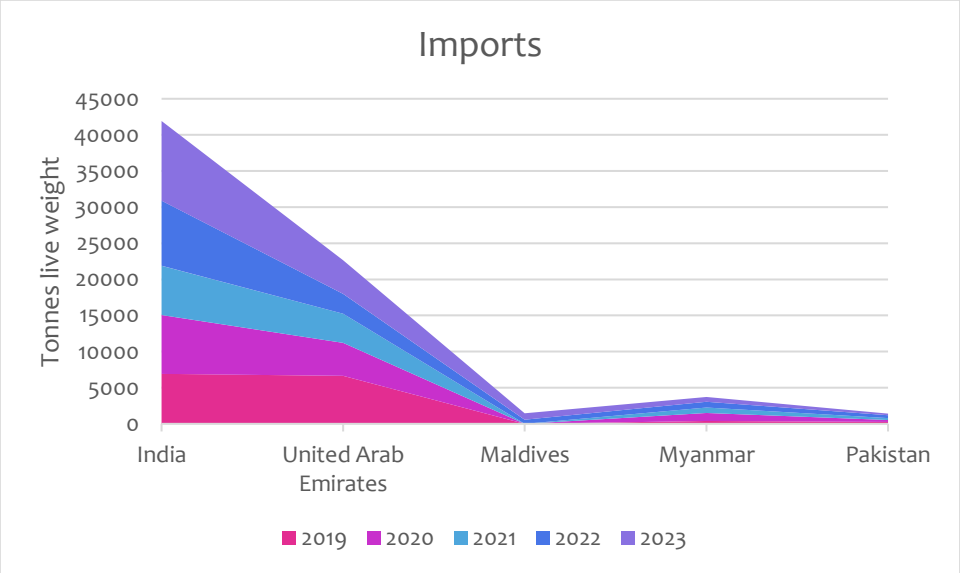


Figure 4.4: Top five import partners

4.2. Key import flows and their drivers

Import of certain fish types is permitted to fulfil the needs of specific groups of citizens, including foreign nationals residing in the country. Additionally, in response to market demand, some low-priced fish are also imported[31]. Most of the fish imported in the country is marine fish including sea catfish (magur, shing, etc), sardines, shad, or gizzard shad fish

Bangladesh's food balance for the five-year period 2015-2019 in tonnes live weight is presented in the following charts.

