Fisheries Sector in Kerala: Emerging Issues and Policy Responses

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Abstract
The present paper discusses the status of the fisheries sector in Kerala with emphasis on emerging issues and policy responses. In Kerala, still, the traditional fishermen dominate the field although in recent times the State has been witnessing the emergence of a dual structure with the traditional sector on the one side and the modern fishing sector on the other. There has been a mismatch between fish production and consumption in the State. The fishermen's per capita income growth has been volatile in the State while the per capita income of an average Keralite has almost remained stable. Marine fish production forms the major share of total fish production in the State. It is obvious that at the all India level, the overall fish production registered a remarkable increase from 107.62 lakh tones in 2015-16 to 137.5 lakh tonnes in 2019-20, a growth of over 30 per cent. But at the same time, Kerala's fish production did not make a substantial improvement which is evident from the fact in 2019-20, its fish production actually declined to 6.8 lakh tones from 7.27 lakh tones in 2015-16. Climate changes, oceanic plastic waste, infrastructural bottlenecks, the vulnerability of fishermen have been identified as emerging issues.

Keywords: Gross Value Added, Climate Change, Fisher Folk, Percapita Income, Oceanic Plastic Waste

Introduction

The contribution of the fisheries sector to the lives and livelihood of coastal people has well been acknowledged worldwide. Indeed, studies point towards increasing fish production in the world despite increasing challenges being posed to the sector from problems like climate change. India comes second in the production and consumption of fish in the world, next to China. Kerala, a state at the southern tip of the Indian sub-continent, has also been famous in its glory in the field of production and consumption of fish products. By accommodating 2.78 per cent of the State's total population, the Kerala fisheries sector has been playing a significant role in terms of providing avenues of income and employment in the State. Marine fishing still dominates the fisheries sector in the State (Louis W, Kumar and Jacob 2019). 77 per cent of the State's fisherfolk finds employment in the marine sector. It is estimated that 78.83 per cent of active fishermen appear to be involved in the field of marine fishing in the State. Despite efforts at various levels, there has been a mismatch between fish production and consumption in the State.

Estimates show that per capita monthly consumption of fish products in the rural areas of Kerala hovers around 2.26 kg and in urban areas 2.10 kg (Louis W, Kumar and Jacob 2019). The deficit in fish production in the State has caused the State to be much reliant on neighbouring and fish surplus states like Karnataka, Andhra Pradesh and Tamil Nadu. It is recorded that almost 60 per cent of the domestic demand for fish products in the State has been met by imports from the neighbouring states. In this background, the present paper looks into the status of the fisheries sector in Kerala with emphasis on emerging issues. Apart from this, the paper also intends to throw some light on the recent policy responses to the crisis in the fisheries sector in the State.

Status of the Fisheries sector of Kerala

Considering the size of the State, Kerala has a pretty lengthy coastal area. With 590 kilometers of coastal length, Kerala ranks fifth in terms of coastal length in the country (Table No.1). It is believed that the coastal areas of Kerala are the most productive part of the Arabian Ocean(Ancy and Raju 2014). However, the Exclusive Economic Zone in the case of fish production in the State appears to be only around 1.78 percent of the country. It needs to be reiterated here that still the traditional fishermen dominates the field in the state although in recent times the State has been witnessing the emergence of a dual structure with the traditional sector on the one side and the modern fishing sector on the other(Louis W, Kumar and Jacob 2019). The increasing use of motorized fishing crafts and the relativedownward trend in the use of non-motorized crafts lead to the increasing penetration of the modern fishing sector in the State.

Table 1 District Wise Coastal Length of Kerala

Sl. No.	District	Area in (ha)	Coastal Length in Kilometer
1	Thiruvananthapuram	1424	78
2	Kollam	8604	37
3	Alappuzha	15223	82
5	Ernakulum	16213	46
6	Trissur	4272	54
7	Malappuram	1796	70
8	Kozhikode	4162	71
9	Kannur	5944	82
10	Kasaragode	3248	70
	Total	65213	590

