

Fisheries development over five year plans

Expected learning outcome

- Marine fisheries development: Overview in India and state
- Marine Fishing Policy, 2004
- Financial/economic and marketing issues

Sectoral Growth

The most important economic criteria used for assessing the economic importance of various sectors is their contribution to GDP of the country and generation of employment in the country (FAO 1999). Fishing is considered under the agriculture. The contribution of primary sector, secondary sector and tertiary sector to the state Gross Domestic product (at constant 1999-2000 price) and employment generation between 1999-2000 and 2008-09 are presented in Table 3.1.

Table 3.1 Sectoral income and employment of the state

Sector	Income				Employment	
	1999-2000		2008-09		1990-2000	2008-09
	Rs.(in crores)	Per cent	Rs.(in crores)	Per cent	Per cent	Per cent
Primary	3171469	31.32	3024000	16.67	67	58
Secondary	2366515	23.37	5243419	28.92	13	16
Tertiary	4587760	45.31	9866400	54.41	20	25
Total	10124744	100	18133819	100	100	100

Source: 1.National Accounts Division. (2009). State domestic products aggregate 1990-2000 series Retrieved June 10, 2010, http://mospi.nic.in/national_account_main.htm

Table 1 shows that share of primary sector to state domestic product has decreased substantially (around 50 per cent), and that of secondary sector increased marginally and share of service sector grew significantly. But the share of employment was not in tune with the share in GDP. The primary sector provided employment to 67 per cent in 2000 and decreased to 58 per cent in 2009 which indicates the decline in the real income of the people employed in the primary sector. This trend is in line with national trend and explains the vulnerable status of households in the primary sector.

While the share of service sector increased by 10 per cent, the employment increased by only 5 per cent indicating that, the rate of growth of income in service sector was much higher than employment.

Marine fisheries: Contributions to state economy

Fisheries are a sunrise sector of our country. At present, it emerged as an important commercial activity from its traditional role as subsistence supplementary activity. The economic importance of the fisheries sector to the economy may be identified under three main areas: (1) as a source of animal protein for human consumption (2) as a source of income employment, and (3) as a source of foreign exchange earnings.

Source of animal protein for human consumption: Fisheries is being considered as 'rich food for poor people' and cheapest protein to the poor across the world. Small fish are especially important for consumers, as they can be purchased in small quantities at low cost. It plays a vital role in addressing nutritional security and food security of poor coastal and inland population through its richness in micronutrition (Satia & Jallow 2010). According to the study of National Sample Survey Organisation (NSSO) (64th round 2007-2008) on food habits of the people, in India 62.5 per cent of rural and 59.4 per cent urban households consume fish, meat or egg. Between 1987-88 and 1990-2000, the proportion of households consuming one of the three items has increased by 4 per cent in rural areas and 1 per cent in urban areas. This reveals that fish plays an important role in meeting the protein requirement in the country. In India, as per 9th plan document per capita fish consumption is 9 kg/ annum based on an estimate that 56 per cent are fish eaters. Between 1998 and 2008 the per capita cereal consumption declined from 12.5 kg to 11.7 kg in rural areas and from 10.4 kg to 9.7 kg in urban areas. This may reveal that there is a diversification of food basket in favour of non-cereal foods like fish, meat and eggs. Almost 56 per cent of world population derives nearly 20 percent or more of their animal protein from fish (FAO 2007). The average global per capita fish supply is 16.5 kg. but with large difference across regions and countries as well as within countries (FAO 2007). Unlike other animal food like meat, egg, and pork fishes are available at wide range of price tags, making it accessible to the poor people. In India for every 1000 households, 149 houses in rural and 156 houses in urban areas consume fish (GOI 2008). In Karnataka the per capita monthly expenditure on meat, fish and eggs in rural area has increased from Rs. 21.18 in 2001 to 29.51 in 2008 and for urban areas for the corresponding period it increased from 31.85 to Rs. 42.67 (NSSO 2001, 2008). Fish contains 60 per cent of first class protein on a dry matter basis, along with fat, calcium, phosphorus and other nutrients needed for healthy human life (Josupeit 1981). Fish also contributes fatty acids that are necessary for the proper development of the brain and body (Kurien 2005). Fish is second in importance among the nutritious food, after egg with protein efficiency ratio of 3.5.

