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Fisheries Sector: a feminine perspective

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Abstract
Fisheries sector has an important role in the socio-economic development of a nation. Bihar being mainly an agrarian economy, fisheries play a crucial role in socio-economic and political life of the state. Women take the twin responsibility of fish trading and taking care of the family. Most of their work and contribution goes under reported and unpaid, which undermines their socio-economic advancement.
Objective – Through this paper we are wishing to examine the role of fisheries sector through a feminist perspective like WLFPR in this sector, problem of women fish sellers and producers. Exploring the potential of fisheries sector for socio-economic upliftment/ empowerment of women in Bihar.
Method – through review of literature of existing literature and studies , we will explore the major problems of women in Fisheries sector and growth prospects of this sector
Keywords -

I. Introduction

India is the 3rd largest fish producing and 2nd largest in the world after China in terms of aquaculture. The Blue revolution is changing the landscape of fisheries in the Indian Economy , considered as a Sunrise sector this sector is now poised to contribute actively to the GDP of the Indian Economy.

India is also the ninth largest exporter in terms of quantity and fifth in terms of value. Fish and fish product exports make up nearly 10 percent of the total exports of the country. In terms of employment, the sector supports the livelihood of over 28 million people in India especially the marginalised and vulnerable communities . export earning from the fisheries sector was 46, 662.85 crore during 2019-20.

Estimates indicate that by the year 2030, India's annual demand for the fish will be around 18 million metric tonnes. This calls for strategic and a strong action plan that involves all stakeholders.

Bihar is the 13th largest state of India in terms of area located in the eastern part of India . the state fisheries resource is mainly dependent of inland resources , the inland fishery resource of the state like – Ganga, Gandak, Kosi, Bagmati, Kamala, Balan, BudhiGandak, Mahananda, Son, Punpun, Saryu etc.). There is an immense possibility for small scale fisheries development by using these resources efficiently. Fisheries sector serves as one of the productive source of livelihood for a large proportion of landless and small landholders in the state. The share of fisheries and aquaculture in the agricultural GSDP of Bihar was about 8.4 perecentin 2019-20. Total fish production in the state witnessed a steady growth and increased from 5.87 lakh tonnes in 2017-18 to 7.62 lakh tonnes in 2021-22, having an annual growth of 6.7%.

Role of fisheries sector in Agriculture
Trends in Fish Production in India

The total fishermen population as per Livestock Census, 2003 was 14,485,354, which include 4,696,158 males, 4,033,963 females and 5,755,233 children. Fishermen engaged full time in fishing operations were 933,124 and part time were 1,072,079 (Handbook on Fisheries Statistics, 2014).

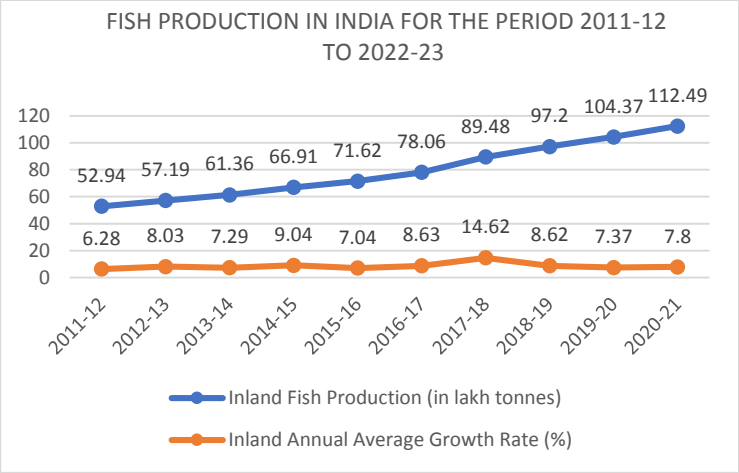
Total Fish production – 162.48 Lakh Tonnes, marine fish production – 41.27 lakh tonnes, Inland Fish Production – 121.21 lakh tonnes, quantity of Fisheries Export – 13, 69, 264 tonnes. (Handbook on Fisheries Statistics, 2023).

India is the third largest fish and aquaculture –producing country and accounts for 16% of total inland and 5% of total global marine fish production. In 2021-22, India's total fish production stood at 162.48 lakh tonnes, which includes 121.21 lakh tonnes from the inland sources and 41.27 lakhtonnes from marine sectors. Fish production has increased significantly from 56.56 lakh tonnes in 2000-01 to 162.48 lakh tonnes in 2020-21. Andhra Pradesh, West Bengal, Karnataka, Odisha and Gujarat evolved to be the five major fish producing states in India.

Andhra Pradesh, West Bengal and Odisha have highest disposition offish catch in 2020-21. Total fish consumption is highest in states such as Uttar Pradesh, Odisha, Bihar, Kerala, Tamil Nadu etc and per capita consumption of fishand prawn is highest in Lakshadweep and Kerala.

