ISSN–2278-5655

AMIERJ Peer Reviewed Journal

AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL

Volume–X, Issues– V *Sep – Oct 2021*

AN OVERVIEW OF FISHING INDUSTRY IN INDIA

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Abstract

This research paper presents an overview of the fishing industry in India. The fishing industry is an essential source of food, nutrition, employment, and income in India. Fish and fish products are affordable and the healthiest options to mitigate hunger and malnutrition. The fisheries sector is dominated by socio-economically backward people all over India. It provides a cheap source of nutrients to society. However, still, several issues and challenges are hindering the fishery sector. There is a severe need of applying good management practices for the long-term sustainability of the fishing industry.

Keywords: *Fishing, Fisherfolks, Fisheries, Aquaculture*

Introduction

According to FAO "Fishing is the capture of aquatic organisms in marine, coastal and inland areas. Marine and inland fisheries, together with aquaculture, provide food, nutrition, and a source of income to around 820 million people around the world, from harvesting, processing, marketing, and distribution. For many, it also forms part of their traditional cultural identity. One of the greatest threats to the sustainability of global fishery resources is illegal, unreported and unregulated fishing".

Marine Stewardship Council defined fishing as "A fishery is an area where fish are caught for commercial or recreational purposes. It can be a defined body of water or a collection of fishing activities that have been agreed upon by countries and fishers. You often have different fisheries for each target species of fish or shellfish".

The fishing industry is an essential source of food, nutrition, employment, and income in India. Fish and fish products are affordable and the healthiest options to mitigate hunger and malnutrition. The fisheries sector is dominated by the socio-economically backward

people all over India. It provides livelihood to more than 2.8 crores fishers and fish farmers at the primary level as well as in the fish value chain (Fisheries Statistics, 2020). According to the annual report of the Department of Animal Husbandry and Dairying (DADF) 2020, India is contributing to 5.43% of global fish production in the world. India is the 3rd largest fish producing and 2nd largest aquaculture nation in the world after China (Department of Fisheries, GOI). This sector is considered as a sunrise sector and is composed to play a significant role in the Indian economy in near future.

Objectives

1. To understand the history of the fishing industry in India
2. To estimate the role of government in fisheries management
3. To find out the issues and challenges faced by Fisherfolks
4. To suggest some remedial measures to overcome the issues in the fisheries sector.

Literature Review

Ayyappan and Krishnan (2004), expressed that the fishing industry plays a vital role in the socio-economic development of the country. It provides a cheap source of nutrients to society. However, still, several issues and challenges are clogging in the fishery. There is a severe need of applying good management practices for the long-term sustainability of the fishing sector.

Pradeep M.D (2017) found that the fishery sector must improve the productivity of the sector by adopting the scientific method in fish culture. Fisherfolks lack training and education. Overcoming these problems improves the socio-economic and political status of the fishermen. Fisherfolks from below the poverty level are still using traditional methods of fishing. If they are trained sufficiently to use the latest technology, it may change their standard of living and improves the economic condition of the society.

Alin Kadfak (2019) studied the livelihood strategies of fishers and youth in an urban fishing community in India. Fisherfolks in urban places are enjoying better access to centralized fishing facilities and good job opportunities than rural fisherfolks. The young fisherfolks use diversified ways/techniques to catch the fish so that they can manage the risk and returns in fishing.

History

According to the Food and Agricultural Organization (FAO) report 2020, Fishing in India has a long history with references to fish culture in Kautilya's Arthashastra (321–300 B.C.) and King Someswara's Manasoltara (1127 A.D.). The traditional practice of fish

culture in small ponds in eastern India is known to have existed for hundreds of years. The fish culture received notable attention from many states of India such as Tamil Nadu, West Bengal, Punjab, Uttar Pradesh, Karnataka, Andra Pradesh, Maharashtra, Gujarat, Goa, etc. They have initiated fish culture through the establishment of fisheries departments and support to fishers and farmers for the expansion of the sector.