Source: Economic Review of Kerala

It is worthwhile to draw upon the relative role of the Kerala fisheries sector in the fisheries output of India. For the sake of simplicity of analysis, we consider only the case of the top five states that dominate the fisheries sector of the country. Undoubtedly, Andhra Pradesh has continued to dominate the fisheries sector in India with its contribution to total national fish production estimated at 17.7 percent in 2011-12, which increased tremendously to 37.5 percent in 2018-19(Mathew and Verghese 2019). West Bengal has also had a good position as its share stood at 24.6 percent in 2011-12, although it declined to 16.4 percent in 2018-19. Kerala contributed 5.9 percent of total fish production in the country in 2011-12 while its contribution slightly came down to 4 percent in 2018-19 (Table No.2). In fact, the accomplishment of Andhra Pradesh appears much commendable as it could make a remarkable jump in its share to 37.5 percent in 2018-19, a more than 20 point increase. No other state appeared to have made such an enviable achievement, indeed.

Table 2 Contribution of Five States in Total Fish Production

State	Percent Share in 2011-12	Percent Share in 2018-19
Odisha	3.9	4.7
Bihar	4.5	4.2
Assam	5.5	4.0
Kerala	5.9	4.0
Tamil Nadu	7.1	4.8
Andhra Pradesh	17.7	37.5
West Bengal	24.6	16.4

Source: MOSPI, Government of India

Turning towards the contribution of the fisheries sector of Kerala towards its primary sector and total state Gross Value Added (GVA), some interesting

observations could be made. As we know, the fisheries sector forms an important part of the primary sector. At the national level, it is unsurprising to note that the share of the primary sector to the GVA of the country has plummeted from 17.8 percent in 2013-14 to 8.2 percent in 2018-19 (GoK 2020). It is quite interesting to note that the share of the primary sector in GVA of Kerala has also been declining over the years. In 2013-14, primary sector contributed 5.6 percent of the State GVA, but in 2018-19, the share drastically declined to 2.4 percent. In fact, 2.4 percent, by any count, is anunsatisfactory figure. Now, it would be interesting to observe the share of fisheries sector to the Primary sector of the State over the years. In 2011-12, the starting point of our analysis, the fisheries sector of Kerala made a contribution to the tune of 7.38 percent. In later years, the share had been persistently moving up, touching the level of 14.75 percent in 2018-19, registering to doubling in its contribution (Figure No.1). The tremendous hike in the share of fisheries to the State Primary Sector GDP got started in 2015-16 perhaps on account of the policy level interventions being made by the Government as a part of its pro-poor and people-centered economic policies. Nevertheless, when it comes to the contribution of the fisheries sector to the state GVA over the years, the picture does not seem to be as rosy as in the case of its contribution to the primary sector of the state economy. Partly, this is on account of the fact that fisheries are quite small in absolute terms considering the volume of business activity it undertakes both in size and value. For instance, in 2011-12, the contribution of the fisheries sector to the State GVA was as low as 1.12 percent which slightly moved to 1.35 percent in 2012-13, to 1.17 percent in 2016-17 and by 2018-19, it slightly declined to 1.64 percent. It is really disheartening to note that the share of the fisheries sector in the State GVA of Kerala has almost remained stagnant over the years despite many efforts taken by the Government to revitalize the sector.

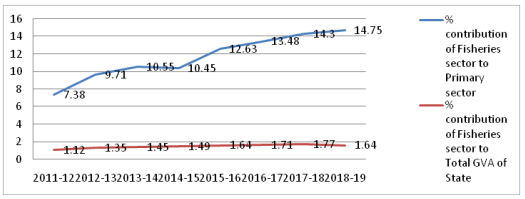


Figure 1 Contribution of the Fisheries Sector to Kerala's Primary Sector and State GVA

Further, to comprehend the status of the fisheries sector, it would be worthwhile to make a comparison between the percapita income received by the fishermen and the general percapita income or the percapita income of the state. First, consider the case of growth in the percapita income of the State from 2011-12 to 2018-19 (Table No.3). During this period, the average annual growth rate of the percapita income of the State has been estimated to be 11 percent. In 2011-12, the percapita income stood at Rs.108666 while it increased to Rs.225484 in 2018-19, almost a doubling of state percapita income (Table No.3). Meanwhile, the percapita income of the fishermen of Kerala increased from Rs.40247 in 2011-12 to Rs.123133 in 2018-19. The average annual growth rate of the same during the period was estimated to be in the vicinity of 17.68 percent. On prima facie, the growth rate of percapita income of an average Keralite during the same period is comparably much less. Nevertheless, a close look at the data clearly shows that while the fishermen percapita income growth has been volatile during the period, the percapita income of an average Keralite has almost remained stable (Table No3). It is quite worrying that in 2018-19, while the percapita income of the State registered a growth rate of 10.86 percent over the previous year, the percapita income of fishermen only increased by 2.76 percent. Although there could be many reasons for this dismal growth rate of fishermen's percapita income in 2018-19, the present paper does not intend to focus much more on that.

