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Structural Changes in the Fisheries Sector of Kerala: An Overview

Ancy V P[1] and K V Raju[2]
[1]*Ancy V P Assistant Professor, Department of Economics, Maharaja's College, India.*
[2]*Dr.K.V.Raju is Associate Professor, Department of Economics, S.H. College, Thevara, India.*

Abstract: *Transformation of production and consumption patterns of fisheries sector will impact the long term economic growth and contribute to the reduction in inequalities among the various fisheries clusters. There is Structural revolution in the fisheries sector due to changing consumption pattern, changing quality standards, technological development, emerging market forces and so on. This paper examines an overview of the structural changes in the fisheries sector of Kerala. A concerted approach is needed to promote private and public cooperation in establishing an efficient quality infrastructure for improving the seafood export.*

Keywords**:** *Structural Revolution, Commercialization of Fisheries Sector, Fishing Allied Activities, Modernized Processing Facilities and Marketing System.*

I. Introduction

Fisheries Sector emerged as a vibrant sector and is being considered as a strategic sub-sector for promoting agricultural diversification (Kumar Anjani et.al. 2003). India is the 2nd largest producer of inland fish production in the world and is next to China with a share of 5.68 percent of the global total fish production as stated in the FAO Statistics. Indian fish production increased from 0.75 million tonnes in 1950-51 to 9.58 million tonnes in 2013-14 comprising 3.44 million tonnes from marine and 6.14 million tonnes from inland resources. The south west states comprising Kerala, Karnataka and Goa were the top contributors among the regions. Presently fisheries and aquaculture contribute 0.78 percent to the national GDP and 4.47 percent to agriculture and allied activities (Economic Review, 2013). New Economic Policy of 1990's proliferate urbanization and structural changes in the economy and society and it had an impact on the fisheries structure in the country. There is Structural Revolution in the fisheries sector due to the changing consumption pattern, changing quality standards, technological development, emerging market forces and so on.

Globalization gave birth to structural innovation and commercialization of fisheries sector in the economy of Kerala. Fisheries sector in India has witnessed an impressive growth from a subsistence traditional activity to a well developed commercial and diversified enterprise. There are conscientious changes in the structure of production, processing, export and marketing activities in Kerala's seafood industry. Fisheries sector plays a crucial role in the socio economic development of Kerala economy. This sector contributes as a powerful income and employment generator, source of cheap and nutritious food security, foreign exchange earner and stimulant to the growth of ancillary industries. Fisheries Sector of Kerala contributes about 9 per cent of the GSDP from the agriculture sector and occupies a significant position in the state economy (Economic Review, 2013). The share of Fisheries in Gross State Domestic Product is showing a decreasing trend over the years (Table No.1).

Table No. 1 Contribution of Fisheries Sector to Gross State Domestic Product of Kerala [At Constant Price 2004-05 (Rs. in Crore)]

Year	Gross State Domestic Product	Fishing	Share of Fisheries sector in GSDP	Share of Primary Sector in GSDP	Percentage Share of Primary Sector in GSDP
2005-06	131293.93	1704.8	1.3	22466.88	17.11
2006-07	141666.69	1800	1.27	31038.1	14.85
2007-08	154092.68	1795.44	1.17	20802.12	13.51
2008-09	162659.2	1784.03	1.1	21256.5	13.07
2009-10	177571.35	1886.81	1.06	21140.55	11.91
2010-11	189850.71	1764.13	0.95	19778.75	10.42
2011-12(P)	204956.72	1843.54	0.9	19900.72	9.71
2012-13(Q)	221849.9	1819.18	0.82	20710.81	9.34

Source: Directorate of Fisheries, Government of Kerala, Thiruvananthapuram.

The Gross State Domestic Product of the State has increased by about 69 percent during the period 2005-06 to 2012-13 and the share of fisheries sector in the State Domestic Product has declined from 1.30 to 0.82 percent in the same period. The share of Primary Sector in GSDP has also declined from 17.11 to 9.34 percent. Share of Kerala in the marine exports of India also declined during 2012-13. In quantitative terms it was 18.1 per cent a year ago and declined to 18.0 per cent in 2012-13. In value terms, the contribution of Kerala went up marginally and stood at 18.2 percent in 2012-13. During 2012-13 Kerala exported 166399 MT marine products valued at 343585 lakh vis-a-vis 155714 MT with a value of 298833 lakh in 2011-12 (Economic Review, 2013).