FISH PRODUCTION IN INDIA FOR THE PERIOD 2011-12 TO 2022-23		
Year	Inland Fish Production (in lakh tonnes)	Inland Annual Average Growth Rate (%)
2011-12	52.94	6.28
2012-13	57.19	8.03
2013-14	61.36	7.29
2014-15	66.91	9.04
2015-16	71.62	7.04
2016-17	78.06	8.63
2017-18	89.48	14.62
2018-19	97.20	8.62
2019-20	104.37	7.37
2020-21	112.49	7.80
2021-22	121.21	7.76

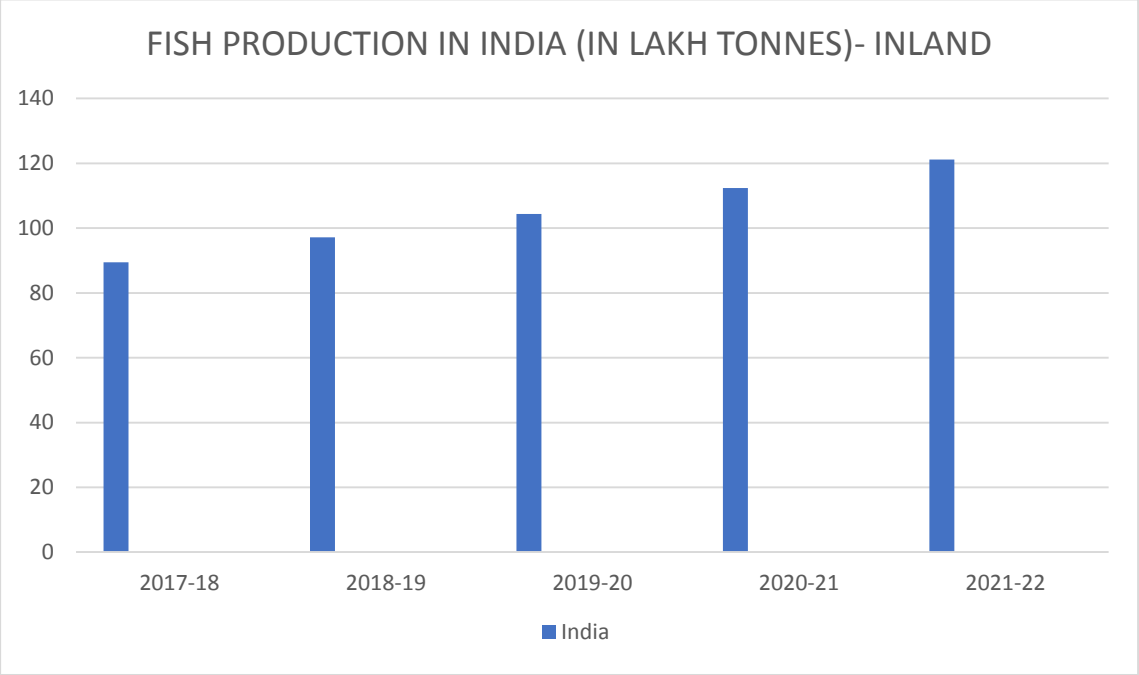
Source: Department of Fisheries, State Govt. / UT Administration



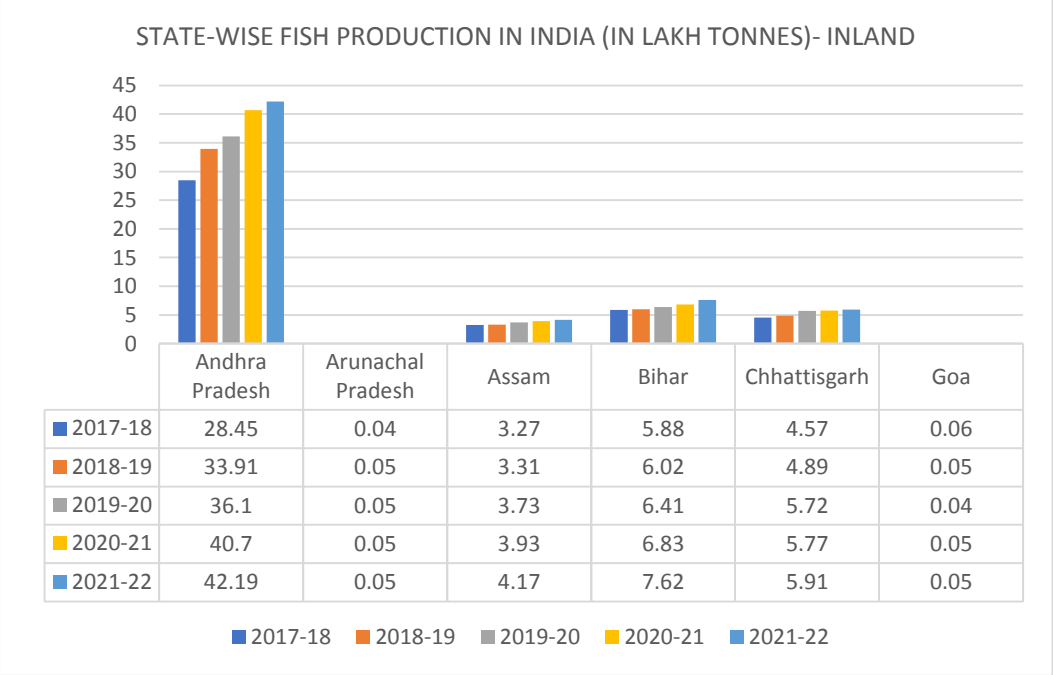
Source: Department of Fisheries, State Govt. / UT Administration