Table 3 Percapita Income of the State and the Percapita Income of the Fisher folk

Year	Percapita of Keralite	Growth Rate	Percepita of a Kerala Fishermen	Growth Rate
2011-12	108666	0	40247	0
2012-13	122471	12.70	54834	36.24
2013-14	137515	12.28	66307	20.92
2014-15	150824	9.68	74942	13.02
2015-16	164554	9.10	89939	20.01
2016-17	184979	12.41	105322	17.10
2017-18	203396	9.96	119826	13.77
2018-19	225484	10.86	123133	2.76

Source: Economic Review

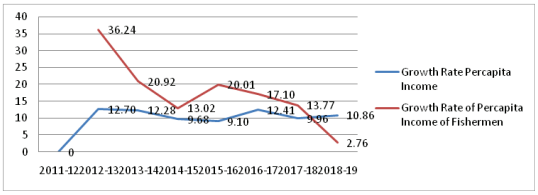


Figure 2 Growth Rate of State Per capita incomes and the Per capita Income of Fishermen

Having detailed out the status of the fisheries sector in terms of the contribution to the GVA of the State, now we turn towards the analysis of fish production in the State. It is evident that fish production comes from two sources: the Marine and the Inland. Marine fish production forms the major share of total fish production in the State. In 2015-16, total fish production in Kerala stood at 7.27 lakh tones as against the all India food production of 107.62 lakh tones (Table No.4). But at the all India level, Inland fish production exceeds the Marine fish production. This is evident from the fact that in 2015-16, while the all India marine fish production constituted 36 lack tones, the Inland fish production came close to 71.62 lakh tones. But in Kerala, Marine and Inland fish production was of the order of 5.17 lakh tones and 2.1 lakh tones respectively. In 2018-19, Marine fish production in Kerala peaked at the level of 6.1 lakh tones but at the all India level it could just make a slight increase to 41.5 lakh tones from the previous year figure of 36.88 lakh tones. Another interesting picture that comes from this analysis is that at the all India level Inland fish production registered an increasing trend from 71.62 lakh tones in 2015-16 to 95.8 lakh tones in 2018-19, in Kerala it slightly declined to 1.92 lakh tones in 2018-19 from 2.1 lakh tones in 2015-16. In fact, inland fish production offers many opportunities for increasing total fish production. The story of China clearly points towards the fact that the shortfall in marine fish production owing to multiple reasons including climate change could be offset by increasing the production in inland and aqua fish production. The state of Kerala has to still tap the avenues of increasing fish production via devising and implementing policies to augment inland fish production including aqua fish production in the State. It is obvious that at the all India level, the overall fish production registered a remarkable increase from 107.62 lakh tones in 2015-16 to 137.5 lakh tones in 2019-20, a growth of over 30 percent. But at the same time, Kerala's fish production did not make a substantial improvement which is evident from the fact in 2019-20, its fish production actually declined to 6.8 lakh tones from 7.27 lakh tones in 2015-16 (Table No.4).

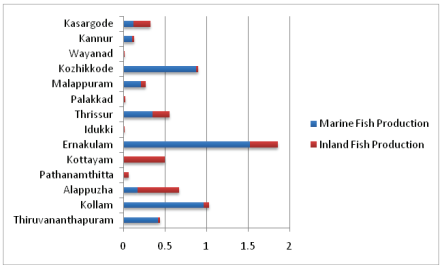
Table 4 Fish Production in Kerala& India during the last Five years (lakh tones)

Year	Kerala			All India		
	Marine	Inland	Total	Marine	Inland	Total
2015-16	5.17	2.1	7.27	36	71.62	107.62
2016-17	4.88	1.88	6.76	36.25	78.06	114.31
2017-18	4.84	1.89	6.73	36.88	89.02	125.9
2018-19	6.1	1.92	8.02	41.5	95.8	137.5
2019-20	4.75	2.05	6.8	Not Available		

Source: Fisheries department, GoK; Handbook on Fisheries Statistics -2019, Department of Fisheries, GoI

A district-wise look at the fish production in Kerala reveals that Ernakulum tops the list while Wayanad and Idukki share the least positions. Further, in five districts marine fish production is quite large compared to inland fish production. These districts are: Kozhikode, Trissur, Ernakulum, Kollam and Thiruvananthapuram. Inland fish production dominates in Alappuzha despite its relatively lengthy seashore area. Kottayam stands out with its full focus on inland fish production (Figure No.4).