The demand for fish and fishery products are increasing considerably in the country, both in domestic and exports fronts. The need for giving emphasis for product development and value added products has been stressed to improve our forex earnings. Almost all type of fishing units operating along Kerala coast is found to be economically viable (Sathiadhas et.al 2000). MPEDA envisages a target of USD 6.0 Billion for the year 2014-15. Development of Kerala's Fisheries sector requires proper education, infrastructure, and cold storage chains supporting the landing centres, modernized marketing system, frozen logic system through roads and sea routes, well organized waste management system and so on.Marine Fishery resources in Kerala stretches along the coast line of 590km, with continental shelf of 40000 square km. In the nine maritime states and the Union territories of Puducherry and Daman and Diu around 3,244 marine fishing villages exists in India, out of which 222 fishing villages are from Kerala. There were 1,511 marine fishing landing centres in the country of which 187 or 12.4 percent are in Kerala. The total marine fisherfolk population in the country is 3,999,214 of which Kerala accounts for 6, 10,165 on nearly 15 percent (CMFRI, 2010).

Table No.2 Profile of District wise Fisher Families and Population in Kerala

District	Length of Coast line	Landing Centres	Fishing Villages	Fishermen Families	Fisherfolk Population	Average Fisher Households/Village
Thiruvananthapuram	78	51	42	33,340	146,326	799
Kollam	37	18	26	12,273	63,300	480
Alappuzha	82	16	30	20,278	92,033	667
Ernakulam	46	20	21	9,318	42,083	445
Thrissur	54	21	18	5,448	27,572	303
Malappuram	70	11	23	14,940	98,120	650
Kozhikode	71	19	35	14,157	82,129	404
Kannur	82	12	11	4,331	27,949	399
Kasaragod	70	19	16	4,637	30,653	299
Total	590	187	222	118,937	610,165	536

Source: CMFRI, Marine Fisheries Census, Government of India, Kochi. 2005

Inland Fishery resources is also blessed with inland water bodies (5.43 lakh ha), rivers and canals (3,092 km), reservoirs (0.30 lakh ha), Tanks and Ponds (0.30 lakh ha), Flood plain lakes or derelict waters (2.43 lakh ha) and brackish water (2.40 lakh ha). Total population of Kerala as per 2011 census is 33,406,061 of which male and female are 16,027,412 and 17,378,649 respectively.

Table No. 3 Educational Status of Fisher folk in Kerala-2010

District	Primary	Higher Secondary	Above Higher Secondary	Total	Literacy rate
Thiruvananthapuram	37429	34865	8716	81010	61
Kollam	12241	23461	5122	40824	73
Alappuzha	34449	37427	6029	77905	91
Ernakulam	17132	15295	3395	35822	91
Thrissur	8761	10639	1568	20968	81
Malappuram	24739	16212	1409	42360	49
Kozhikode	25543	31788	4488	61819	83
Kannur	11684	8777	1852	22313	88
Kasaragod	10203	7782	1254	19239	69
Total	182181	186246	33833	402260	73

Source: CMFRI, Marine Fisheries Census, Government of India, Kochi, 2010

Table No. 4 Change in the Educational Status in Kerala(1980-2010)

YEARS	1980		2005		2010	
Educational Status	Number	Percent	Number	Percent	Number	Percent
Unschooled *	491218	77	163567	27	152578	27
Primary	119823	18	171470	29	182181	33
Higher Secondary	23514	4	218704	36	186146	34
AboveHigher Secondary	5317	1	48493	8	33833	6

Source: CMFRI, Marine Fisheries Census, 1980, 2005, 2010*Children below 5 excluded

Table No.5 Gender wise Fishing Allied Activities in Kerala (2010)

Activities	Number of Fisherfolk			
	Male	Female	Total	Percentage
Marketing	4,242	16,176	20,418	38
Making /Repairing Net	2185	1183	3368	6
Curing/Processing	908	4769	5677	10
Peeling	360	9457	9817	18
Labourer	9716	4675	14391	27
Others	561	175	736	1
Total	17,972	36,435	54407	100

Source: CMFRI, Marine Fisheries Census, Government of India, Kochi 2010

The population of Kerala forms 2.76 percent of India in 2011. As per the population census 2011, the fisher folk population in Kerala is 10.02 lakh covering 7.71 lakh in coastal area and 2.31 lakh in inland sector. It is also estimated that about 74100 people are engaged in fishery – allied activities. The total fishermen population in Alappuzha district is 1.68 lakh which is the highest fishermen populated district, followed by Thiruvananthapuram (1.65 lakh) and Ernakulam (1.33 lakh). Average fisher household per village in Kerala is 536, with 2,748 persons per village as per the Marine Census of CMFRI, 2010(Table 2).