STATE-WISE FISH PRODUCTION IN INDIA (IN LAKH TONNES)					
STATE /UT	INLAND				
	2017-18	2018-19	2019-20	2020-21	2021-22
Andhra Pradesh	28.45	33.91	36.1	40.7	42.19
Arunachal Pradesh	0.04	0.05	0.05	0.05	0.05
Assam	3.27	3.31	3.73	3.93	4.17
Bihar	5.88	6.02	6.41	6.83	7.62
Chhattisgarh	4.57	4.89	5.72	5.77	5.91
Goa	0.06	0.05	0.04	0.05	0.05
Gujarat	1.38	1.42	1.58	1.57	1.86
Haryana	1.9	1.8	1.91	2.03	2.08
Himachal Pradesh	1.88	0.13	0.14	0.15	0.16
Jharkhand	1.89	2.08	2.23	2.38	2.57
Karnataka	1.43	1.98	2.29	2.61	4.85
Kerala	1.31	1.92	2.05	2.24	2.25
Madhya Pradesh	0.33	1.73	2	2.49	2.93
Maharashtra	0.12	1	1.18	1.25	1.57
Manipur	0.08	0.32	0.32	0.33	0.33
Meghalaya	0.09	0.13	0.14	0.16	0.18
Mizoram	5.34	0.07	0.07	0.05	0.05
Nagaland	1.37	0.09	0.09	0.09	0.09
Odisha	0.54	6	6.6	7.01	7.89
Punjab	1.88	1.35	1.51	1.65	1.90
Rajasthan	1.89	0.55	1.16	0.6	0.66
Sikkim	0	0	0	0	0.00
Tamil Nadu	1.85	1.7	1.74	1.75	2.12
Telangana	2.7	2.84	3	3.49	3.90

Tripura	0.77	0.7	0.78	0.82	0.82
Uttar Pradesh	6.29	6.62	6.99	7.46	8.09
Uttarakhand	0.05	0.05	0.05	0.06	0.06
West Bengal	15.57	16.19	16.19	16.69	16.52
A and N Islands	0	0	0	0	0.00
Chandigarh	0	0.01	0.01	0	0.00
D & Nagar Haveli and Daman and Diu	0	0	0	0	0.00
Delhi	0.01	0	0.01	0.01	0.01
Jammu & Kashmir	0.21	0.21	0.21	0.21	0.25
Ladakh	-	-	0	0	0.01
Lakshadweep	0	0	0	0	0.00
Puducherry	0.07	0.07	0.07	0.05	0.08
India	89.48	97.2	104.37	112.48	121.21

