

Sustaining small-scale fishers and fish farming families in South Asia

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The fisheries sector constitutes an important economic activity in the maritime nations of South Asia. Its importance lies in creating millions of jobs in capture fisheries as well as fish farming (also referred to as aquaculture), ensuring food security and earning considerable amounts of foreign exchange.

The small-scale fishers and fish farming families of Bangladesh, India, Maldives and Sri Lanka are also members of the Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO). Bangladesh and India are coastal countries while Sri Lanka is an island and Maldives is a chain of atolls. As such the countries are considerably different in their abundance of fisheries and fish farming-related resources, communities and fishing and aquaculture practices. However, what binds them is the significant dependence on fisheries both to meet nutritional requirements and to ensure livelihoods.

The sector contributes on an average 1.5 per cent to 2.0 per cent of gross domestic product (GDP) in Bangladesh, India and Sri Lanka and about 5 per cent of GDP in Maldives. India and Bangladesh are also major global players in capture fisheries and aquaculture, ranking among the top 10 fishing nations in the world. These countries are also leading export-

ers of fisheries products, catering to major markets in Europe, the USA and Japan. Fish is a staple diet in Bangladesh and Maldives and highly favoured in Sri Lanka and India.

For a larger part of its history, fisheries in South Asia largely remain an activity that can be identified as subsistence and, to an extent, artisanal,¹ where the family plays a major role in harvesting and utilization of fishery resources. In these family enterprises, men are usually involved in harvesting and women in preparation and post-harvesting activities. With the expansion of markets and increasing demand, capture fisheries and fish farming are becoming increasingly commercial and market values are now well-enshrined in fisheries practices. However, in terms of their productive assets (fishing vessel or landholding), fisheries and fish farming activities in the region are still small-scale² in nature.

The fisheries production in South Asia (comprising both capture fisheries and aquaculture) now stands at about 12.9 million tonnes (2012), increasing from about 11.6 million tonnes in 2011. Both capture fisheries (8.25 per cent) and aquaculture (14.1 per cent) production has increased considerably during this period.

Marine capture fisheries

Marine capture fisheries form an important source of livelihoods along the coastline in South Asia. The region is host to



A Bangladesh women fish farmer showing a carp netted from the family pond

Image: Md Nahiduzzaman, Worldfish, Bangladesh



Ms Anarkali, a social worker and activist from the Bangladesh fisher-community

Image: S Jayaraj, BOBP-IGO

Fisheries production in South Asia (tonnes)

Country/year	Capture fisheries		Aquaculture		Totals		Change (%)
	2011	2012	2011	2012	2011	2012	
Bangladesh	1,600,918	1,535,715	1,523,759	1,726,066	3,124,677	3,261,781	4.39
India	4,311,132	4,862,861	3,677,584	4,213,917	7,988,716	9,076,778	13.62
Maldives	120,836	120,001	-	-	120,836	120,001	-0.69
Sri Lanka	428,204	475,799	1,1912	8,840	440,116	484,639	10.12
South Asia	6,463,101	6,996,388	5,215,266	5,950,835	11,676,356	12,945,211	10.87

Source: FAO Fisheries and Aquaculture Department, Statistics and Information Service, FishStatJ: Universal software for fishery statistical time series. Copyright 2011

one of the largest concentrations of small-scale fishers in the world. Presently, about 1.7 million people are actively fishing in the region (including the collection of fish seed, excluding fish marketing and other support activities). The number of active fisherfolk in the region has grown by about 1 per cent per year during 2003-2012. In Sri Lanka, the number of active fisherfolk has increased by 4.5 per cent per year during 2004-2012 and in India by 2.2 per cent during 2005-2010. In Bangladesh, the number of fisherfolk increased marginally from 0.51 million to 0.516 million. However, in Maldives, the number of active fisherfolk is decreasing gradually, possibly due to structural changes in the economy (increasing scope in the service sector) and changing demography (improvement in education and the younger generation seeking alternative livelihoods).

The available information on fishing craft in the region shows that fishing is carried out with the involvement of family labour, although over time there is a marked shift from non-powered fishing vessels to powered fishing vessels. However, the increasing use of power in fishing operations and therefore increasing capitalization of the fisheries is changing the way families conduct business.

Traditionally, in small-scale fisheries, fisher families were a complete production unit with full ownership of fishing craft and gear. But with increasing capitalization, ownership of craft is slowly going out of their hands. Increasing trade potential of fish and fish products in the region has also led to the emergence of fishing companies, especially in Maldives and Sri Lanka, where such companies are providing end-to-end solutions from harvesting to marketing.

However, presently the interest of the fishing companies is mostly limited to high value species such as tuna, which enjoys a large export market. The artisanal and small-scale fisheries continue to play an important role in coastal fisheries.