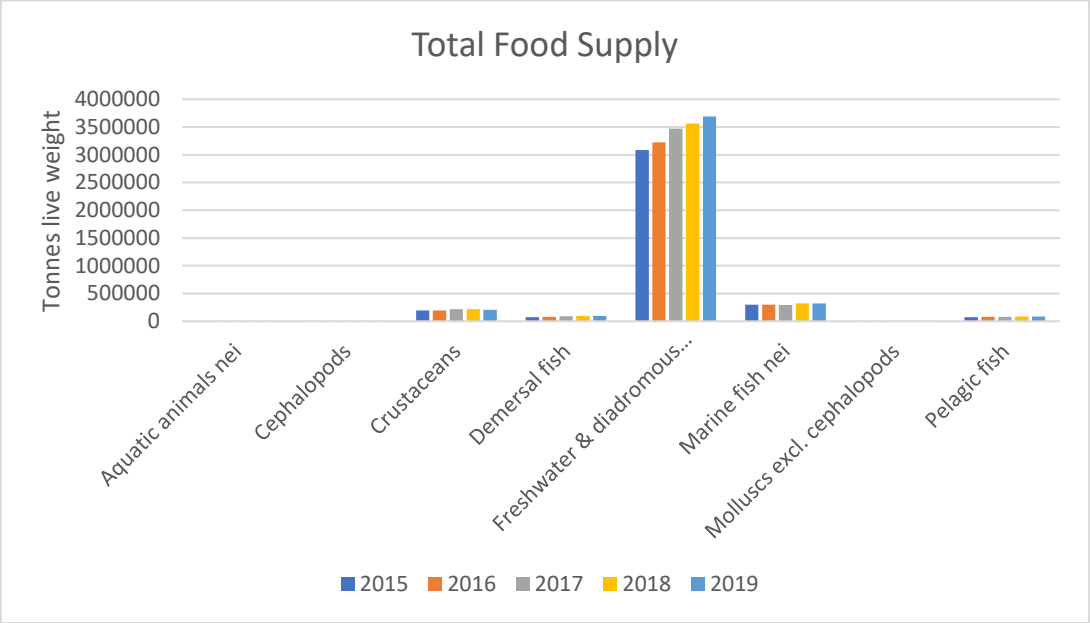
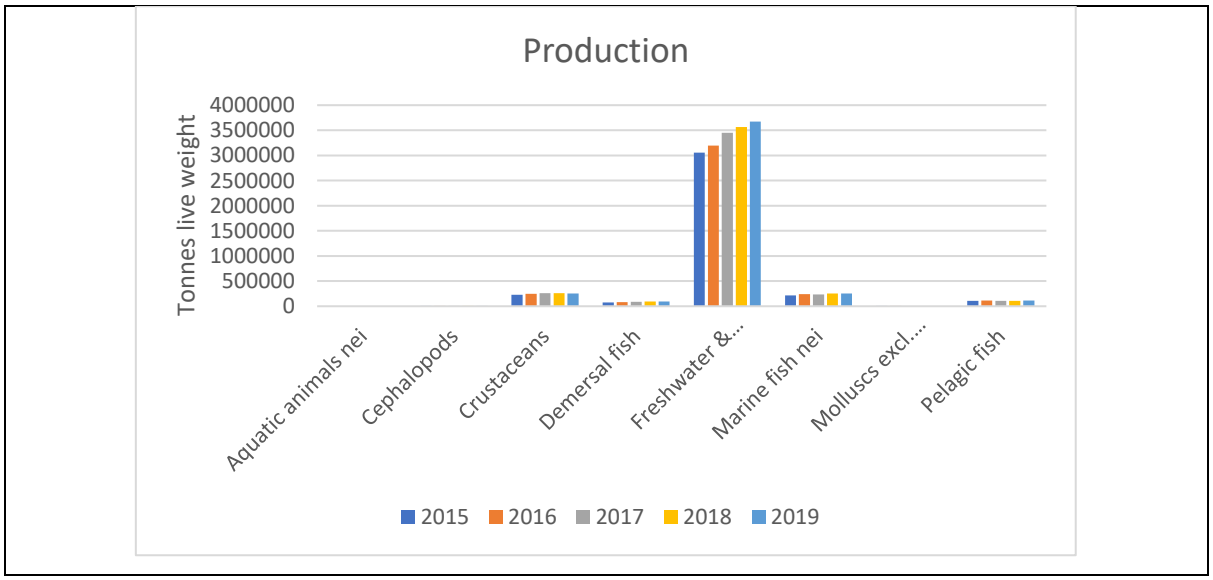


Figure 4.5: Bangladesh: Total Food Supply

Data Source: FishStatJ

The next three charts provide information on the production, export and import of aquatic products between 2015 and 2019.