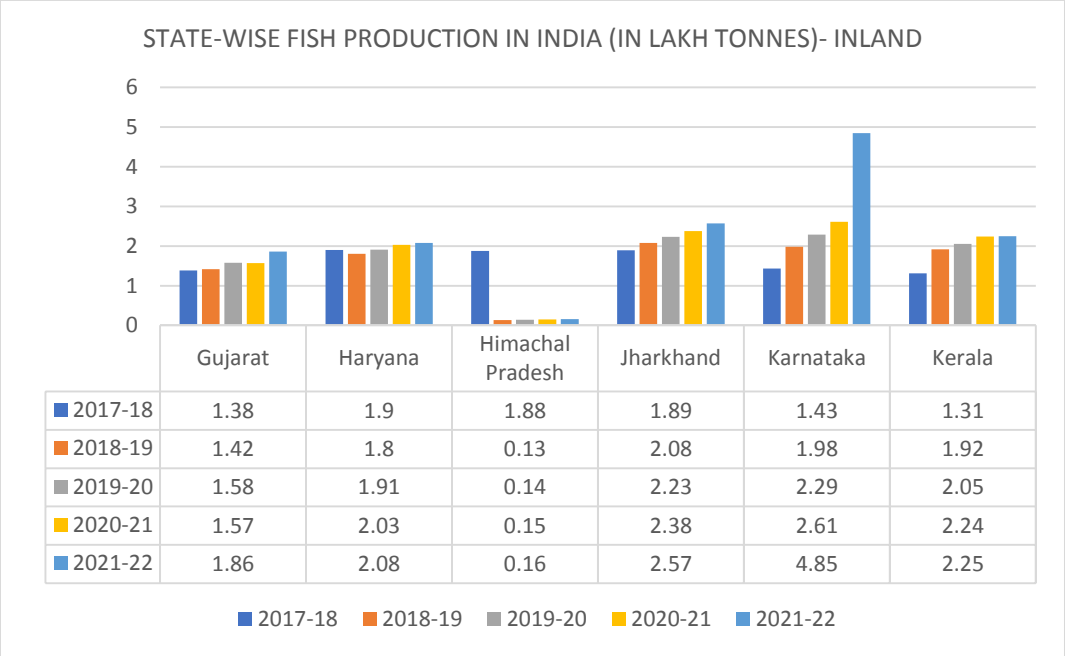


Source: Department of Fisheries, State Govt. / UT Administration



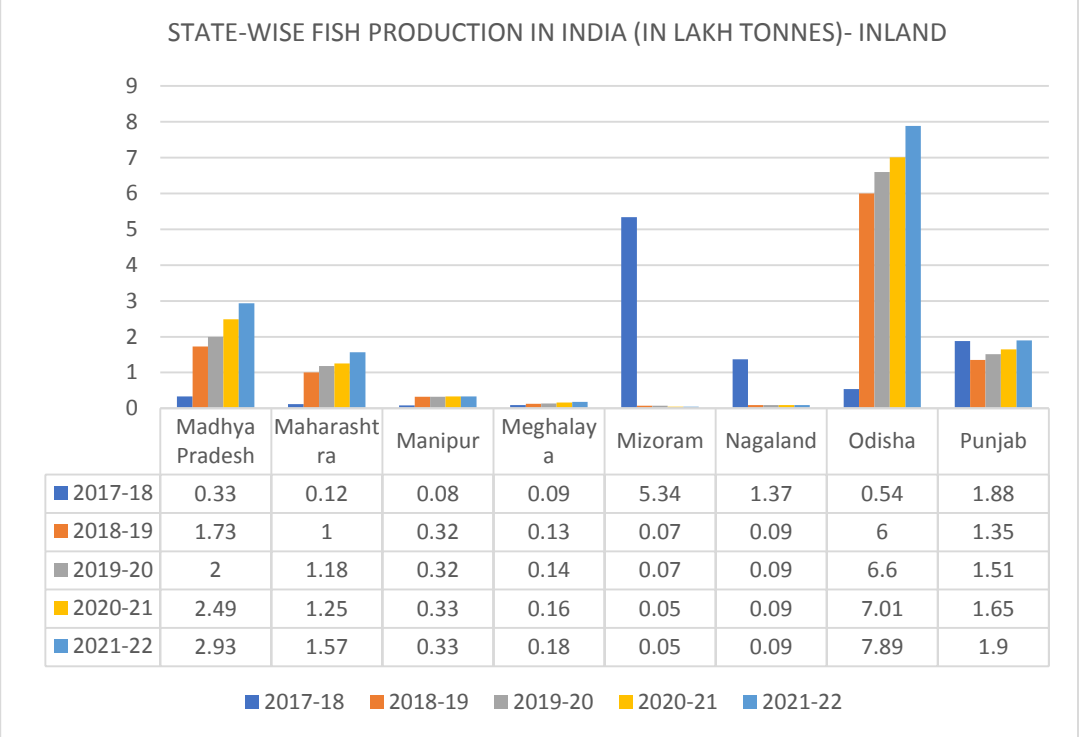
	Andhra Pradesh	Arunachal Pradesh	Assam	Bihar	Chhattisgarh	Goa
2017-18	28.45	0.04	3.27	5.88	4.57	0.06
2018-19	33.91	0.05	3.31	6.02	4.89	0.05
2019-20	36.1	0.05	3.73	6.41	5.72	0.04
2020-21	40.7	0.05	3.93	6.83	5.77	0.05
2021-22	42.19	0.05	4.17	7.62	5.91	0.05