In India about 57.8 percent of the fisher folk were educated with different levels of education. Literacy rate of fisherfolk in Kerala is estimated at around 73 percent and is much higher than all India average. The literacy rate of fisher folk in Kerala is shown in Table 3.

Structural changes in educational sector in Kerala shows that state gives priority to strengthen the literacy rate. In Kerala, 33 percent of the fisher folk had primary level of education, 34 percent had secondary level, 6 percent had above secondary level and the rest 27 percent of the population was unschooled. As per Marine Census 2005 and 2010 unschooled fishermen population was about 27 percent and is less than the 1980s and is shown in Table 4.

In Kerala, Christians constituted 43 percent of the total fish folk followed by Hindus (29 percent) and Muslims (28 percent). Only 2 percent of the fishermen families belonged to SC/ST. There were 145,396 active fishermen of which 1, 30,922 were fulltime fishermen, 10,582 part-time and the rest engaged in fish seed collection. Out of the 46 percent of fisherfolk, 33 percent are in active fishing and 13 percent in fishing allied activities. Table 5 explains the occupational structure of fisherfolk engaged in fishing allied activities.

Table No. 6 Fishing Crafts Operating in Kerala

Year	Type of Fishing Crafts			Total Number
	Mechanized	Motorized	Non-motorized	
1973	1026	NA	21718	22744
1980	983	NA	26271	27254
1988	3548	9914	20545	34007
1990	3742	11374	26137	41253
1998	4040	27094	21598	52732
2005	5504	14151	9522	29177
2010	4722	11175	5884	21781

Source: R Sathiadas (2006), CMFRI, Marine Fisheries Census, 2010, Directorate of Fisheries, Government of Kerala (2003).

The marine fisheries sector in India has registered a phenomenal growth during the last five decades both quantitatively and qualitatively (ICAR, 2013).The fisheries sector in the early 1950s produced about 0.5 million tonnes annually. The current annual production is about 3.0 million tonnes, forming 76.3 percent of revalidated fishery potential of 3.93 million tonnes, comprising 1.67 million tonnes of pelagic, and 2.02 million tonnes of demersal and 0.24 million tonnes of oceanic resources.The developments of fish harvest technology has been in the areas of craft technology and mechanization of propulsion, introduction of synthetic gear material, acoustic fish detection and satellite-based remote sensing technique, advances in electronic navigation, provisions for on board fish processing and preservation (Zacharia P U et.al.2012). In India, in the marine fisheries sector there were 1, 94,490 crafts in the fishery sector, out of which 72,559 2 were mechanized, 71,313 motorized and 50,618 non-motorized.

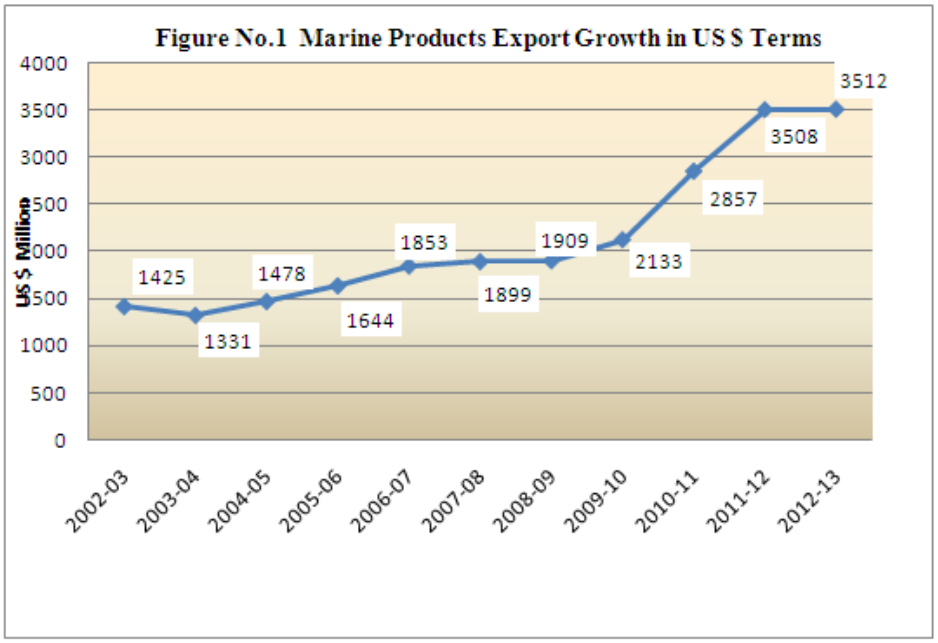
In Kerala 21,781 crafts exists in the fishery sector of which 4,722 were mechanized, 11,175 motorised and 5884 non-motorized. Structural changes in the fishing crafts operating in Kerala is shown in the Table 6. Export growth of marine products lie in diversified fishing, products and markets. Modernization of the processing facilities to meet international standards is of primary importance for the industry in the coming years (Planning Commission 2011). The following Table 7 shows the details of various types of processing units