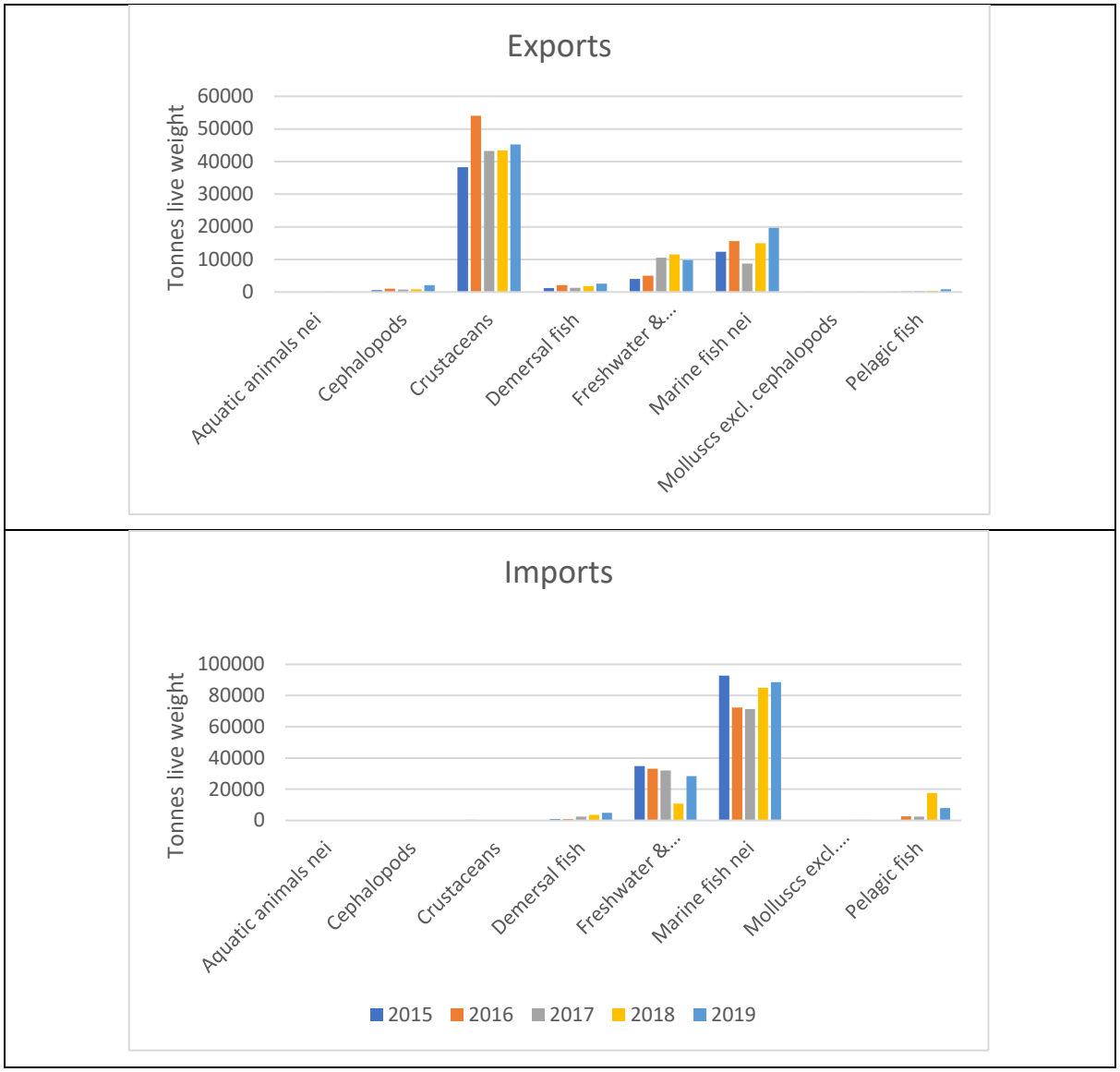


Figure 4.6: Bangladesh – food balance

Data Source: FishStatJ

4.3. The role of domestic markets in providing affordable fish to households

- **Domestic Markets:** The domestic market is the primary destination for the vast majority of fish production, with fish being an integral part of the daily diet.
    - **Wet Markets:** These are the dominant channel for fresh fish sales across the country.
    - **Processed Fish:** Traditional dried and fermented fish products are widely consumed and form an important part of the market. (Source: Industry Reports)

4.4. Barriers and opportunities (tariffs, non-tariff measures, certification, and traceability).

Barriers are meeting stringent international SPS standards, particularly for shrimp exports to the EU and US, is a major challenge. Traceability and certification requirements also pose hurdles.