Source of Income and employment: Fisheries sector contributes significantly as a source of employment to the primary sector of the nation. Globally, fishing and fish farming activities provided livelihood to an estimated 41 million people in 2004, working either on a part time or full time basis. Applying an assumed ratio of 1:3 for direct employment (production) and secondary activities (postharvest processing, marketing, and distribution) respectively about 123 million people are

estimated to be in secondary activities, and a high proportion of these workers are women (FAO 2007). According to live stock census 2003, fisheries gives source of livelihood for over 14.49 million people, of which 4.70 million were males, 4.03 million females and 5.67 million children below 14 years of age. The total number of fishermen engaged in the actual operation of fishing was about 2.01 million of whom 0.093million were full-time fishermen and 1.07 million part-time fishermen (GOI 2008). According to the 2005 Marine Fisheries Census (CMFRI 2005), the total population of marine fishers in the country is 3.52 million, living in 756,212 households in 3,202 fishing villages along the coast, or nearly 25 percent of the total number of fishers in India. Of this total, over 9,00,000 are recorded as active fishers, 1.0 million as part time fishers while 1.4 million fell into the category of 'others'. The Karnataka state accounts for 5.3 percent (7.67 lakh) of the total fishermen population of the country. Out of the total fishermen, share of marine sector is 35.96 percent (2.75 lakh). Of these, active fishermen numbered 1,41,720 constituting 54.81 per cent of the total (GOK 2009). Besides active marine fishermen, the fisheries sector also offers employment to a large number of post harvest workers viz. women fish vendors, cycle/M-80 fish vendors, fish merchants, export processing plant workers, pre processing plant workers, head loaders, etc. But there is a dearth of information on the distribution of labour force in different subsectors. The marine fisheries sector is also an important source of revenue often contributing to regional growth. The contribution of fishing industry to the development of the economy may be measured in terms of its contribution to Gross Domestic Product (GDP)/ Net Domestic Product (NDP). The contribution of fisheries to the national income is estimated at Rs. 35,650 crores at 2007-08 current prices, which constitutes 1.1 per cent of total GDP and 5.34 percent of the agricultural GDP (GOI 2008). Table 3.2 presents the contribution of fisheries to GSDP and NSDP.

Table 3.2 Contribution of fisheries to Karnataka's Economy (Rs. in lakhs) at constant price (1999-2000 as base year)

Year	GSDP of fishing industry (Rs.)	GSDP (%) of fishing to total GSDP of Karnataka	NSDP of fishing industry	NSDP (%) of fishing to total NSDP of Karnataka
1999-2000	59648	0.58	53766	0.59
2000-2001	61437	0.60	55421	0.60
2001-2002	54316	0.51	48058	0.52
2002-2003	58355	0.53	50244	0.51
2003-2004	52964	0.46	45492	0.46
2004-2005	53366	0.43	44320	0.40

2005-2006	64691	0.45	53401	0.43
2006-2007	61152	0.40	48483	0.36
2007-2008	61119	0.35	46902	0.31
2008-2009	65100	0.36	49146	0.31

Source: National Accounts Division. (2009). State domestic product aggregate 1990-2000 series http://mospi.nic.in/national_account_main.htm.

It is apparent from Table 3.2 that the contribution of fisheries to the state GDP and NDP at constant price 1999-2000 has been meager 0.36 per cent and 0.31 per cent respectively in 2008-09. The Gross GDP from the fisheries sector increased from Rs. 59,648 lakhs in 1999-2000 to Rs. 65,100 lakhs in 2008-2009 at constant 1999-2000 price and for the corresponding period it increased from Rs. 59,648 lakh to Rs. 94,491 lakh at current price (GOK 2009).

Source of foreign exchange earnings: The state's contribution to the national marine fish production varied from 13 per cent to 5 per cent annually during 1980-2009 and contributes around 5 per cent of the India's seafood exports and ranks 6th in fish export (GOI 2008). In the year 2008-09, India exported 6, 02,835 tons of marine products valued Rs. 8,607.94 cores, representing 1.1 per cent of the total exports of the country. India contributes five per cent of the global fish products trade. There has been a steady increase in exports by volume and value realization since the 1960s in the nation. From 2002 to 2009, export volumes and value showed modest gains (MPEDA 2010). The State marine fish export accounted 33,000 metric tons, valued Rs. 26,400 lakh in 2008-09 (GOK 2009). Table 3.3 presents the details of fish exports in India and Karnataka.

Table 3.3 Foreign exchange earnings of fish and fishery products in Karnataka (Rs. Crores)

Details	1980-81	1985-86	1990-91	1995-96	2000-01	2005-06	2008-09
India (Rs. Crores)	234.84	398.00	893.37	3501.11	6443.89	7245.30	8607.94
Total marine fish export in India (Quantity in ,000 tons)	75.59	83.65	139.41	296.27	440.47	512.16	602.84

Source: GOI (2009). Handbook on Fisheries Statistics. New Delhi: Ministry of Agriculture.