Source: Department of Fisheries, State Govt. / UT Administration



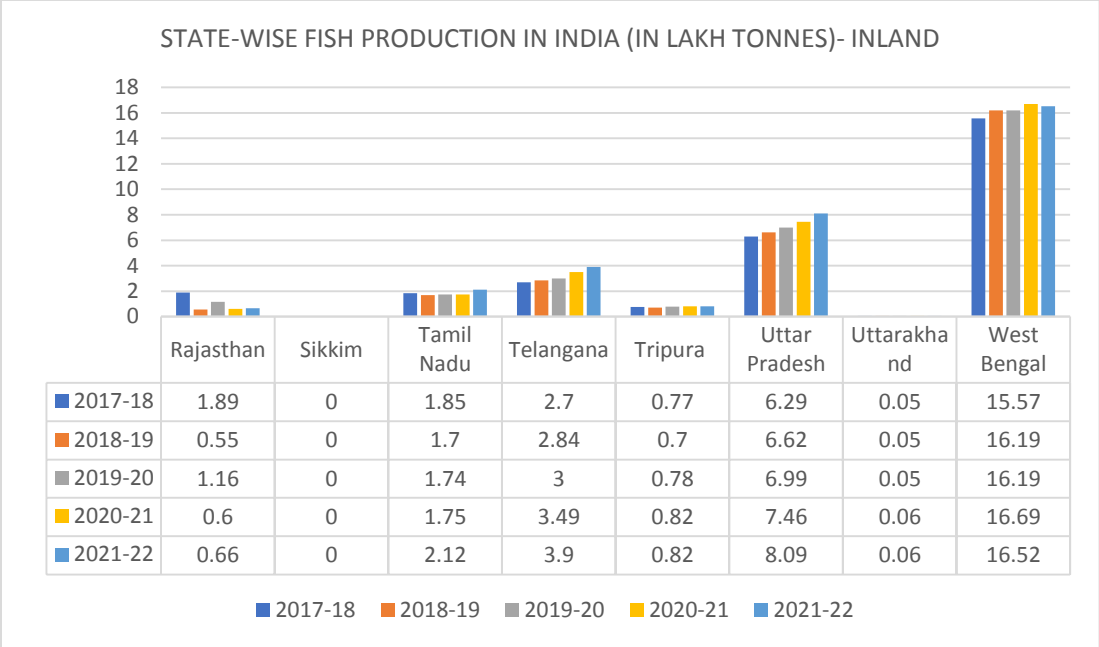
	Gujarat	Haryana	Himachal Pradesh	Jharkhand	Karnataka	Kerala
2017-18	1.38	1.9	1.88	1.89	1.43	1.31
2018-19	1.42	1.8	0.13	2.08	1.98	1.92
2019-20	1.58	1.91	0.14	2.23	2.29	2.05
2020-21	1.57	2.03	0.15	2.38	2.61	2.24
2021-22	1.86	2.08	0.16	2.57	4.85	2.25

Source: Department of Fisheries, State Govt. / UT Administration



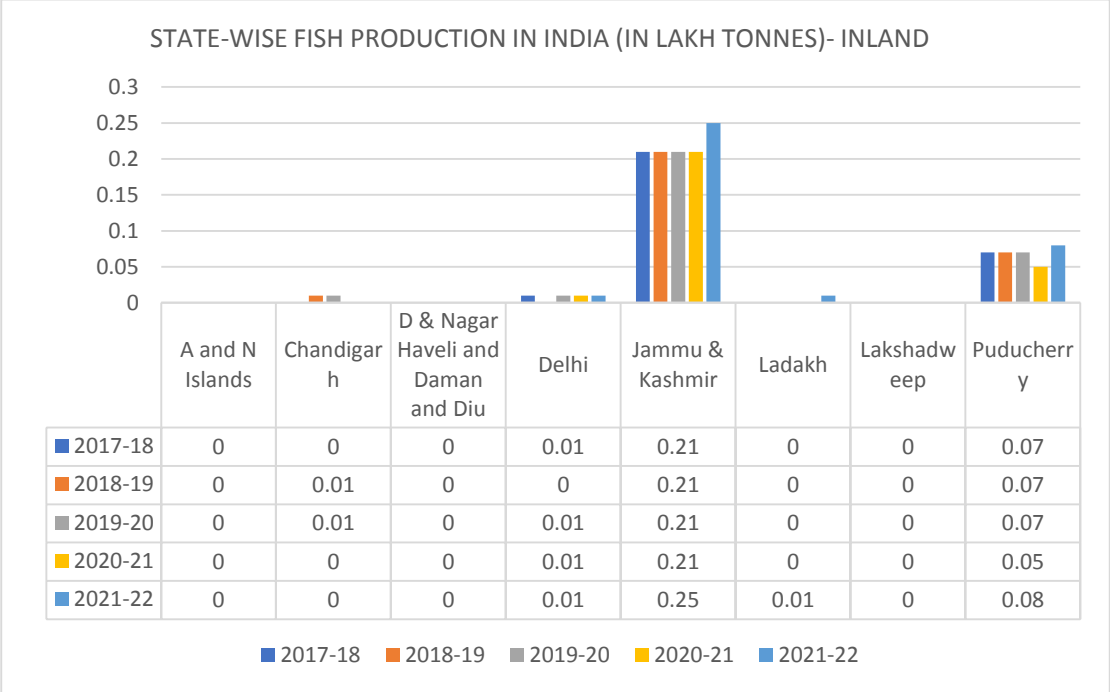
	Madhya Pradesh	Maharashtra	Manipur	Meghalaya	Mizoram	Nagaland	Odisha	Punjab
2017-18	0.33	0.12	0.08	0.09	5.34	1.37	0.54	1.88
2018-19	1.73	1	0.32	0.13	0.07	0.09	6	1.35
2019-20	2	1.18	0.32	0.14	0.07	0.09	6.6	1.51
2020-21	2.49	1.25	0.33	0.16	0.05	0.09	7.01	1.65
2021-22	2.93	1.57	0.33	0.18	0.05	0.09	7.89	1.9