In terms of opportunities, significant potential exists to increase shrimp production through improved aquaculture practices. There is also growing scope for domestic value addition and branding of indigenous species like Hilsa. (Source: OECD/FAO).

5. Nutritional Contribution of Fish

5.1. Fish's share in total protein intake

Protein Share: Fish is the single most important source of animal protein in Bangladesh, providing approximately 60% of the total intake. This is one of the highest shares globally. (Source: FAO, "The State of World Fisheries and Aquaculture (SOFIA) 2022")[32]

5.2. Key micronutrients supplied (Ca, Fe, Zn, I, Se, Vitamin A, Vitamin B12, DHA/EPA)

Key Micronutrients: Fish is a crucial source of essential micronutrients, vital for combating widespread deficiencies.

- Small Indigenous Species (SIS): Often consumed whole, these species are rich in calcium, iron, zinc, and vitamin A.
- Marine Species: Provide iodine and omega-3 fatty acids.
- Vitamins: An important dietary source of Vitamin B12 and Vitamin D. (Source: FAO)

5.3. Role of small fish species consumed whole

Fish consumption is dominated by wild small (length <25 cm) indigenous fish species (SIS). In the national nutrition survey conducted in rural Bangladesh in 1981–1982, average fish intake was 23 g raw fish/person/d. A study in 2003[33] argued that 'the value of fish in the Bangladeshi diet should not focus on the contribution made to protein, because protein recommendations in the typical diet are met provided that the energy recommendations are met. Rather, focus should be placed on the composition of the fish and the contribution of micronutrients, especially vitamin A and minerals, from the different types of fish species.' The table extracted from Roos et al., 2003 lists species with high vitamin A content; all are SIS.

Table 5.1: Categories of Bangladeshi fish species based on vitamin A content in edible parts[34]

	Vitamin A content RE/100 g raw edible parts	**Common name**	**Scientific Name**
1	Very High content (>1500	Mola	*Amblypharyngodon mola*
		Chanda	*Parambassis baculis*
2	High content (500-1500)	Dhela	*Osteobrama cotio cotio*
		Darkina	*Esomus danricus*
3	Medium content (100-500)	Chanda	*Parambassis ranga*

	Vitamin A content RE/100 g raw edible parts	Common name	Scientific Name
		Koi	*Anabas testudineus*
		Golsha tengra	*Mystus bleekeri*
		Chanda	*Chanda nama*
		Taki	*Channa punctata*
		Chela	*Chela cachius*

Much of the small indigenous fish (SIS) of Bangladesh are caught in floodplains and natural waterbodies. Small fish are eaten frequently in small amounts and are more equally distributed among family members than big fish of which men get the larger share. Unfortunately, overfishing and the deterioration of natural habitats have resulted in a decline in SIS[35].

5.4. Evidence from national nutrition surveys or literature

Evidence from National Surveys: According to the Bangladesh Household Income and Expenditure Survey (HIES, 2022)[36], average quantity of fish intake was 67.8g, up from 62.6 in 2016. Rural fish consumption was 67.7 and urban 68.2 Gram per capita per day in 2022. Urban fish consumption was 85.1 in 2010 and has fallen significantly in 2022. On the other hand, rural fish consumption has been rising from 59.4 in 2010 and 60.6 in 2016 to 67.7 in 2022.

6. Fish Loss and Waste (FLW)

6.1. The main points along the chain where losses occur (landing, transport, processing, retail)

Nearly a third of caught freshwater and marine fish in Bangladesh is lost before it reaches consumers. In addition to the physical loss, fish quality deteriorates by 15 percent. These losses are due to a variety of reasons, including inappropriate methods of fishing, poor equipment, improper handling, and lack of preservation facilities.

A study by Mandal et al., 2024 revealed that that physical, market, and monetary PHL in marine fisheries are 0.82 %, 6.41 %, and $228.52 per ton, respectively. Annually, the country loses approximately $151 million due to post-harvest losses (PHL) in marine fisheries, with the highest market losses in Snapper, Pomfret, and Hilsa fish. The main reasons for PHL include the duration of fish remain in the net after being caught, insufficient ice, lack of insulated containers and storage facilities, delayed marketing, and oversupply[37].