Fisheries Management Structure in India

Fisheries in India is a very important economic activity and sunrise sector with varied resources and potentials. Fisheries governance in each state is handled by the respective state governments. The role of the central government is to complement the efforts in this regard under the guiding principles of cooperative federalism. The fishing industry is segregated into two parts namely inland fisheries and marine fisheries. Inland Fisheries are fully managed by state governments and marine fisheries are a shared responsibility between the central and coastal state/UT governments. According to the National Fisheries Policy (NFP) 2020, Coastal states/UTs are responsible for the development, management, and regulation of fisheries in the sea waters inside the 12 nautical miles (22 km) territorial limit. The government of India is responsible for the development, management, and regulation of fisheries in the Exclusive Economic Zone (EEZ) waters beyond 12 nautical miles and up to 200 nautical miles (370 km). It is a collaborative effort from both central as well as state governments in managing and regulating the resources for the sustainable development of fisheries.

Role of Government in Fishing

Government is the ultimate body for the growth of all types of industry. The fishing industry is not exceptional in this regard. There are different types of central and state governed institutes shouldering the responsibility of fisheries and marine habitat across several agencies at the central and state level such as the Department of Fisheries Government of India, National Fisheries Development Board (NFDB), Department of Animal Husbandry, Dairying and Fisheries (DAFD), Coast Guard, Ministry of Environment and Forests. Several research institutes conduct continuously research-based activities under the fisheries sector such as Fisheries Survey of India (FSI), Central Marine Fisheries Research Institute (CMFRI), Central Institute of Fisheries Education (CIFE), Central Institute of Fisheries Technology (CIFT), Central Institute of Fisheries Nautical and Engineering Training (CIFNET), Indian National Centre for Ocean Information Services (INCOIS), etc.

The Government of India has launched various central and state-sponsored schemes for the development of the fishing sector. The "Blue Revolution" or the "Neel Kranti Mission" was launched in the year 2016 with a vision to achieve economic prosperity of the country and the fishers and fish farmers as well as contribute towards food and nutritional security through full potential utilization of water resources for fisheries development in a sustainable manner, keeping in view the bio-security and environmental concerns (Blue Revolution, 2019). It focuses mainly on increasing fisheries production and productivity from aquaculture and fisheries resources, both inland and marine. The key goal of the scheme was to increase the share of Indian fisheries in the export sector significantly. It ensures doubling the income of the fishers and fish farmers with inclusive participation of the socio-economically weaker sections and ensures sustainability with environment and bio-security.

Recognizing the importance and potential of the fisheries sector, the government of India approved the flagship scheme, Pradhan Mantri Matsya Sampada Yojana (PMMSY), in May 2020 under the Aatmanirbhar Bharat COVID-19 relief package with a vision to bring about blue revolution through sustainable and responsible development of fisheries sector.

Pradhan Mantri Matsya Sampada (PMMSY) is a scheme approved at a total estimated investment of Rs. 20,050 crores and implemented over 5 years from FY 2020-21 to FY 2024-25. The scheme intends to address critical gaps in fish production and productivity, quality, technology, post-harvest infrastructure and management, modernization and strengthening of the value chain, traceability, establishing a healthy fisheries management framework, and fisheries welfare (PMMSY Report, 2020).

