

Role of aquaculture in nutrition

Fish is a crucial part of the Bangladesh diet. A popular local expression, "Mache Bhate Bangali"- "fish and rice make a Bengali"- accurately reflects people's strong cultural attachment to it. In addition to being a highly nutritious food source, fish is also important commercially and as source of income for rural households. The tradition of fish production and consumption has a strong impact on food and nutrition security, alleviating poverty and fostering livelihoods.

Fish consumption in Bangladesh

Fish remains by far the most important and frequently consumed animal source food in Bangladesh, although studies on fish consumption show considerable differences depending on location. The Household Income and Expenditure Survey (HIES) 2005–2010 data show that the per capita fish consumption in urban areas increased by 20.7 percent between the years 2005 and 2010 to 59.9 g/capita/day, considerably higher than the national average of 49.4 g, while in the same time period, consumption in rural areas increased only 15 percent to 45.7 g/capita/day, showing wide disparity between urban and rural areas (see figure 1). The national demand for fish¹ is calculated at 56 g/capita/day, uncovering a 14 percent deficit that needs to be addressed by an increase in production and other interventions along the value chain.

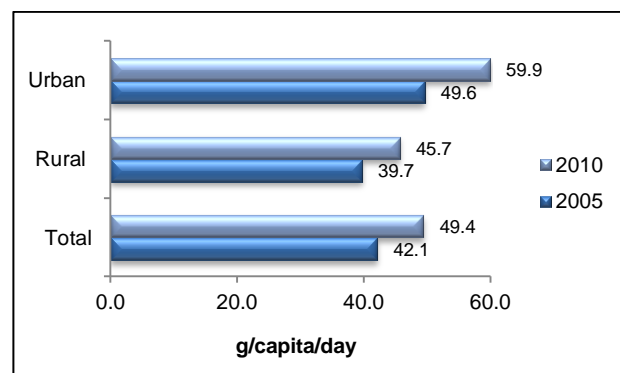


Figure 1: Trends in consumption of fish in urban and rural areas of Bangladesh

The imbalance between high levels of cereal intake combined with inadequate consumption of micronutrient-rich foods like fish, meat, fruits and vegetables is one of the direct causes of high prevalence of micronutrient deficiencies

¹The Fish Compendium, Department of Fisheries, 2013

in the population of Bangladesh. Fresh water capture fisheries are under tremendous pressure due to rapid human population growth, embankment constructions for flood control, and environmental changes caused by heavy investments in rice production, resulting in decreased availability and intake of indigenous fish species. Diets have replaced small fish with large fish, of which muscle are the only edible parts, having a detrimental effect on dietary micronutrient intake of the rural poor.



Photo courtesy: World Fish

Contribution of fish to nutrition

Fish is highly nutritious, tasty and easily digestible. Its protein quality and nutrient contents are comparable to meat and dairy products, although this depends on the methods used in preparation and preservation. Proteins contain significant amounts of essential amino acids which are limited in cereals. Fish is also a good source of B complex vitamins while marine fish as a high content of iodine and unsaturated fatty acids (omega 3) that are important for brain development and cognition in early months of life. In addition, fish enhances the bioavailability of iron and zinc.

Small indigenous fish such as *puti*, *chikna* and *baim ortaki* are habitually eaten in rural households



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of Bangladesh along with staples. If eaten whole (with heads, organs and bones), small fishes are a good source of calcium, and some are also particularly rich in vitamin A, zinc and bioavailable iron. Indeed, studies show that the bioavailability of calcium from small fish is as high as that from milk. Addition of oil, vegetables and spices in fish preparation can also improve dietary diversity and nutritional quality.

In addition to being a good source of nutrition, fish can also foster economic security by increasing income and generating employment for both men and women, leading to improved livelihoods.



Photo courtesy: FAO

Strategies to address micronutrient deficiencies in the diet with aquaculture component

Food-based strategies and interventions, which promote production and consumption of locally available nutritious foods as sustainable approaches for tackling micronutrient deficiencies, are part of the National Food Policy (NFP, 2006) objective 3, NFP Plan of Action (2008-2015), the Country Investment Plan (CIP, 2010-2015) program 10, and National Nutrition Services. The promotion of fish production and consumption is integral to these policies, in particular through extension and field programs geared towards the diversification of diets and nutrition-oriented training. Emphasis is placed on indigenous small fish to combat micronutrient malnutrition in the community.

Moreover, promoting post-harvest utilization and product development using simple processing and preservation technologies such as pickling, drying, fermenting, canning and powdering will not only add value to fish but also increase shelf life, thereby creating income generating opportunities and

increasing year-round availability and consumption at household level.

Nutrition education, accompanied by cooking demonstrations at community level on the improved use of fish recipes, can build capacities of local women and others to diversify family meals. Fish can also be utilized in complementary food for children under the age of 2. Awareness sessions on proper fish cooking and handling techniques are important elements of a behavioral change strategy to reduce nutrient losses.

On the supply side, improved management of wetland and seasonal floodplains can lead to increased fish production. In addition, investments in low cost technologies for production, management and conservation of fish must be promoted at both small and medium-scale level in order to improve availability, access and utilization of indigenous fish species for rural populations. A holistic approach of this kind is a prerequisite to increasing the nutritional and economic benefits of fish. Together, they can bring significant improvements in the lives of the people of Bangladesh.

Recipe from locally available ingredients:

Sutki Kathaler Torkari, 4 servings

- Dried small fish: 150 g
- Dried jack fruit seeds: 250 g
- Onion: 100 g
- Spices: Coriander leaves, garlic, red chilli powder, turmeric powder, salt - to taste
- Green chilli: 3 pcs
- Oil: 4 tsp
- Water to boil seeds 300 ml
- Lemon: 1 pc

Peel the white cover of jack fruit seeds, but not the brown cover, and chop finely. Wash dried small fish and chop finely. Peel, wash and cut onions, garlic and coriander leaves finely. Boil chopped jack fruit seeds for 10 minutes. Heat oil in a pan, add onion, garlic, chilly, and stir fry for 3 minutes. Add boiled jackfruit seeds and sauté for minutes. Add dried fish and stir well for 5 minutes. Add salt and lemon juice. Serve hot with rice or ruti or mashed boiled potato (Bhorta).

Nutritive value/serving: Energy 341 kcal; CHO 20 g; Protein 30 g; Fat 12 g; Vitamin A [RAE] 395 µg; Iron 8 mg; Calcium: 668 mg; Vitamin C 14 mg.



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