- **Loss Points:** Significant FLW occurs at multiple stages, particularly in the vast inland and artisanal sectors.[38]
    - **At-Harvest Handling:** Poor handling on fishing boats and immediate post-catch lack of icing.[39]
    - **Transport & Distribution:** Inefficient supply chains and major gaps in cold chain infrastructure, especially for inland fish.[40]

- **Market Level:** Spoilage at wholesale and retail markets due to lack of proper storage. (Source: World Bank/FAO Estimates)

6.2. Available estimates of quantity and value lost

Estimate: An estimated **20-30% of the total aquatic production** is lost or wasted annually. (Source: World Bank, 2020; FAO). Marine fisheries in Bangladesh incur an estimated **USD 150 million in annual post-harvest losses**, primarily due to spoilage, poor handling, and inadequate preservation systems along the value chain[41].

6.3. Causes (infrastructure, handling, storage)

Causes: The primary drivers are:

- **Lack of Cold Chain:** Minimal refrigeration from landing to consumer for the domestic market.[42]
- **Inefficient Handling:** Traditional practices leading to physical damage and spoilage.
- **Poor Infrastructure:** Inadequate landing centers, storage, and transport facilities.

6.4. Mitigation practices or innovations

- **Improved Handling Training:** Programs for fishers and traders.
- **Promotion of Low-Cost Technologies:** Insulated boxes, improved drying racks.
- **Investment in Infrastructure:** Developing ice plants and cold storage in key hubs.

The widespread adoption of **insulated ice boxes** has been shown to significantly reduce spoilage and extend fish shelf life, serving as an increasingly important national mitigation practice[43].

7. Socio-economic and Gender Dimensions

7.1. Employment generated by the sector (fisheries, aquaculture, post-harvest)

Employment: The sector is a massive source of livelihoods, supporting an estimated **18 million people** directly and indirectly through fishing, farming, processing, and trading. (Source: Department of Fisheries, 2022)[44]

7.2. The role of women in processing, trading, and marketing

Women's Role: Women are central to the post-harvest sector, constituting roughly **60% of the workforce**. They are predominant in:

- **Processing:** Fish drying, sorting, and ferrying.
- **Trading:** Operating small stalls in local markets.
- **Aquaculture:** Pond management, feeding, and harvesting in homestead and small-scale farms. (Source: FAO, "The Role of Women in the Seafood Industry," 2019)

7.3. Constraints faced by small-scale actors (e.g. access to finance, technology)

Small-scale fishers and farmers face significant challenges:

- **Access to Resources:** Declining access to common water bodies and fish seeds.[45]
- **Access to Finance:** Limited formal credit for inputs and equipment.[46]
- **Market Power:** Exploitation by intermediaries and unequal profit sharing.[47]
- Bangladeshi youth are increasingly engaging in hatchery operations, digital fish marketing, cold-chain innovation, and entrepreneurship, although barriers in access to finance and technology persist.

8. Sustainability and Resilience

8.1. Summary of stock status where available (overfishing, recovery, habitat pressures)

Stock Status: Many inland and coastal fish stocks are overexploited due to high fishing pressure, habitat destruction, and pollution. The government has implemented measures such as **seasonal bans (e.g., on Hilsa fishing) and sanctuary establishment** to aid stock recovery. (Source: FAO, SOFIA 2022; Department of Fisheries)

8.2. Environmental risks (pollution, waste, carbon intensity)

- The main risks are:
    - **Overfishing:** Depletion of key species, including the national fish, Hilsa.[48]
    - **Habitat Destruction:** Loss of floodplains and wetlands due to infrastructure, and degradation of rivers and canals from pollution.[49]
    - **Aquaculture Pollution:** Water quality issues from pond effluent and use of chemicals.