Fish farming

India and Bangladesh are the key fish farming nations in the region and also major global players. India ranks second to China in fish farming. Aquaculture contributes 75-80 per cent of production from inland sector (including brackish water) and about 46 per cent of total fisheries production. Indian major

Family farming

Family farming as defined by the Food and Agriculture Organization of the United Nations (FAO) is a means of organizing primary sector activities which is managed and operated by a family and predominantly reliant on family labour, including both women's and men's. This is also the major feature of artisanal and small-scale fisheries. Sustaining the small-scale fisheries has long been a major global agenda. It is not only important from a livelihood perspective, but various studies have also shown that negative impacts of fishing (such as discards) are much less in small-scale fisheries compared to their industrial counterparts.

carps and exotic carps (mainly Chinese carps) form the backbone of freshwater fish farming in the country. In brackish-water aquaculture, white leg shrimp (*Litopenaeus vannamei*), an exotic variety introduced from Latin America is now the dominant farmed species and the source of major export earnings from seafood. In India, both fresh and brackish-water aquaculture is small-scale in nature, comprising largely family enterprises with small pond holdings (<2.0 ha area) and low use of inputs.

Bangladesh is the fifth largest aquaculture producer in the world and the sector contributed about 55 per cent of the country's fish production during 2012.³ Fisheries and aquaculture play a major role in nutrition, employment and foreign exchange earnings. More than 16 million people are associated with the fisheries sector, of which 1.3 million women rely on fisheries-related activities, mainly in fish farming.

Developments in small-scale aquaculture are changing the features of rural Bangladesh. Feed and labour comprise the two most important components of the total operating cost for most aquaculture systems. A large number of rural women are involved in several aspects of aquaculture activities to minimize the total costs. In most homestead ponds, fish farming is associated with poultry, duckery and horticultural crops grown on the pond embankments to increase the per-hectare yield from the land holdings.

Women have started playing an important role in fish farming by adopting new technologies. They are engaged in production

Growth in the number of active fishers in South Asia

Country	Base year	Number	Latest year	Number	Growth
Bangladesh	2007	510,000	2011	516,000	0.3%
India	2005	901,815	2010	1,002,723	2.2%
Maldives	2003	14,891	2012	10,264	-3.5%
Sri Lanka	2004	132,600	2012	180,693	4.5%
South Asia	2003	1,547,019	2012	1,697,040	1.1%

Source: BOBP-IGO Annual Report, 2012/13

activities such as fingerling stocking, preparing and feeding fish, pond management through fertilization and liming, net making and repairing, fish harvesting and marketing, and fish drying. Children also help the family in their spare time. Recently, cage culture has been effectively introduced in Bangladesh and women are involved in raising fish in the cages.

In Sri Lanka, fish farming is now being promoted with the aim of doubling production from aquaculture sources, as only one-quarter of the area suitable for aquaculture is currently in use. Government-sponsored programmes aim at achieving this goal through sustainable aquaculture development, technology transfer, training programmes, food safety and quality, and environmental integrity. The land-based farming sector in Sri Lanka is also receiving increased attention. Traditional earthen pond farming of shrimp and finfish is slowly increasing, and families are now following a strict coastal zone management plan regulating the time for stocking and harvest in different farming regions. Stocking densities are steadily increasing with good environmental monitoring and control.

Involvement of families

In India, about 864,550 families are engaged in the marine fisheries sector according to the recent marine fisheries census (2010). This translates to a population of 3,999,214 and of this, 91 per cent are traditional fishers. In Sri Lanka, about 172,100 families are engaged in marine fisheries with a population of 825,200 in 2010. While information on the number of families engaged in Bangladesh and Maldives is not available, the total marine fisher population in Bangladesh is approximately 0.9 million and in Maldives about 14,000.

Fisheries census data from India shows that about 65 per cent of the total population is adult and about 41 per cent is employed. Comparing these two ratios, it can be said that nearly every able-bodied fisher family member participates in the production process. The same can be seen in other countries. As a unit, a fisher family participates in harvesting (male), unloading and auctioning (male and female), processing (female) and marketing (female and male). Although women are not much engaged in production, in some areas, they do collect seaweed and also operate push nets.

Marine capture fisheries being a high risk activity, accidents are common and in most cases the male members engaged in produc-

tion fall victim to such calamities. In such a scenario, women play a major role in providing for the families. For example, in the Indian scenario, the census shows that in 41,239 fisher families, only women are engaged in the fisheries sector. In Bangladesh, fisherwomen are also playing an important role in advocacy, especially in improving the safety at sea of their menfolk.

Apart from marine fisheries, large numbers of people are also engaged in inland fisheries and aquaculture. Especially in India and Bangladesh, where inland fisheries and aquaculture are at par with the marine fisheries sector, many families derive their livelihoods from these activities. However, specific information on families engaged in inland capture fisheries is sparse.

Sustaining family farming

Much like versatile fisheries resources, fishing practices in the region are also varied. With increasing capitalization, the role of family farming is waning while commercial enterprises are emerging. Although, in most places, nearly all eligible members of a fisher family participate in production (including distribution), they are now becoming labourers and implementing decisions, rather than being the owner-labour and decision-makers they once were. There is also a noticeable trend of in-migration to marine fisheries from other sectors for better returns. In such cases, the migrant enters marine fishery as an individual answerable to a particular company or owner of the fishing craft he is employed with.

