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Fisheries Sector of Kerala: Pandemic Scenario

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Abstract

The study focuses on the estimate of the impact of Covid-19 on inland fisheries resources such as reservoirs and lake. As per the current investigation small, medium and large reservoir fisheries has suffered an economic loss of Rs. 36 million, 4.2 million and 0.31 million respectively. Similarly, backwater fishery of Kerala was also affected with a loss of Rs. 35 million species wise catch composition study in Backwaters indicated huge demand for Lacustrine fishes during lockdown period due to restrictions imposed on the fisheries sector of the state. The government initiatives along with PM Kisan Samman Nidhi Yojana have helped in the revival of the inland fisheries sector post lockdown period.

Introduction

Corona virus disease 2019 (Covid-19) has an overwhelming effect on the fisheries sector throughout the world. Livelihood of majority of the inland fishers and the associated fishing communities were under stake due to the imposed lock down restrictions. Kerala being an abode for a diverse array of inland aquatic resources, a study on the impact of lockdown on inland fisheries was found relevant in this scenario. The study envisaged a brief look into the impact of lockdown on fisheries and allied sectors and their livelihood with respect to the three inland aquatic resources of the state such as reservoirs, rivers and lakes.

Background

Covid-19 is an infectious disease caused by corona virus that is known to jeopardize both for humans and animals, the first case being reported from a seafood market in Wuhan, China in December, 2019. The origin of this virus was assumed to be from pangolins. The symptoms of this virus in humans caused respiratory illness and are more fatal for older patients who have existing health conditions. The disease was declared as pandemic by WHO.

The first case in India was reported in Kerala on 30th January, 2020. Later on the numbers increased rapidly and dispersed to other states in India. As a result of which, the government declared the first lockdown (1.0) for 21 days and then it was extended to another 19 days (lockdown 2.0). The lockdown series had affected the livelihood of people associated with agriculture and allied sectors. In the fisheries sector, lockdown caused disruptions in the fish food supply chain in the state (Figure 1). Despite lockdown (1.0), the fish farming related activities such as fish and shellfish production, fish farming, fish feed enterprises, fish feed ingredients, transportation and distribution of fish seeds, fish seed production, hatchery operations, cold storage facilities, processing plants etc. (Figure 2) were granted relaxations by district administration in consultation with district fishery officers. Fishing by artisanal

boats was allowed however, fish catch brought in by artisanal fishers were assigned to be sold in local markets avoiding auction sales and by maintaining social distancing. Similarly, in lockdown (2.0) fishing, fish marketing, hatchery operations and the subsequent transportation etc. have been excluded from restrictions with respect to Central Home Ministry without obstructing social distancing.



Figure 1: Vacant landing centre during lockdown



Figure 2: Fish vendors with protective gears in landing centre

Reservoir Fisheries

Kerala is bestowed with streams, lakes, lagoons, estuaries and reservoirs. Out of 34 reservoirs (small, medium and large) in Kerala, only 13 reservoirs supported fishery enhancement activities in the state. Idukki, which is considered to be the largest reservoir of Kerala with a catchment area of around 649.3 km² provide livelihood assistance to nearly 22 fishers who are involved in fishing in the reservoir. The reservoir indirectly supported a total of 45 vendors who purchased the fish from fishers through fishery cooperative society for retail marketing. The reservoir thus supported a minimum of around 130 individuals in their struggle for subsistence living. Secondary sources of income such as wage labourer, driving, masonry etc. also add on to a better standard of living for few fishers. Lockdown series has impacted the secondary source of income for the fishers associated with this reservoir. Idukki reservoirs supports many fishers who operate gillnets as well as hook and line associated with reservoir

fisheries. The entire lockdown accounted for a loss of nearly Rs. 1000.00 /day/person. Reports from the experts suggest that 14 days of lockdown period resulted in an estimated loss of nearly Rs. 3.1 lakhs alone from Idukki reservoir, which is the primary source of income for fishers (Table 1).

Table 1: Estimated loss from inland resources of Kerala due to Covid-19 lockdown

Type of Reservoir	Total Average Loss		
	Lockdown	Average loss/ Fishermen (Rs./day)	Total average loss (Rs.)
Small Reservoir	1.0 and 2.0	300.00	3.36 Million
Medium Reservoir	1.0 and 2.0	400.00	4.20 Million
Large Reservoir	1.0	1,000.00	0.31 Million
Backwaters	1.0	500.00	35.00 Million

Medium Reservoir Fisheries

Malampuzha is considered to be the only medium reservoir in Kerala which supports fishery enhancement activities with a catchment area around 147.63 sq. km. Generally around 116 fishers and 75 fish vendors were associated with reservoir fisheries. The average fisher family size in the inland sector was four. It may be estimated that the medium reservoir supported nearly 600 individuals directly in subsistence living. Nearly 14% of the fishers have a better livelihood status on account of secondary occupation. During the lockdown period (1.0), medium reservoir fishers were restricted for one week after which the restrictions were relaxed cutting across the reservoirs. Lockdown series also affected the secondary source of income of the fishers. According to the State Fisheries Department (SFD), the average catch per day was estimated to be 200 Kg which was half of what they generally caught. Since sales of fish were regulated through fisheries cooperative society, no sudden hike was observed in the rate of fishes which consequently, reduced their income to half. Lockdown caused the fishers to refrain from fishing and marketing activities. Therefore, the fishers were affected with a loss of approximately Rs. 42,000.00 /fisher (Table 1) till April 14th, 2020 (lockdown 1.0) and an estimated loss of about Rs. 4.2 million was reported from this medium reservoir (Malampuzha dam) by SFD during the entire lockdown period.

