



## STRATEGIES FOR AN INCLUSIVE AQUACULTURE VALUE CHAIN IN BANGLADESH: ANALYSIS OF MARKET ACCESS, TRADE, AND CONSUMPTION PATTERNS

Fish is the most frequently consumed animal-source food in Bangladesh, though its intake considerably varies between different household groups. Over the last several decades, the share of aquaculture in overall fish production in the country has been rising, while that for capture fisheries has been declining. However, all farmers, fishers, and traders do not have similar access to key inputs. In addition, the COVID-19 pandemic has wreaked havoc on the aquaculture and fisheries sectors in the country. Additionally, Bangladesh is losing shrimp export competitiveness.

Therefore, the “Strategies for Inclusive Aquaculture Value Chain in Bangladesh: Analysis of Market Access, Trade, and Consumption Pattern” activity aimed to analyze the economic implications of increased aquaculture production in terms of food security and market access based on data obtained from a primary survey and secondary sources. The objectives were to (1) analyze the impacts of increased aquaculture production on food and nutritional security of different income groups in rural and urban areas disaggregated by fish species; (2) evaluate constraints in the aquaculture input markets influencing domestic market access for aquaculture producers; and (3) analyze the export market competitiveness of Bangladeshi shrimp.



Data collection. Photo by Md Emran Hossain

### IMPACTS OF INCREASED AQUACULTURE PRODUCTION

Analysis of the National Income Expenditure Survey Data from 2000 to 2016 revealed that fish consumption has increased over the studied period for every category of household—rural, urban, and all income quantiles. However, the lowest income quantile (i.e., the poorest households) has experienced the fastest growth in fish consumption. Cheaper, cultured fish species are in high demand by the lowest income quantile, whereas high-value, cultured, and captured fishes are mainly consumed by households in the upper-income quantile. The findings indicate that aquaculture is contributing to improving fish consumption patterns irrespective of income groups and the residential status of households, including the lowest income quantile. Conversely, with the limited availability of captured fish, there has been a notable rise in prices, hence impacting the accessibility and consumption of many nutritious, micronutrient-rich fish among the poorest households.

### CONSTRAINTS IN AQUACULTURE INPUT MARKETS

Results in relation to trade credit indicate that users are as technically efficient as non-users. Trade credit enables farms to use improved production technology with a positive trade-off between benefits and costs. Convenience, interest rate, collateral, documentation, number of suppliers, and revenues influence trade credit decisions. The trade credit supports farms' continuity and adoption of the best technology in the industry.

Among the price factors, increases in the price of corn, soybean, and oilcake as well as wage rates significantly increase fish prices in both the short and long term. Among the non-price drivers, GDP per capita, inflation rate, and fish



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consumption all have a significant positive influence on fish prices in the long run; however, increases in total production decrease fish prices in the long run. A higher feed price is a major constraint to aquaculture in Bangladesh, particularly for poor farmers. Policies aimed at promoting domestic production of key ingredients for fish feed have the potential to decrease import dependency, resulting in reduced production costs and lower fish prices.

The findings indicate that income and employment across the value chain were severely affected by the COVID-19 pandemic, with a drastic fall in the market demand coupled with a severe drop in fish consumption. As market demand declined, fish farmers had to extend the culture period, eventually increasing the cost of production. The price of all the major cultured and captured species declined and return to farmers decreased, while input prices increased significantly except for labor and fingerlings. The main obstacles facing the aquaculture industry during the COVID-19 pandemic included higher transportation costs, labor shortages, inability to pay wages, and reduced consumer demand.

## EXPORT MARKET COMPETITIVENESS OF BANGLADESHI SHRIMP

Bangladesh, China, India, Indonesia, Thailand, and Vietnam all have some degree of shrimp export competitiveness from 1990 to 2019, but China entirely lost its export competitiveness after 2004. Bangladesh's shrimp export competitiveness has dipped marginally in recent years, despite continuous growth in competitor countries. Economic globalization, institutional quality, trade openness, number of trade agreements, and trade freedom positively influence the long-run shrimp export competitiveness; the international or exporting price of shrimp has a detrimental influence both in the short and long run.

## CONCLUSIONS AND RECOMMENDATIONS

This activity was implemented in collaboration with related stakeholders in the country, including the Ministry of Planning of the Government of Bangladesh, the Bangladesh Fisheries Research Institute, and the Department of Fisheries. The activity ended with a day-long policy workshop, with more than 170 invited national and international participants and stakeholders from the relevant ministries, institutions, and organizations. Relevant government agencies have agreed to incorporate the activity's recommendations in various policy documents, including the National Fisheries Policy, which is being currently revised. These recommendations are:

- Technological advancement across the value chain (farm and processing levels) is needed for improving quality, taste, traceability, and acceptability of the popular fish species and fish products.
- Enhance capture fisheries, particularly for species enriched with micronutrients.
- Promote community-based fish farming in floodplains during the rainy season with the participation of all relevant stakeholders, including poorer households who used to capture small fishes from floodplains.
- Policies supporting more trade finance may improve access to more quality inputs and markets.
- Buffering stock strategy and domestic production for/of major feed ingredients may help reduce the cost of production of fish.
- Improving infrastructure is needed for value-added inbound and outbound logistics.
- Reducing financial and nonfinancial trade barriers and fish branding are important for increasing export of fish.

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## ABOUT THE FISH INNOVATION LAB

The Fish Innovation Lab supports the United States Agency for International Development's agricultural research and capacity building work under Feed the Future, the U.S. Government's global hunger and food security initiative. Mississippi State University is the program's management entity. The University of Rhode Island, Texas State University, Washington University in St. Louis, and RTI International serve as management partners.

[www.fishinnovationlab.msstate.edu](http://www.fishinnovationlab.msstate.edu)

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