in India and Kerala. In India, the total number of exporters registered as on October 2014 is 1107 out of which 489 are Manufacturer Exporters and 504 merchant exporters. There are 470 Processing plants, 573 storages, 610 peeling sheds, 78 ice Plants and so on. Exports aggregated 928215 tonnes valued at Rs. 18856.26 crores and USD 3511.67 million in 2012-13 and is shown in the figure 1. The increase in export figures must be viewed in the light of the weaker economic conditions in European Union, Slow growth in the US economy, moderate

Table No.7 Various Types of Processing /Units in India and Kerala as on 01/10/2014

	India		Kerala	
Different Types	No. of Units	Capacity in tones per day	No. of Units	Capacity in tones per day
Spiral Freezer	3	35	2	16
Tunnel Freezer	141	3627.08	53	752.68
Blast Freezer	156	3737.6	24	309
Trolley Freezer	91	2311.9	34	747.5
IQF	150	2019.06	32	344.9
Canning	13	66.49	5	12.74
Cooked	9	84.1	1	1
Breaded & Battered	5	18.1	3	8.5
Fish Curry	4	8.5	2	1.5
Fish Meal	36	1464	3	45
Fish Oil	29	411.13	3	2.68

Source: MPEDA, Government of India, Kochi. , 2014



Source: MPEDA, Government of India, Kochi.

growth in China, and technical barriers to trade by Japan, continuing antidumping duty and the possibility of countervailing duty on frozen shrimp by US and continuous depreciation of Indian currency.

World Trade Organization (WTO) has not prohibited subsidies; however certain subsidies are prohibited if they result in adverse trade effects. According to FAO on-line glossary definition subsidy is "a direct or indirect payment, economic concession or privilege granted by a government to private firms, households or other governmental units in order to promote a public objective". In 2004, Porter revised his classification system in the later UNEP document, placing subsidies within eight categories namely (i) subsidies to fishing infrastructure (e.g. construction of port-facilities); (ii) management services (e.g. monitoring and surveillance, management related research); (iii) subsidies to securing fishing access (iv) subsidies to decommissioning of vessels (v) subsidies to capital costs (e.g. grants, loan guarantees) (vi) subsidies to variable costs (e.g. fuel, insurance), (vii) income supports and (viii) price supports (e.g. guaranteed minimum price).

Marketing of fish and fishery products in the country is still unorganized, except in a few towns and cities, with municipalities and other local bodies looking into the marketing aspects (Planning commission,

2011). The infrastructural requirements of the fishery sector are assorted, ranging from the construction of Fishing Harbours and Fish Landing Centres to establishment of hygienic domestic markets and setting up of cold chains and the prime objective is to ensure that spoilage is reduced and fish reaches the consumers in the best possible condition (Zacharia P U et.al, 2012). Upgradation and transfer of technology to Fisheries industry will be a priority strategy for the export development of Kerala. Government of India provides direct and indirect subsidies assistance for export promotion in culture and capture fisheries sectors and development of infrastructure and market promotion schemes to the fisheries sector through the Marine Product Export Development Authority (MPEDA).According to the draft proposals on subsidies issued by WTO in 2007, the subsidies or grants for buying or modernizing boats, engines, fishing gear and other fishing equipment (iceboxes, GPS, communication systems, fish finders) in mechanized sectors and HSD fuel tax exemption for mechanized boats in India will be affected by the proposed WTO rules.

II. Conclusion

The Kerala Fisheries sector contributes significantly to foreign exchange earnings, productive employment generation and nutritional security. A concerted approach is needed to promote private and public cooperation in establishing an efficient quality infrastructure for improving the seafood export. Financial Constraints weaken the strategies of fisheries sector and restrict the growth of export from Kerala. Both public and private participation is essential for the creation of modern infrastructure and efficient processing facilities. The role of the private sector is crucial as its sizable investments can bring in economies of scale to the stakeholders. Transformation of production and consumption patterns of fisheries sector will impact the long term economic growth and contribute to the reduction in inequalities among the various fisheries cluster.

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