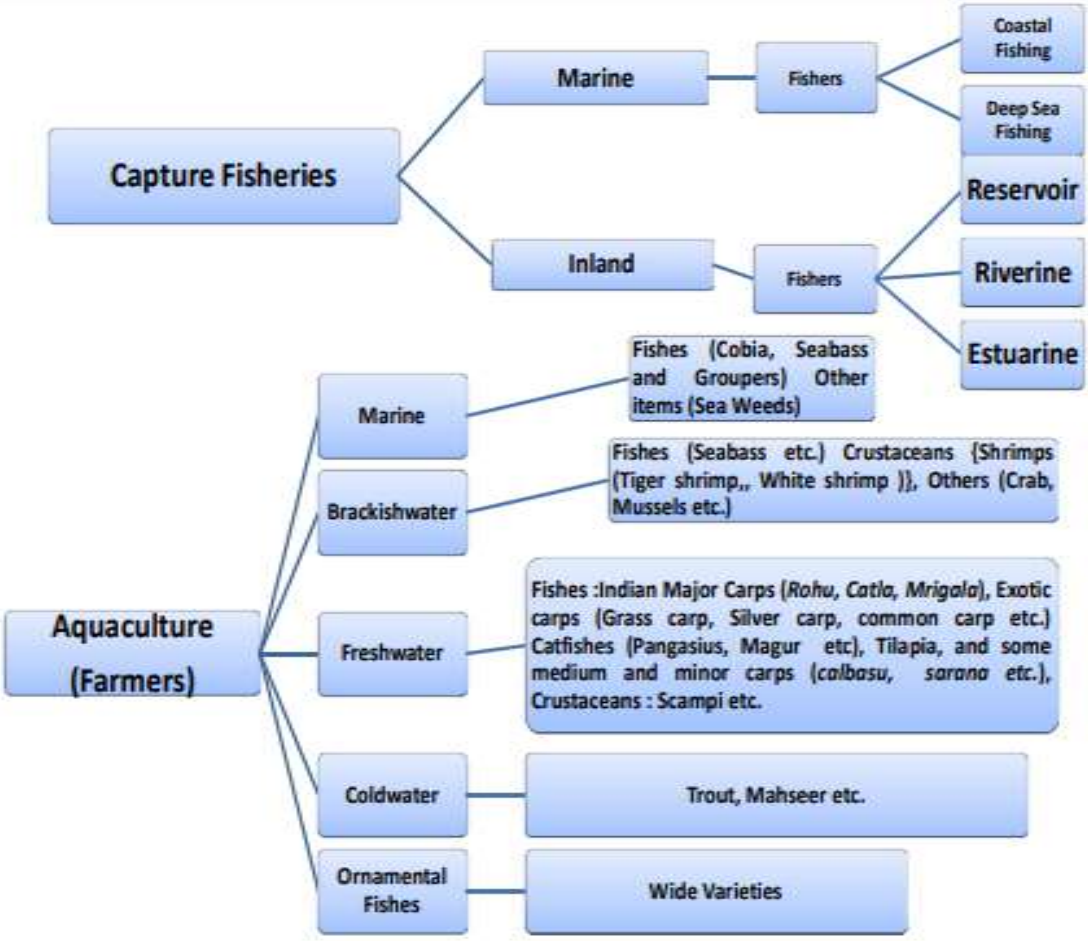
Group Accident Insurance scheme (GAIS) is a scheme applicable to fishers include fish workers, fish farmers, and any other category of persons directly involved in fishing and fisheries-related allied activities. Insurance of such fishers is one of the sub-components of the PMMSY scheme for the men or women fishers in the age group of 18 to 70 years. It covers the insured against permanent or partial disability, death or permanent total disability, and accidental hospitalization (NFDB Report, 2020).

Fisheries and Aquaculture Infrastructure Development Fund (FIDF) is a fund for the fisheries sector initiated in the year 2018. The Department of Fisheries, Ministry of Fisheries, Animal Husbandry & Dairying, Government of India created a dedicated fund, FIDF, with a total funds size of Rs 7522.48 crore for the creation of fisheries

infrastructure facilities both in marine and inland fisheries sectors. It aims to achieve a sustainable growth of 8-9 percent, in a move to expand the country's fish production to the level of about 20 million tonnes by the year 2022-23. FIDF visualizes the creation of fisheries infrastructure facilities both in marine and inland fisheries sectors. FIDF provides concessional finance to the Eligible Entities (EEs), including State Governments/Union Territories and State entities for the development of identified fisheries infrastructure facilities through Nodal Loaning Entities (NLEs) such as NABARD, NCDC, scheduled banks, etc (FIDF Report, 2018).