Small Reservoir Fisheries

Similarly, the small reservoir fishers were also affected haphazardly by the lockdown constraints. Subsequently, the restrictions were eased from April 7th following all the precautionary measures advised by the district administration.

Almost 11 small reservoirs support fishery enhancement activities, with 800 fishers and 1600 vendors involved in fishing and related activities across the state. Few fishers also rely on alternative jobs to support their family which includes: construction works, driving etc. According to SFD the normal catch per day was estimated to be 100 kg/ fishermen. However, during the lockdown period the number of active fishermen were reduced, thus decreasing their catch per day. According to SFD the normal catch per day. As a result of which there was a loss of about Rs. 3.36 million in total from the fishing sector in small reservoirs (Table 1). Restrictions associated with lockdown also influenced their secondary source of income, which hold their lives under stake.

Lacustrine Fisheries

Backwaters are a network of brackish lagoons and lakes lying parallel to Arabian sea as well as interconnected canals, rivers, and waterway. The role of large water bodies such as lakes and wetlands in supporting the livelihood of associated fishers is immense in Kerala. In this study out of 53 kayals mainly two lakes were focused which includes Vembanad and kayamkulam backwaters. A preliminary survey estimated that nearly 11,200 fishers are associated with Vembanad and Kayamkulam backwaters. Lockdown hampered the day to day fishing activity of these backwater fishers along with their secondary income source resulting in low income. During lockdown 1.0, an average inland fisherman has been affected with a minimum loss of Rs. 500.00 /day (Table 1). An estimated loss of Rs. 2.5 million per day was recorded from backwater fisheries during the 14 days restrictions of lockdown 1.0 from these backwaters. This is in account with 50% of the fishers who could not go fishing due to lockdown. After the initial lockdown period 1.0 and during lockdown 2.0, few fishers resumed their activities for subsistence following the orders and standards issued by state and central governments. Some of the restrictions issued by government include:

- The fishers who were permitted for fishing were advised to reach back at respective landing centres following social distancing and boat distancing.
- If any of the labours exhibits symptoms of Covid-19 the landings of such boats should be destroyed on the spot and the boats should be disinfected prior to fishing.

The catch composition from backwaters during lockdown 1.0 was dominated by *Ambassis* sp. to the tune of 40% followed by *Horobagrus brachysoma* (25%). Species such as *Etroplus suratensis* (20%) and *Tilapia mossambicus* (15%) also contributed reasonably to the fish catch composition at the landing centres of backwaters.

The widening gap between demand and supply of fish that was observed during the lockdown 1.0, brought in price hike to the tune of 100% and more. Price of one Kg of *Etroplus suratensis* increased from Rs. 300.00 to Rs. 500.00 during the lockdown period. Moreover, increased demand of inland fishes led

fishmen to go for juvenile fishing of backwater fishes. Juvenile landings of *Horabagrus brachysoma* were noted during this lockdown period. There was an estimated Rs. 35 million losses occurred in backwater fishery in primary landing centres due to the 14 days lockdown.

Value Chain

From the above statements it is clear that the fisheries sector has a pernicious effect during these lockdown periods by reducing the catch per day due to the restrictions in fishing. According to the survey during the pre-covid period catch per day was assumed to be 20-100 Kg; whereas during the Covid it has decreased to 5 Kg per day. The supply was reduced and the demand was high as there wasno enough fish to satisfy the needs of many. Due to lockdown 1.0, marketing was an impossible way to sell out fish. As a result of which fisherman started to vend in landing centres after the 14 days of lockdown at a higher price than before as illustrated in Table 2.

Table 2: Price variation during Covid-19 lockdown

Average rise in value of commonly caught fishes				
Sl. No.	Species	Value before Covid (Rs./ Kg)	Value after Covid (Rs./ Kg)	Increase in value (%)
1	Catla	120	200	66.67
2	Mrigal	120	200	66.67
3	Rohu	120	200	50.00
4	Pearl spot	400	600	50.00
5	<i>Leiognathus</i> sp.	200	300	50.00
6	<i>Ambassis</i> sp.	100	200	100.00
7	<i>Horabagrus brachysoma</i>	60	100	66.67

After the first lockdown 1.0, the government permitted the fish markets to function following the strict rules proposed by the government such as:

- Practicing social distancing among the dealers and the customers.
- The State Health Department recommended all wholesale/ retail storage centres and markets to disinfect on a daily basis.
- As per the order district administration were to facilitate transport of fish/ shellfish in disinfected vehicles to nearby markets/ stalls/ shops by providing passes to the vehicles.
- To avoid marketing at landing centres and farms, such places were identified by district administration and DFO ensuring social distancing and sanitation between the sellers and buyers.
- Minimum staffs were to be assured in handling fish/

shellfishes such as fishing, marketing following the sanitation measures. Fish handling accessories had to be disinfected after each operation and the sales platform were to be cleaned with sodium hypochlorite or calcium hypochlorite solution.

- Fish sellers/ retailers were not allowed to travel from one place to another.

Conclusion

All these restrictions have affected the livelihood and sustenance of the inland fishermen. However, the new schemes initiated by the Government will uplift the fishers from the bottom hit situation. In addition, PM Kisan Samman Nidhi Yojana (Asit, 2020), released during Covid-19 lockdown, will be a boost for the fishermen families.

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