Development of marine fisheries during Five Year Plans

Coastal fisheries are a state subject under the Indian Constitution and coastal states have played a variety of roles in developing fisheries and post harvest sector. Though it is a state subject the central government continues to support fisheries by providing more capital intensive infrastructure

investments for areas such as fishing harbours and deep sea fisheries (Bhatta 2003). Many centrally sponsored schemes are implemented by the states. The contribution of fisheries to national gross domestic product (at current prices) increased from 18,939 crore in 1999-2000 to 35,650 crore in 2007-2008 (GOI 2008). The study of investments made by the central government during five year plans shows that that central government expenditure on fisheries increased from Rs. 2.78 crore during first five year plan (1950-1955) to Rs. 1414.41 crore during ninth plan (1997-2002). The state government also enhanced the investment from Rs. 0.30 crore in the First Five Year Plan to 1692.5 crore in X Five Year Plan (GOK 2009)

Planned programme for the integrated development of fisheries in the country initiated from second year of second National Five Year Plan. In respect of marine fisheries development, in the first two Five Year Plan period (1951-56 and 1956-67) importance was given to introduction of mechanized boats, improvement of infrastructure facilities for preservation, processing, storage and transportation of fish and fishery products, landing and berthing of crafts and organizing multipurpose fisheries co-operative societies (GOI 1956). In the third Five Year Plan (1961-66) and in succeeding three annual plans (1966-67 to 1968-69) an emphasis was given to encourage export trade in fish and fishery products together with the programmes towards development of fisheries education and research institutes. During fourth plan period (1969-74) measures were taken to strengthen the infrastructure facilities by constructing fishing harbours at major and minor ports and in further expansion of export trade coupled with the objective of improvement in the economic conditions of the fishermen (GOI 1969). Fifth (1974-79) and Sixth (1980-85) Five Year Plans provided for motorisation of artisanal craft, introduction of purse-seines, development of diversified fishery products, encouragement to deep sea fishing through licensing. The declaration of 200 miles as exclusive Economic Zone (EEZ) in the year (1977) was an historic event during this period (Anonymous 1978). During Seventh Five Year Plan (1985-90) attention was development of post-harvest technologies and in the subsequent two annual plan years (1990-91 and 1991-92) the development of deep sea fishing received further momentum. Priority was also given for the encouragement of fish marketing in the co-operative sector. It was also decided to set up Fisheries Industrial Estates, which provide landing centers with jetty and shore facilities, besides providing facilities for processing, preservation, marketing and boat making with supply of diesel and spare parts of the engine (GOI 1985). In the Eighth (1992-97) Five Year Plan period importance was given to development of deep-sea fishing by joint venture and coastal aquaculture (GOI 1992). During Ninth (1997-2002) Five Year Plan period importance was given to intensify research activities (GOI 1997). In the Tenth (2002-2007) Five Year Plan the development thrust was on management of coastal fisheries, development of deep-sea fisheries with equity participation and infrastructure development and improve post-harvest management (GOI 2002). Besides, development of infrastructural facilities marketing network through viable fishermen co-operatives etc. have been taken up to ensure better livelihood for fisheries and enhance export promotion for economic development of the country. It is only in the Eleventh (2007-2012) Five Year Plan an attention was given by the government of India to conserve the declining fish stock and depleting fishery resources due to increased fishing effort and coastal pollution. The main objectives of the Eleventh (2007-2012) Five Year Plan are enhancing the production of fish on an environmentally sustainable and socially equitable basis, conservation of aquatic resources and genetic diversity, strengthening of infrastructure in harvest, post harvest, value addition and marketing etc. (GOI 2007). These

development programmes resulted in growth and expansion of marine fisheries sector in the country state by providing better infrastructure and facilities. As a result, today fishery resources are exploited by 107,448 traditional crafts, 76,748 motorized traditional crafts and 59743 mechanised crafts employing different gears varying from simple shore-seiners to modern trawl and purse-seine nets in the country (GOI 2008). The infrastructural facilities like fishing harbours, jetties, and slipways at different shipyards, fishery roads, fish markets, and auction halls increased significantly. The fishery sector contributed over Rs. 28,000 million to the national GDP at current prices 0.95 per cent of the total GDP in 1987. Today, the contribution of fisheries to the national income is estimated at Rs. 35,650 crores at current prices, which constitutes 1.1 per cent of total Gross Domestic Product (GDP) and 5.34 percent of the agricultural GDP (GOI 2008).

Investment in fisheries sector

One of the indicators of development policies and programmes is the allocation of resources for respective sector over different periods. Analysis of the allocation of funds highlights the push given for development of fisheries sector. The outlay for fisheries sector was about 5.13 crore in the first five year plan and it went to Rs. 1,946 crore in the X plan. Table 3.4 highlights the financial outlay made for fisheries sector during different plan periods in India.