Apart from the above schemes, there are also many schemes sponsored by the government of India for the upliftment of the fisheries sector namely development of inland fisheries and aquaculture, development of marine fisheries, infrastructure, and post-harvest operation, the welfare of fishermen, schemes on National Cooperative Development Corporation (NCDC) in the development of fisheries, on-going subsidy scheme on Marine Products Export Development Authority (MPEDA), etc.

Scope of Fisheries



Source: Department of Fisheries, States/UTs Government, 2020

Updated Fisherman Population and their percentage as the whole Population of States/UTs

S.No.	States/UT's	Number of Districts	Fishermen Population	Whole Population	Population per Districts	Fishermen population as a percentage of total fishermen population of India	Fishermen population as a percentage of population of respective States/Uts
1	Andhra Pradesh	13	14,47,529	5,39,03,393	1,11,348	5.17	2.69
2	Arunachal Pradesh	25	24,015	15,70,458	961	0.09	1.53
3	Assam	33	25,24,106	3,56,07,039	76,488	9.01	7.09
4	Bihar	38	60,27,375	12,47,99,926	1,58,615	21.52	4.83
5	Chhattisgarh	27	2,20,355	2,94,36,231	8,161	0.79	0.75
6	Goa	2	10,545	15,86,250	5,273	0.04	0.66
7	Gujarat	33	5,58,691	6,38,72,399	16,930	1.99	0.87
8	Haryana	22	1,18,455	2,82,04,692	5,384	0.42	0.42
9	Himachal Pradesh	12	11,806	74,51,955	984	0.04	0.16
10	Jammu & Kashmir	22	17,396	1,36,06,320	791	0.06	0.13
11	Jharkhand	22	1,40,897	3,85,93,948	6,404	0.50	0.37
12	Karnataka	30	9,74,276	6,75,62,686	32,476	3.48	1.44
13	Kerala	14	10,44,361	3,56,99,443	74,597	3.73	2.93
14	Madhya Pradesh	52	22,32,822	8,53,58,964	42,939	7.97	2.62
15	Maharashtra	36	15,18,228	12,31,44,223	42,173	5.42	1.23
16	Manipur	16	47,711	30,91,545	2,982	0.17	1.54
17	Meghalaya	11	16,567	33,66,710	1,506	0.06	0.49
18	Mizoram	11	6,289	12,39,244	572	0.02	0.51
19	Nagaland	11	7,958	22,49,695	723	0.03	0.35
20	Odisha	30	15,17,574	4,63,56,334	50,586	5.42	3.27
21	Punjab	22	7,591	3,01,41,373	345	0.03	0.03
22	Rajasthan	33	57,260	8,10,32,689	1,735	0.20	0.07
23	Sikkim	4	581	6,90,251	145	0.00	0.08
24	Tamil Nadu	37	12,83,751	7,78,41,267	34,696	4.58	1.65
25	Telengana	33	8,62,221	3,93,62,732	26,128	3.08	2.19
26	Tripura	8	7,761	41,69,794	970	0.03	0.19
27	Uttarakhand	13	8,352	1,12,50,858	642	0.03	0.07
28	Uttar Pradesh	75	39,00,005	23,78,82,725	52,000	13.92	1.64
29	West Bengal	23	32,36,261	9,96,09,303	1,40,707	11.55	3.25
30	A and N Islands	3	25,941	4,17,036	8,647	0.09	6.22

31	Chandigarh	1	524	11,58,473	524	0.00	0.05
32	Nagar Haveli, Daman & Diu	3	40,016	6,15,724	13,339	0.14	6.50
33	Delhi	11	617	1,87,10,922	56	0.00	0.00
34	Ladakh	2	22	2,89,023	11	0.00	0.01
35	Lakshadweep	1	6,518	73,183	6,518	0.02	8.91
36	Puducherry	4	1,07,272	14,13,542	26,818	0.38	7.59
India		733	2,80,11,649	1,37,13,60,350	38,215	100.00	2.04

Table 1: Updated Fisherman population and their percentage, 2020

Source: Department of Fisheries, States/UTs Government.