8.3. Climate risks and adaptation measures

- Bangladesh is extremely vulnerable to **flooding, cyclones, sea-level rise, and salinity intrusion**, which directly impact pond aquaculture, riverine fisheries, and coastal fishing communities.[50]

Marine capture fisheries show a concerning negative growth rate of –7.47%, reflecting the combined impacts of climate variability, declining stocks, and reduced fishing opportunities[51].

8.4. Resilience factors (diversification, community practices, and early warning systems).

- **Adaptation:** Measures include:
    - **Community-Based Management:** Involving local communities in fishery resource management.
    - **Climate-Resilient Aquaculture:** Promoting salt-tolerant species and integrated agriculture-aquaculture systems.
    - **Habitat Restoration:** Re-excavating canals and protecting wetlands.[52]

9. Governance and Policy Framework

9.1. Overview of national fisheries and aquaculture policies

Policies: The sector is managed by the **Department of Fisheries (DoF)** under the Ministry of Fisheries and Livestock. Key policies include the **National Fisheries Policy** and the **Fish and Fish Products (Inspection and Quality Control) Ordinance**. The government's focus is on **increasing production, ensuring food safety, and sustainable management**.[53]

9.2. Food safety and quality assurance systems

Food Safety: Regulated by the **DoF** and other relevant ministries. **HACCP** is mandatory for export-oriented processing plants. The country is working on strengthening its domestic food safety control systems.[54] There are100 fish processing plants in the country. Out of 107 plants European Commission has approved 77 plants. HACCP has already been introduced in fish processing establishments[55]. Bangladesh's Department of Fisheries operates a comprehensive export compliance system that includes product verification, laboratory testing, implementation of the National Residue Control Plan, and enforcement actions such as suspension or delisting of non-compliant establishments[56].

9.3. Participation in international agreements (e.g., WTO fisheries subsidies, PSMA, CITES)

Bangladesh is party to the PSMA (Port State Measures Agreement). It is not yet a party to the WTO Fisheries Subsidies agreement. It is a party to CITES.

Bangladesh is party to the following key conventions:

- Convention on Biological Diversity (CBD)
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar)
- United Nations Framework Convention on Climate Change (UNFCCC)
- Kyoto Protocol to the United Nations Framework Convention on Climate Change
- Paris Agreement
- United Nations Convention on the Law of the Sea (UNCLOS)
- United Nations Fish Stocks Agreement (UNFSA)

9.4. Institutional arrangements for managing value chains

Institutional arrangements for managing Bangladesh's fisheries value chains are complex, involving a mix of public, private, and civil society institutions, with the Ministry of Fisheries and Livestock (MoFL) and the Department of Fisheries (DoF) holding overall responsibility. Key arrangements include community-based management (CBM) for local resource governance, formal institutions like the DoF for policy implementation, and the role of various

private sector actors like middlemen (e.g., bepari/forsay, aratdars) and exporters in the value chain.

A study[57] showed that producers sold their fish at the fishery ghat or fish landing station or to the wholesale market (arat). Most of the producers usually were found to sell their products to beparies at the landing station and to some extent, inter-district aratdar and processing plant and agencies. In coastal and marine fish marketing, beparies were found to be the professional fish traders and they purchased fish from producers and sell their consignment to the retailers through aratdars or commission agents. Beparies are well organized and handle about 65% and 54% of frozen and dry fish produced respectively. About 70% of coastal and marine aquatic products is sold by auction through aratdar who facilitate sale of fish on commission. National efforts toward digital traceability include the expansion of QR-based catch documentation and decentralised verification mechanisms to strengthen compliance and transparency across supply chains[58].