Table 3.4 Outlay for fisheries sector during different Five –Year Plans, India. (Rs. in crores)

Five Year Plan	Total outlay	Outlay for agricultural sector	Outlay for fisheries sector	Share of fisheries sector (per cent)	
				Total outlay	Agricultural outlay
First (1951-1956)	2378	354	5.13	0.22	1.45
Second (1956-61)	4500	501	12.26	0.27	2.45
Third (1961-66)	8577	1089	28.27	0.33	2.60
Annual Plan (1966-69)**	6625	1107	42.21	0.64	3.81
Fourth (1969-74)	15779	2320	82.68	0.52	3.56
Fifth (1974-79)	39426	4865	151.24	0.38	3.11
Annual Plan (1979-80)	12177	1997	-	-	-
Sixth (1980-85)	97500	5695	371.14	0.38	6.52
Seventh (1985-86 to	180000	10525	546.54	0.30	5.19

(1989-90)					
Annual Plan (1990-92)	123120	7256	292.74	0.24	4.03
Eighth (1992-93 to 1996-97)	434100	22467	1205.39	0.28	5.37
Ninth (1997-2002)	859200	42462	2069.78	0.24	4.87
Tenth (2002-07)	1525639	58933	1946.44	0.13	3.30

Source: GOI (2008). Handbook on Fisheries Statistics. New Delhi: Ministry of Agriculture

From the Table 3.4 it can be noticed that fisheries share in the total plan outlay was hovering from 0.22 per cent in First Five Year plan to 0.52 per cent in IV plan and decreasing thereafter continuously and it received only 0.13 per cent in X plan, in spite of that the sector has been growing at an annual growth rate of 5 per cent in the last two and half decades. Similarly, its share in agricultural outlay has increased from 1.45 per cent in First plan to 6.52 per cent in VI plan and it is slowly declining since then and is about 3.30 per cent in X plan. However, the status of fisheries sub-sector is better, when compared to that of agricultural sector as a whole. Because, the per cent allocation to agricultural sector in the total plan outlay started declining from IV Five year Plan onwards and is continuously decreasing further, which is a great concern for the sector's growth. Its share in First Fiver Plan was about 15 per cent and it went to 17.16 per cent in IV plan and is now only 3.86 per cent in X plan. Considering the general importance given to agricultural sector, the preference received by the fisheries sub-sector in the plan outlays is still reasonable. This shows greater importance given to fisheries sub-sector within agriculture. Financial allocation/expenditure on the development of fisheries in Karnataka is presented in Table 3.5.

Table 3.5 Financial Allocations for Fisheries Development under Various Plans (Rs. in Crores).

Sl. no.	Plan period	India		Karnataka	
		Total plan outlay	Expenditure on fisheries	Total plan expenditure	Expenditure on fisheries
1.	I Plan (1951-56)	2378	2.78 (0.14)	405.3	0.30 (0.08)
2.	II Plan (1956-61)	4500	9.06 (0.19)	1442.7	4.94 (0.35)
3.	III Plan (1961-1966)	8577	23.32 (0.31)	2641.4	23.61 (0.89)
4.	Annual Plans (1996-69)	6625	32.67	1909.6	22.24

			(0.49)		(1.16)
5.	IV Plan (1969-74)	15779	54.11 (0.34)	3598.5	28.57 (0.79)
6.	V Plan (1974-79)	39426	115.11 (0.29)	8523.3	32.11 (0.38)
7.	VI Plan (1980-85)	97500	286.95 (0.29)	2710.1	73.20 (0.27)
8.	VII Plan (1985-90)	180000	477.59 (0.26)	35000.0	299.00 (0.85)
9.	VIII Plan (1992-97)	434100	1118.46 (0.25)	N.A	901.06
10.	IX Plan (1997-2002)	859200	1414.41 (0.16)	N.A	1380.46
11.	X Plan (2002-2007)	1525639	1163.25 (up to 2004-05)	51948.04	1692.5 (3.26)

Note: Figures in the parentheses show the percentage to total.

Source: GOI (2008) Handbook on Fisheries Statistics. New Delhi: Ministry of Agriculture.

GOK (1986) Statistical Bulletin of fisheries. Bangalore: Directorate of fisheries.

GOK (1989) Statistical Bulletin of fisheries. Bangalore: Directorate of fisheries.

It is evident from the above table that, there has been a quantum jump in the expenditure for the fishery sector both in the central and state sectors since third plan. This is due to the consideration of the importance of fishery industry as a potential source of employment and income generation. However, the expenditure on fisheries is marginal in the state when compared with the country.