Source: Department of Fisheries, State Govt. / UT Administration



	Rajasthan	Sikkim	Tamil Nadu	Telangana	Tripura	Uttar Pradesh	Uttarakhand	West Bengal
2017-18	1.89	0	1.85	2.7	0.77	6.29	0.05	15.57
2018-19	0.55	0	1.7	2.84	0.7	6.62	0.05	16.19
2019-20	1.16	0	1.74	3	0.78	6.99	0.05	16.19
2020-21	0.6	0	1.75	3.49	0.82	7.46	0.06	16.69
2021-22	0.66	0	2.12	3.9	0.82	8.09	0.06	16.52

Source: Department of Fisheries, State Govt. / UT Administration



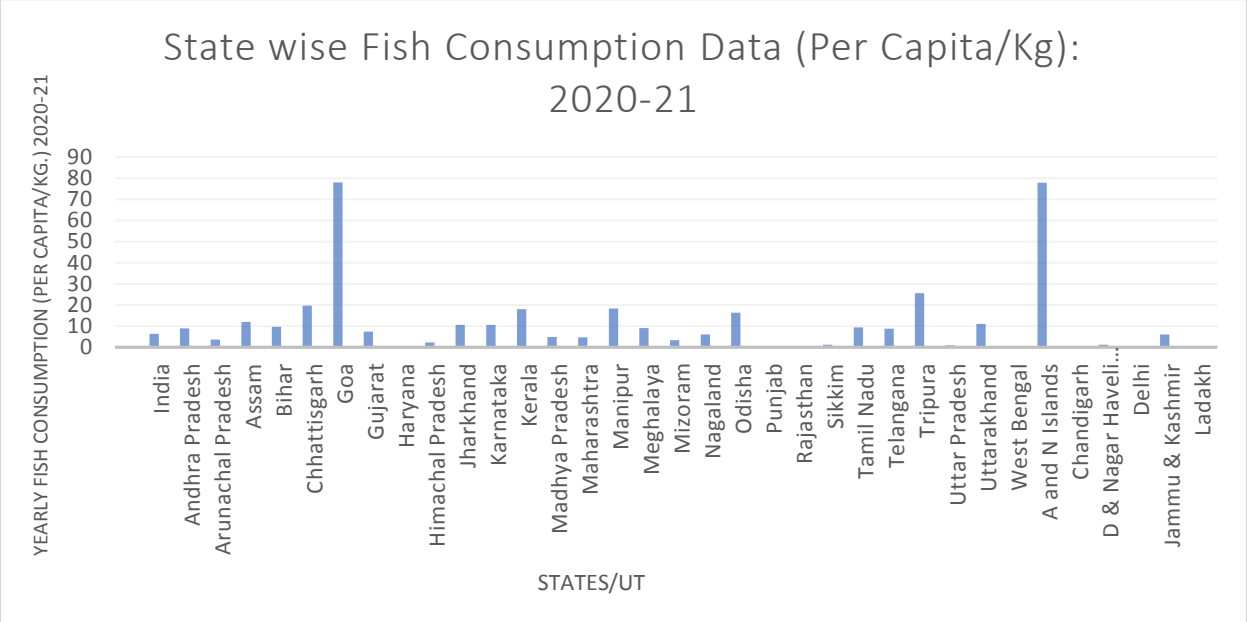
	A and N Islands	Chandigarh	D & Nagar Haveli and Daman and Diu	Delhi	Jammu & Kashmir	Ladakh	Lakshadweep	Puducherry
2017-18	0	0	0	0.01	0.21	0	0	0.07
2018-19	0	0.01	0	0	0.21	0	0	0.07
2019-20	0	0.01	0	0.01	0.21	0	0	0.07
2020-21	0	0	0	0.01	0.21	0	0	0.05
2021-22	0	0	0	0.01	0.25	0.01	0	0.08