Figure 4 District wise fish production in Kerala 2019-20 (lakh tones)



Source: Economic Review of Kerala, 2020

The Fisheries sector offers employment and livelihood opportunities for a good number of populations in different parts of the world(Dhanuraj 2004). Most of the people engaged in fishing and sales activities are informal employees, struggling to live through the troubled waters of life. Climate change and induced seasonal variables have affected the fish catches, and this has made their life miserable. Many studies have come out with evidence of the growing vulnerability of the fisherfolk in the world. In Kerala, fisherfolk have been identified as one of the most vulnerable and marginalized communities in the State. It is interesting to note that although inland fish production has not come to the level of expectation, the fisherfolk have been visible in all districts including districts that do not have seashore. The lowest number of fisher folk is found in the Wayanad district while Alappuzha comes first with the largest number of fisher folk in the State (Table No.5). But, fishing vendors are more in number in the Malappuram district of the State.

Table 5 District-wise Distribution of Fisher folk Population in Kerala

		Marine	Inland	Total
1	Thiruvananthapuram	172090	1441	173531
2	Kollam	94891	35068	129959
3	Pathanamthitta	0	2162	2162
4	Alappuzha	131077	63175	194252
5	Kottayam	0	25437	25437
6	Idukki	0	720	720
7	Ernakulum	73985	65096	139081
8	Trissur	57097	20177	77274
9	Palakkad	0	2640	2640
10	Malappuram	91676	4323	95999
11	Kozhikode	100522	12225	112747
12	Wayanad	0	238	238
13	Kannur	38597	6485	45082
14	Kasaragod	44230	1009	45239
	State	**804165**	**240196**	**1044361**

Source: Economic Review, 2020

Emerging issues in the fisheries sector in Kerala

There might not be any doubt that the biggest issue that the Fisheries sector in Kerala has been confronting is the problems associated with climate change (Indrani and Kanagaraj 2019). Climate change has resulted in declining fish production. The environmental imbalance that it has been causing also poses threat to the sustainable existence of this

sector. Climate change can affect different fishing activities like availability, accessibility, stability and utilization of marine resources (Devi, Arunachalam and Pavithran 2018). This will affect the livelihood of the fisherfolk and will have a deleterious impact on the exporting sector and foreign exchange earnings. Since fisherfolk have been subject to socio-economic vulnerabilities of many kinds, climate change will intensify such vulnerabilities in future. Fish products being an important source of protein, the decline in fish catch owing to the increasing issues of climate change is likely to pose threats to the accomplishment of the much-celebrated objective of food security in India.

The fisheries sector still has not been modernized in the State, in spite of many attempts that have been undertaken towards its modernization. Not only in the case of fishing vessels modernization has to happen but also in the field of processing fish products, its marketing and in its value addition, modernization can bring in miraculous changes. The state has to travel a lot in this regard. The fisheries sector in Kerala has been confronted with the issue of lack of sufficient infrastructure facilities, especially in the case of storage, availability of port roads, and modernization of fishing harbours (Devi, Arunachalam and Pavithran 2018). The opening of seashore for foreign vessels with modern equipment to wash away the rich marine products of Kerala has caused a lot of worries among the fisherfolk in the State. Studies have pointed out that due to the lack of income and institutional support in times of trolling bans, the life of fisherfolk in Kerala has been observed to be very pathetic. Marketing is another field where the fisherfolk have been experiencing many issues. Many a time, they do not get an adequate price for their catch. Corporates involved in selling fish products appear to be exploiting the fisherfolk in many ways.

Another worry surfaces in the form of oceanic plastic menace (Devi, Arunachalam and Pavithran 2018). Water bodies especially and ultimately the ocean has become the world's centralized waste disposal units. Climate change coupled with plastic menace may alter the ecosystem, leading to not only a fall in fish production but also in jeopardizing the ecological balance of nature.