Above is the table of Fisherman population and their percentage as the whole population of States/UTs of Indian fishing industry. Out of 36 states and UTs, there are 733 districts, which has total 1,37,13,60,350 population in which there are 2,80,11,649 fishermen population. Each district has an average of 38,215 population per district.

Issues and Challenges of Fishing Industry

The Indian fisherfolks are facing different types of issues and challenges which are discussed below:

- **Poverty and Debt Cycle of Small-Scale Fisheries:**

According to Rashid et al. (2020), poverty is a major problem in the fishing community. It is credited by several different factors such as education, nutrition, health, capabilities and political influence, etc. Fisherfolks that depend upon the traditional method of fishing face liquidity problems. Fishing by profession is seasonal. During the off-season, small-scale fisheries face a cash crunch for daily consumption. Therefore, to fulfill the fundamental requirements they borrow credits from banks through self-help groups or moneylenders. Fishing is the only way of food and employment for these artisans and otherwise no option for livelihood. The high rate of interest and repayment of debts during the off-season are also major challenges for the fisherfolks.

- **Climate Change, Shocks and Vulnerability**

Rashid et al. (2020), stated that poverty and vulnerability both are interlinked. Fisherfolks undergo different kinds of shocks due to natural disasters, climatic changes, cyclones, and fewer catches. These shocks make fishermen vulnerable and leave no option other than unemployment. Fisher et al. (2020) argued that vulnerability varies within and across food systems which depend upon the severity of the shock and the sensitivity and adaptive capacity of community members. Fishing Communities are the most vulnerable to

climate shocks as their resource-based economies operate at the interface of the environment and society.

- **Lack of Education and Training**

Moddax (2007) stated that the fishing community is suffering from low literacy and schooling. It has created a vicious circle within this community. They are less interested in education including the youngsters. As compare to other occupational communities, a fishing community in developing countries experience the highest educational disadvantages. The inadequate access to education and training leads to poverty and it hampers the economic development of the society. The Food and Agriculture Organization (FAO) highlighted the importance of suitable equipment, training, experience, information, education, and judgment to avoid getting into trouble in onshore fishing.

- **Shortage of Skilled Manpower**

Rajeev and Nagendran (2018) stated that skilled laborers earn double the wages as compared to unskilled labours. However, the percentage of skilled labour available in the fishing sector is very low, and unskilled labours survive weakly under below poverty level due to inadequate financial support. Nandan (2017) predicted that the Indian fishing industry will face different types of issues and challenges socially, economically, and environmentally and to handle these issues it is necessary to have highly skilled, trained, and educated workers in the fishing sector. The shortage of skilled manpower breaks the chain of growth and sustainable development. Dubey (2018) stated that it is harder to change the mindset of traditional fish farmers. Meantime, it's necessary to change and improve the capacity of fisherfolks. Training needs to be arranged by the respective state or central government. It also requires expert trainers to understand the level of fisherfolks and train them accordingly.

- **Usage of ICT in Fishing**

Mazuki et al. (2020) discussed the benefits of technology in fisheries and expressed that the fishing community needs more technology to anticipate the climatic changes and apply different fishery practices. IT tools improve the knowledge and communication of the communities. The different IT tools which are used in fish catching and for fisheries resource management are Monitoring, Control and Surveillance (MCS), Vessel Monitoring System (VMS), Automatic Identification System (AIS), Radio Frequency Identification (RFID), Global Systems for Mobile Communication (GSM), Electronic

Recording and Reporting System (ERS), etc. (Girad and Payrat, 2017). There are lot many studies conducted by different researchers all over the world on technological usage in the fishing industry. However, when we think of the Indian fisheries perspective, a question raised here is to what extent the rural fisherfolks use information technology in fishing? especially the small-scale fishermen who catch fish for grossing daily wages. Policymakers must concentrate more on small-scale fisheries to improve the method of fishing.