As far as marine fisheries are concerned, the situation is like a cyclical trap. Increasing capitalization is leading to depletion of resources, especially in near-shore waters, and depleted resources are leading to the need to invest more to venture further into the sea, with efficient gear and better fishing vessels. For example, a study carried out in India shows that during 2000, non-mechanized (non-powered/artisanal) fishing vessels landed 7 per cent of the total landings of fish by employing 33 per cent of the workforce while the mechanized (trawlers, gillnetters, purse-seiner etc) landed 70 per cent of the total by employing 34 per cent of the workforce. The differences in landings reflect heavily on the fishers' incomes and while an artisanal fisherman earned about INR13,200 per year, a fisherman engaged in mechanized fishing earned in the tune of INR127,200 (INR60 = US\$1).⁴ Resultantly, people engaged in non-mechanized artisanal fisheries are increasingly moving towards mechanized fishing.

Ownership of fishing craft in India

Type of craft	Total	100% owned by fishers	Share (%)
Trawler	35,228	11,247	32
Gillnetter	20,257	16,642	82
Motorized	71,313	40,718	57
Non-mechanized	50,618	40,349	80

Source: CMFRI, 2010. Marine Fisheries Census, 2010. Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India

These changes have also led to a change from village-based production systems to harbour-based production systems. With increasing landings, distribution has become more organized. In areas where fishing companies are involved, they are taking care of all the post-harvest requirements and thus negating the role of fisherwomen in post-harvest activities. This is also the case with marketing, as local marketing is being replaced by marketing to distant city centres and more men, often from outside the sector, are carrying out marketing activities and gradually replacing the traditional women fish vendors.

Government measures

The fisheries sector receives assistance from the Government through various schemes and support programmes. However, of particular importance is the legal protection provided to artisanal fishers in the region. Fisheries come under the jurisdiction of provinces in India. The coastal provinces in India under the Marine Fishing Regulation Act have demarcated 3-5 nautical miles from the coastline for artisanal fishing. Trawlers and other mechanized fishing vessels are not allowed to fish in this zone. In Bangladesh, industrial trawlers are prohibited from fishing at less than 40 metres deep. In Maldives, protection is provided to reef fisheries.

Apart from legal support, the governments also provide monetary benefits to fishermen. However, such benefits are not particularly targeted to promote or sustain family farming, but are geared more towards improving income and welfare across the fisher population. In India, the Government provides support for improvement of fishing vessels including the purchase of outboard motors, improvement of housing conditions, incentives for educating children and support during fishing bans as well as insurance coverage. In Bangladesh, support is provided during the period when fishing is prohibited.⁵

International efforts

Sustainability of small-scale fisheries is an important international agenda. The 1995 Code of Conduct for Responsible Fisheries of the Food and Agriculture Organization (FAO) of the United Nations and its Technical Guidelines highlight the importance of the small-scale fisheries sector and emphasize increasing contributions from this sector. The code also suggests a pro-small-scale fisheries stance if there is a conflict between the small-scale fisheries and others. However, the problem in defin-

Meeting family aspirations

Mahbub Mridha (52) is a small farmer living in Alampur village with his wife Selina and two school-going daughters. A decade back, Mahbub owned a small pond where he started fish farming to meet the daily requirements of his family. With good farming techniques, he was able to sell part of the fish harvested after meeting his family's requirements. This success encouraged Mahbub and his family to undertake fish farming on a commercial basis. He constructed another, larger pond with technical assistance from the Department of Fisheries and adopted an integrated model where agricultural and animal wastes are used as manure in the fish pond, thus cutting operational costs. Selina assists him in pond management and fish husbandry works and their daughters help out after school hours. This diversification of livelihood has helped the family to improve their income and savings, ensuring better education for their daughters. As immediate needs are met, the children are now planning to pursue university degrees, something their parents could not afford.



A Sri Lankan fisher couple preparing for a fishing trip

ing small-scale fisheries in legally acceptable terms is a major obstacle in targeting the sector. FAO has also recently published the International Voluntary Guidelines on Securing Sustainable Small-scale Fisheries, accepting that countries should form their own definitions of small-scale fisheries and should follow a human rights-based approach to the sector's development.

Family farming and its manifestation in the fisheries sector, artisanal and small-scale fishing and fish farming is the link between the past, when institutions and opportunities in use of resources were quite different, and the present, when markets have become interconnected and a globalized society has emerged. Therefore, to survive in this new society, artisanal and small-scale fishing and fish farming families need to change. The challenge now lies in identifying the core value of small-scale fisheries, such as equitable access to resources and distribution of benefits, and empowering the sector to pursue these values in the changed environment. Both state and non-state actors need to play a major role in this regard. The FAO Guidelines on Small-scale Fisheries provide a general direction on the possible role of different stakeholders and the same could be adopted based on national priorities to realize the full potential of the small-scale sector.