Source: Department of Fisheries, State Govt. / UT Administration

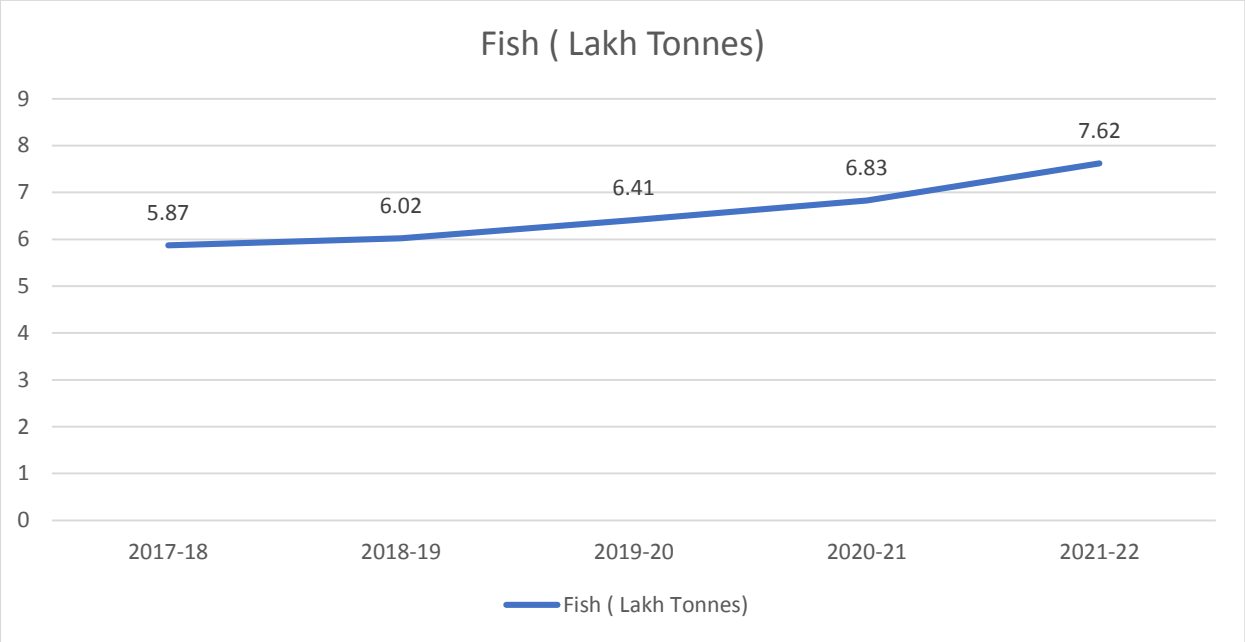
State wise Fish Consumption Data (Per Capita/Kg): 2020-21	
States/UT	Yearly Fish Consumption (Per Capita/Kg.) 2020-21
Andhra Pradesh	8.91
Arunachal Pradesh	3.65
Assam	11.89
Bihar	9.6
Chhattisgarh	19.7
Goa	78
Gujarat	7.44
Haryana	0.3
Himachal Pradesh	2.22

Jharkhand	10.61
Karnataka	10.55
Kerala	17.93
Madhya Pradesh	4.87
Maharashtra	4.72
Manipur	18.25
Meghalaya	9.00
Mizoram	3.38
Nagaland	6.06
Odisha	16.34
Punjab	0.4
Rajasthan	0.01
Sikkim	1.16
Tamil Nadu	9.3
Telangana	8.7
Tripura	25.53
Uttar Pradesh	0.81
Uttarakhand	11.09
West Bengal	NR
A and N Islands	77.84
Chandigarh	NR
D & Nagar Haveli and Daman and Diu	1.2
Delhi	0.25
Jammu & Kashmir	6.00
Ladakh	0.05
Lakshadweep	125
Puducherry	18.88
India	6.31

NR: Not Received
Source: Department of Fisheries, State Govt. / UT Administration



Source – Handbook of Fisheries statistics, 2023 Department of Fisheries, Government of India



Source: Department of Fisheries, State Govt., Economic Survey 2022-23 Bihar , Department of Finance, State government of Bihar

The leading districts in terms of fish production in the financial year 2021-22 are –Madhubani (0.81 lakh tonne), Darbhanga (0.75 lakh tonne) and East Champaran (0.71 lakh tonne), together accounts for 29.8% of total fish production in the state. In the case of fish seeds, the top three districts are – Muzaffarpur (9250 lakh), Madhubani (2282 lakh) and Banka (1233 lakh) during 2021-22.

Small scale fisheries in Bihar - being a landlocked state, inland small scalefisheries provides a way of income resource with minimum investment to the marginalised population of the state. There are two components of SSF (small scale fisheries) – subsistence and commercial fisheries which co-exists. SSF is vital both for achieving nutritional security and decent livelihood.

Ojha, Krishna (2019) highlighted that thoughvarious scheme in Bihar state but the development is not up to expectations. Subsidies should be diverted towards the development of basic infrastructure, controlling water pollution and market facilities.

Govt should actively focus on reducing the dependency of fishermen community specially
by creating alternative livelihoods. Supporting argument –
relying on rent maximization as a means of poverty alleviation in the small scale fisheries sector it appears to be unrealistic as it solves the problem of livelihood not the rent maximisation .previous literature and study on this matter has highlighted disastrous consequences based on empirical experience from the south for universal application or implementation of rent -maximisation model especially in developing model . there is a need to understand main contribution of small -scale fisheries are not the resource rent but the absorption of surplus labour. There is a need to focus on labour buffer function of fisheries.

Various studies and existing literature earlier revealed a major imbalance in subsidy distribution ,with SSF receiving only about 16% of total global fisheries subsidy . almost 90 % of the capacity enhancing subsidies which are responsible for exacerbate overfishing goes to large-scale fisheries, creating unfair competitive advantage that they already have. There is a need to correct this inequality and enhance SSF economic viability. Minimize the negative effects and enable the sector to become more viable.

Ojha, Krishna (2019) recommended to formulate a transparent leasing policy for efficient use of existing natural water resources, wetland culture based capture fisheries techniques should be promoted, incentivise the number of hatcheries in the state in order to enhance the quality of fish seed , development of post harvestinfrastructure including marketing and storage to reduce the post-harvest loss and maximize the fish case disposition.