10. Key Challenges and Opportunities

10.1. Most pressing constraints (production, markets, nutrition, gender, governance)

Table 10.1: Major constraints

	Segment	Constraints
1	Production	• Overfishing of Hilsa and decline of small indigenous species (SIS) due to habitat loss including conversion to aquaculture • Limited cold chain and post-harvest infrastructure incomes
2	Markets	• Shrimp exports face stringent SPS/traceability barriers in EU/US • Heavy reliance on a few export markets • Domestic wet markets lack hygiene and modern retail facilities
3	Nutrition	• Decline in SIS availability reduces micronutrient intake • Diets dominated by cereals, poor diversity • Urban fish consumption declining
4	Gender	• Women concentrated in low-paid, informal post-harvest roles • Limited access to finance, technology, and decision-making • Gender inequality in household food allocation
5	Governance	• Fragmented institutional arrangements across fisheries, trade, and nutrition • Weak enforcement of IUU fishing controls • Policy gaps in integrating FSN with fisheries

10.2. Promising opportunities or best practices that could be scaled up

Table 10.2: Opportunities

	Segment	Opportunities
1	Production	• Expand sustainable aquaculture, diversification • Promote ecosystem-based management for Hilsa and SIS recovery • Reduce post-harvest losses by investing in cold chain, insulated containers, and ice plants
2	Markets	• Upgrade domestic markets with hygienic infrastructure • Expand regional trade opportunities (South Asia, Middle East) • Strengthen certification for improved market shares
3	Nutrition	• Promote SIS in nutrition-sensitive aquaculture and floodplain management • Integrate fish into school feeding and maternal nutrition programs • Encourage value-added small fish products (powders, dried forms)
4	Gender	• Provide targeted credit and training for women entrepreneurs • Promote gender-sensitive extension services • Support women's cooperatives in processing and trading
5	Governance	• Strengthen inter-ministerial coordination (fisheries, health, trade, environment) • Align fisheries strategies with national FSN priorities and SDGs

11. Priority Policy Recommendations

11.1. Key actionable policy recommendations linking aquatic foods, value chains and Food Security and Nutrition (FSN - six dimensions)

Table 11.1: Key actionable policy recommendations

	Dimension	Recommended Actions	Rationale
1	Fish loss and waste (FLW)	• Establish cold chain corridors in inland and coastal hubs with ice plants, insulated boxes, and market-level cold storage • Mandate onboard icing and rapid landing protocols; incentivize	• Inland/artisanal chains face multi-stage loss; quality declines by ~15% due to poor handling and preservation • Insufficient ice, lack of insulated containers/storage, delayed marketing, oversupply.

	Dimension	Recommended Actions	Rationale
		adoption via fuel/ice vouchers • Standardize handling SOPs and training for artisanal fleets and traders; monitor with market inspectors	• Annual monetary losses and market losses concentrated in species like Hilsa, Pomfret, Snapper
2	Gender inclusion	• Create women-focused processing clusters (drying, sorting, retail kiosks) with hygienic infrastructure and childcare • Dedicated credit lines and asset grants for women entrepreneurs; bundle with technical training and market access • Integrate women's roles in nutrition-sensitive aquaculture and value-add of SIS (powders, dried, small packs)	• Women constitute ~60% of post-harvest workforce, often in informal, low-paid roles. • They have limited access to finance, technology, decision-making; • Gender inequality affects household nutrition
3	Compliance & trade readiness	• Upgrade plant-level HACCP, BMP, and digital traceability (lot-level to vessel/pond) to meet EU/US SPS standards • Strengthen Competent Authority capacity (testing labs, inspections) and expand approval of plants for premium markets • Diversify export markets and develop branding for Hilsa/SIS; promote value-added products beyond frozen shrimp • Strengthen national efforts to ensure "safe fish for all" and "sustained export markets" through	Shrimp exports face stringent SPS, traceability requirements; reliance on few markets. DoF operates labs and inspections; many plants approved for EU but domestic systems need strengthening Clear framing of national priorities helps align policy interventions toward food safety, consumer protection, and long-term export competitiveness.