Overfishing

According to Mansfield (2011) "overfishing" refers to a situation in which fishing considerably reduces the wealth of a population of fish and it causes a variety of broader ecological and socio-economic changes. The crisis of overfishing has both environmental and socio-economic dimensions. It is a problem for fish, their ecosystems, and the people that depend on them. It is not only harmful to the ecosystem; it also creates a problem for the people who depend upon fishing and fish allied activities. Overfishing reduces fish population not just by killing much fish, but by reducing the wealth of breeding adults so that they are unable to reproduce quickly enough to replace the population.

Future of Fishing Industry

Fisheries are the primary source of income for millions of people in the world. They are the only commercialized source of wild-caught protein (Jiani, 2020). Due to COVID 19 pandemic and financial crisis, fisheries are badly affected all the way. The government bodies and the policymakers need to focus more on the safety and security of the fisherfolks community. The state and the central governments have sponsored many new schemes for the welfare of the fishing industry. These schemes focus on increasing fish production activities and boost the effective utilization of resources. Small-scale fisheries (SSF) play a vital role in the existence of rural artisans. They use traditional methods for catching fish which does not harm the ecological system. They fulfil the local demand rather than focussing on global supply. Hence it is the need of the hour to protect the rights of small-scale fisheries.

According to Rod Fujita (2018), using IT in fishing helps us to make advanced researches in fishing. It can collect the required data to see and detects illegal fishing. GPS is used by various countries for detecting and catching fish. Sustainable fishing and responsible consumption are highly required in the fisheries sector for the future perspective. However, there is less provision for improving the social capital of fishing communities

through education, training, and environmental protection. Governments and policymakers need to work on these areas for creating better opportunities and upliftment of the sector.

Conclusion

India is the second-largest producer of fish in the world contributing to 5.43% of global fish production. India is also a major producer of fish through aquaculture and ranks second in the world after China. The fisheries sector occupies a very important place in the socio-economic development of the country. It has been recognized as a powerful income and employment generator as it stimulates the growth of several subsidiary industries, and is a source of cheap and nutritious food. Most importantly, it is the source of livelihood for a large section of the economically backward population of the country. The government of India is promoting the fisheries sector by introducing various schemes and subsidies for fishing communities. There are different types of central and state-headed institutes playing their vital role in the fisheries sector. However, Indian fisheries still facing different issues and challenges in fishing activities. Governments and policymakers must concentrate more on these issues and needs to bring more measures to protect fish and fishing communities.

Suggestions

Based on the issues and challenges listed above, the researcher suggested some remedial measures to overcome those issues below:

1. Poverty is a major problem of small-scale fisheries. There is still more provision required for fisherfolks' livelihood during the off-season. The high-interest rate on borrowings and repayment of loans during the off-season is also a major problem of rural fisherfolks. Hence there must be more schemes, facilities for fisheries to overcome this common problem. Policymakers must take innovative decisions to deal with these problems.
2. Climatic changes, shocks, and vulnerability are natural disasters that could not be controlled directly by a human being. However, it can be indirectly reduced by using natural resources economically and ethically. Government must plan for disasters management activities tactically and fisherfolks must be trained accordingly.
3. Education is a powerful tool to impart new techniques in fishing and for other activities such as communicating onboard etc. The education and training improve

the skill sets and knowledge level of fisherfolks. The Indian fisheries sector is facing a shortage of educated employees in fishing. There must be minimum schooling facilities and training for fisherfolks before entering into fishing activities.

4. As compared to global fishing, the Indian fisheries sector has a low level of technology usage. We must learn and adopt the strategy called, "Think global and act local" in terms of using ICT tools in fishing. By considering the account of major shifts taking place in the fishing sector and combining forward-looking policies with useful new technologies, one can ensure that the fish sector remains environmentally sustainable as well as beneficial for the world's poor people. (Delgado et al. 2003)
5. Overfishing is a global issue in the fishing community. It declines the value of the ecosystem. Government must ensure proper policies on overfishing and provide the substitute option of employment opportunities to fisherfolks during fish reproduction season to avoid overfishing.
6. To achieve all these, a coordinated and group approach between the public sector, the private sector, and NGOs is required and it provides each stakeholder an opportunity to promote sustainable fisheries for a secured tomorrow. (Sinha et al., 2017).

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