Policy Responses

Having analyzed the issues of the fisheries sector in Kerala, it is now pertinent to journey through some of the policy responses and initiatives from the part of government and other stakeholders to address the emerging issues of the sector.

- First of all, to tackle the issue of oceanic plastic menace, a clean sea campaign was launched to prohibit the dumping of waste into the sea. So far 38.37 tons of plastic wastes have been removed from the sea (GoK 2020).
- Another scheme for the sustainable and responsible development of the fisheries sector in India is Pradhan Mantri Matys Sampada Yojana implemented to achieve its goals over the next five year period from 2020-21 (GoK 2020).
- To integrate the development activities in coastal areas, a fully state-owned government undertaking named Kerala State Coastal Area Development Corporation (KSCADC has been established.
- It has been understood that fisherwomen face a lot of multiple issues, issues that stem from their status as women and especially women in the fisheries sector. To help out the women in the fisheries sector and to empower them a Society for Assistance to Fisherwomen (SAF) has been established.
- MATSYAFED is an apex federation of 657 primary level Fishermen Development Welfare Co-operative Societies, of which 336 are in the marine sector, 199 are in the inland sector and 122 are women co-operative societies. The total membership in these societies is more than 4.71 lakh (GoK 2020). This apex body has undertaken major programmes to help the fisherfolk (Table No.5).
- The Government of Kerala has so far completed construction work of 18 fishing harbours and the works of another 7 are progressing. Muthalapozhy Fishing Harbour Project was commissioned on June 3, 2020. Koyilandi and Manjeshwaram Fishing Harbors was commissioned on October 1, 2021 (GoK 2020).

Table 6 Major Programmems of Matsyafed

Sl. No.	Name of Programme	Unit	Physical achievement during 2019-20 (Rs. in lakh)	
1	Fish Auction	No. of fisher men	35868	25337.82
2	Integrated Fisheries Development Project	beneficiaries	17357	1830.02
3	Bankable scheme	beneficiaries	60	10.07
4	Matsyafed input security scheme	beneficiaries	25	3.26
5	Subsidy for suitable complements of fishing gear	beneficiaries	400	40
6	Scheme with financial assistance of NBCFDC and NMDFC-Tern Loan	beneficiaries	88	132
7	SHGâ€™s (Microfinance)	beneficiaries	25570	6272.45
8	Interest Free Loan for	beneficiaries	7179	1345.8
9	Fisher Women			
10	Modernisation of country crafts	beneficiaries	0	0
11	Kerosene Subsidy	beneficiaries	14000	3342
12	Production Bonus	beneficiaries	0	0
13	Loan Distress Relief Scheme	beneficiaries	58	9.25

Source: Economic Review, 2020

Conclusion

As said at the outset, the present paper looks into the status of the fisheries sector in Kerala with emphasis on emerging issues. Apart from this, the paper also intends to throw some light on the recent policy responses to the crisis in the fisheries sector in the State. By accommodating 2.78 percent of the State's total population, the Kerala fisheries sector has been playing a significant role in terms of providing avenues of income and employment in the State. Still, the traditional fishermen dominate the field in the state although in recent times the State has been witnessing the emergence of a dual structure with the traditional sector on the one side and the modern fishing sector on the other. Despite efforts at various levels, there has been a mismatch between fish production and consumption in the State. A close look at the data clearly shows that while the fishermen's per capita income growth has been volatile during the period, the per capita income of an average Keralite has almost remained stable. It is quite worrying that in 2018-19, while the percapita income of the State registered a growth rate of 10.86 per cent over the previous year, the percapita income of fishermen only increased by 2.76 percent. Marine fish production forms the major share of total fish production in the State. It is obvious that at the all India level, the overall fish production registered a remarkable increase from 107.62 lakh tones in 2015-16 to 137.5 lakh tones in 2019-20, a growth of over 30 percent. But at the same time, Kerala's fish production did not make a substantial improvement which is evident from the fact in 2019-20, its fish production actually declined to 6.8 lakh tones from 7.27 lakh tones in 2015-16. Climate changes, oceanic plastic waste, infrastructural bottlenecks, the vulnerability of fishermen have been identified as emerging issues. In Kerala, fisherfolk have been identified as one of the most vulnerable and marginalized communities in the State.

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