	Dimension	Recommended Actions	Rationale
		improved value-chain governance, compliance systems, and market-driven quality enhancement.	
4	Environmental sustainability	• Scale ecosystem-based management (sanctuaries, floodplain restoration, gear regulation) for Hilsa/SIS recovery • Enforce anti-IUU measures and seasonal bans with social protection for affected fishers • Improve aquaculture effluent management; promote low-carbon inputs and integrated systems	Overfishing, habitat loss, pollution degrade inland/ coastal stocks; Seasonal bans and designation of sanctuaries used for supporting environmental sustainability There are pollution concerns from pond effluent and chemicals
5	Nutrition contribution	• Mainstream SIS in nutrition-sensitive aquaculture and floodplain management; protect access to natural SIS habitats • Public procurement for school feeding, maternal programs to include micronutrient-rich species (Mola, Darkina, Koi) • Consumer campaigns on nutrient density of small fish; promote safe dried/fermented small fish products	Fish provides ~60% of animal protein; SIS consumed whole deliver vitamin A, Ca, Fe, Zn. Declining SIS availability reduces micronutrient intake; rural consumption rising, urban declining
6	Climate resilience & readiness	• Invest in salinity-tolerant aquaculture, integrated rice–fish systems, and cyclone-	High vulnerability to floods, cyclones, sea-level rise, salinity intrusion in flood plain areas

	Dimension	Recommended Actions	Rationale
		resilient ponds/landing infrastructure • Expand early warning systems and climate risk insurance for fishers/farmers; climate-proof market logistics • Restore wetlands/canals to buffer floods, sustain inland fisheries	Community-based management, habitat restoration, integrated multitrophic systems may be effective

11.2. Recommendations (specific, feasible, and linked to national priorities)

Table 11.2: Recommendations linked to national policies/ programmes

	Dimension	Recommendation	National Policies/ programmes
1	Fish loss and waste (FLW)	Reduce fish loss and waste through improved post-harvest support	DoF Post-Harvest Loss Mitigation Programme; FAO/World Bank cold chain initiatives; Municipal wet market modernization[59]
2	Gender inclusion	Recognize and support women's roles, ensure improved nutrition and participation in fisheries	National Fisheries Policy (1998, updated)[60]; MoWCA Women's Economic Empowerment Schemes[61]; DoF gender-sensitive extension services[62]
3	Compliance & trade readiness	Strengthen Competent Authority capacity to improve compliance, diversify trade,	Fish & Fish Product Export Approval – Bangladesh Trade Portal[63] Bangladesh: Bangladesh Fisheries and Fisheries Inspection and Quality Control Act 2020
4	Environmental sustainability	Scale ecosystem-based management and sustainable aquaculture through integrated systems, mangrove afforestation	Bangladesh Marine Fisheries Management Plans
5	Nutrition contribution	Mainstream SIS in nutrition-sensitive aquaculture and	National Nutrition Policy[64]

	Dimension	Recommendation	National Policies/ programmes
		floodplain management, promote SIS consumption	
6	Climate resilience & readiness	Improved cyclone resilience, restoration of canals and flood plain barrier	The Bangladesh Climate Change Strategy and Action Plan (BCCSAP) (2009)[65]

12. Provide the traffic-light scoring for the six key dimensions

Table 12.1: Traffic Light Scoring for the Six key dimensions

	Dimension	Score	Colour	Rationale
1	Fish loss and waste (FLW)	1		High losses from inadequate cold chain and poor handling; quality declines and significant monetary/market losses persist
2	Gender inclusion	2		Strong participation in post-harvest but limited finance/technology and decision power; scalable programs feasible
3	Compliance & trade readiness	3		HACCP and labs exist; SPS/traceability gaps constrain EU/US market potential; upgrade and diversification underway
4	Environmental sustainability	1		Overfishing, habitat degradation, and pollution remain acute; sanctuaries/bans help but enforcement and restoration need scaling
5	Nutrition contribution	2		Fish central to diets; SIS are nutrient-dense yet declining access; policy levers can rapidly improve coverage
6	Climate resilience & readiness	2		High exposure to floods/cyclones/salinity; adaptation pathways identified but require investment and coordination

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