Chandra and Sharma (2014) in a conference paper titled – " Gender role in inland fisheries of India : across-country study highlighted that women empowerment in inland fisheries of India is highest in Gujarat followed by Madhya Pradesh and Assam while Bihar being the lowest followed by West Bengal and Odisha. They also highlighted that fishing is mainly done by men , decision making is also done by men while fish marketing and cash handling is done by the women.

Recent schemes and legislation launched by state government towards providing financial and technical support for the growth of the fisheries sector in the state –
Chief minister Integrated Chaur Development scheme : scheme aimed at developing all available wetlands/ chaur areas present in the state. About 600 hectares wetland annually will be developed for fish production integrated with horticulture, agro-forestry and agriculture.
River Ranching Programme
PM Matasya Sampada Yojana
Fish Crop Insurance Scheme
Pen Fish Farming in Open Water

Jal Jeevan Hariyali Mission – this ambitious scheme received recently the 'award of excellence' for e-governance in the 20th CSI-CIG e-Governance Awards in project category, Rural Development department has been appointed as the Nodal department for this mission mode project, whose components includes –

- Identifying and removing encroachments from public water bodies, reservoir etc.
- Restoration and rejuvenation of public water bodies.
- Identification and renovation of public wells.

Slow rate of implementation of this mission a cause of worry. Under this mission over the period of three years (2018-2021) government had to make 9,044 public ponds free from encroachment. Only 531 ponds have been made encroachment free. Darbhanga had 350 ponds in 1960 , according to the district gazetteer, this number declined to 250 in the 1990s and there are only 100 ponds as per the data of municipal corporation.

First census of water bodies conducted under Sixth Minor Irrigation Census (2017-19) of Bihar highlighted that there are total 14,520 ponds, 3777 tanks and 2426 lakes, 1640 reservoirs , 121 percolation tanks, check dams and 315 other water bodies in the state making a sum total of 22,799 water bodies from both urban and rural areas that are not in use. Leaving us a huge pool of Common Pool Resources that can be effectively utilised by the Women involved in fisheries in the state of Bihar.

Problem faced by women in fisheries sector –

In fisheries sector, women face persistent, gender based discrimination and marginalisation defined by the diverse social context . women are present in all phases of fish production, processing and marketing. Women role in fisheries is often concentrated at the bottom of fish value chain and is adversely affected by the changes in the volatile and rapidly changing market which is facing the effects of climate change .

Challenges with traditional fisheries –

- Invisible, unrecognised, unregulated and poorly remunerated – the employment of women in fisheries sector (traditional) is characterised by low incomes, high level of seasonality and low productivity . level of vulnerability and exposure to risk are higher in the case of landless family dependent on daily wages labour based on fisheries activity. (chako,2017) (FAO,2016a)
- The right of access to fish and related activities among fishing communities in marine and inland farming is generally assured by the customary practices and rights.
- Even when government policies tried to address the issue of small scale fisheries , they were not sufficiently gender-sensitive, rights of women fishers have been overlooked in both coastal (marine) and inland fisheries. There is a need to adopt Navagaon model of fisheries based right which is practised in Maharashtra, India which strengthen the legal recognition community property rights. (Al-Rashdi and Mcclean-2014)
- In-efficiencies and associated wastage and loss – globally an estimated 27 per cent of landed fish is lost between landing and consumption . Post harvest loss ranges up-to 30-40 %. Research studies found that enabling women to access market information through their phones improves their income up-to 20%. (Hanoomanjee,2017),(FAO,2018a), (Biswas,2017)
- Lower access to credit – access to credit is crucial for women engaged in fish vending and processing activities. Although their credit require is small but they are the one who are perfect candidate of the microfinance. Earlier studies have highlighted that women in fisheries faces more production constraints than men, including the access to credit. (Mathews et.al. 2012)
- Limited market access – public transport in various forms are inaccessible to fish vendors for sale. Male counterpart are more likely to have a bicycle or other forms of own -transport in comparison to their female counterpart. State intervention is required improve women's access to fish supplies and fish based on Kerala model where fish cooperatives were running buses for their member vendors. (Das and Sundarrajan,2003) (Frocklin al.2013) (Nayak and Vijayan,2006) (Karmakar,2009)
- Lack of formal work recognition- the bargaining power of the women in fisheries remains low, given their work lacks formal recognition , accompanied by the lack of social security for women working in fisheries

sector with rising challenge of intensification of double work burdens highlighted in UN Women's baseline report titled – ' Women's economic empowerment in Fisheries in the blue economy of Indian Ocean RIM.

II. Conclusion

There is a need to increase and scale up the social security benefits to the women working in the fisheries sector of India and Bihar. A focused central and state sponsored scheme focused on economic upliftment of Women in fisheries sector is the need of the hour. There is also the need to scale up insurance scheme under the Blue Revolution scheme run by Government of India. Government of Bihar to bring an active legislation that incentivizes the transfer of fishing rights to women in the state especially for the common pool resources.

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