



# Economic Aspects of Fishes in Fish Market of Jhalawar

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## ABSTRACT

*The goal of Fisheries management is to produce sustainable biological, social, and economic benefits from renewable aquatic resources. Fisheries are classified as renewable because the organisms of interest (e.g., fish, shellfish, reptiles, amphibians) usually produce an annual biological surplus that with judicious management can be harvested without reducing future productivity. Fisheries management employs activities that protect fishery resources so sustainable exploitation is possible, drawing on fisheries science and possibly including the precautionary principle. Modern fisheries management is often referred to as a governmental system of appropriate management rules based on defined objectives and a mix of management means to implement the rules, which are put in place by a system of monitoring control and surveillance. A popular approach is the ecosystem approach to fisheries management.*



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0 40 Kilometers

*In Jhalawar, fish economy and marketing is done based on following approaches:*

*\* Keep a perspective that is holistic, risk-averse and adaptive.*

- *Maintain an "old growth" structure in fish populations, since big, old and fat female fish have been shown to be the best spawners, but are also susceptible to overfishing.*
- *Characterize and maintain the natural spatial structure of fish stocks, so that management boundaries match natural ponds*

- Monitor and maintain pond habitats to make sure fish have food and shelter.
- Maintain resilient pond ecosystems that are able to withstand occasional shocks.
- Identify and maintain critical food-web connections, including predators and forage species.
- Adapt to pond ecosystem changes through time, both short-term and on longer cycles of decades or centuries, including global climate change.
- Account for evolutionary changes caused by fishing, which tends to remove large, older fish.
- Include the actions of humans and their social and economic systems in all ecological equations.

Keywords: Jhalawar, fish, market, economy, management, ponds, stocks, populations, ecosystem

## 1. INTRODUCTION

In Jhalawar, Commercial fishing has started which is the activity of catching fish for commercial profit, mostly from wild fisheries. It provides a large quantity of food to and who practice it as an industry must often pursue fish in fish culturing ponds. This can be turned from small scale to large scale industry by creating fish ponds and expanding aquaculture. This has gained good profits in Jhalawar district of Rajasthan. So, in Jhalawar also fish culture has taken hold which is the process of raising desirable species of fishes in captivity and managing them and their environment to improve growth and reproduction. Fishes are reared in fish farms, or hatcheries, much as farm animals are raised in the barnyard.[1,2]



The fish culturist manages the aquatic environment to protect the fishes from predators, parasites, and disease. The culturist also feeds the fishes and controls water quality to prevent pollution. Fishes may be cultured in raceways—long, narrow channels with flowing water, tanks, ponds, nets, or pens. Trout and salmon, which live in cold water, are cultured in raceways or in large round tanks and floating cages or pens. The culture of coldwater fishes is limited to hatchery sites with clean cold water. Most coldwater

fishes are very sensitive to water pollution and cannot live in contaminated water.[3,4]

Fishes that feed on algae and other aquatic plants are primary consumers. Among these are those classified in the genus *Tilapia* and many species of carp reared in ponds to which fertilizers have been added to promote plant growth. Secondary consumers are fishes that eat animals, including other fishes. Examples include trout, salmon, catfish, bluegills, and bass. Because the fish farmer does not want the fishes to eat each other, the secondary consumers are fed a special balanced diet that contains vitamins, minerals, and animal protein, including fish meal. This keeps them well fed and unlikely to prey on each other. Fish feed is manufactured in pellet form.

The catch of wild fishes from the ocean is not expected to increase dramatically. Thus as the demand for fishes increases, more and more of that demand must be met by aquaculturists rearing fishes under controlled conditions.[5,6]

## 2. DISCUSSION

Rajasthan possesses a large number of water bodies, which offer potential for development of capture and culture fisheries. State has freshwater as well as saline water resources. It has about 4.23 lakh ha. fresh water area besides 30,000 ha. area as rivers and canals, 80000 ha. waterlogged and 1.80 lakh ha. salt affected areas at full tank level. Fish culture activities were looked after by Animal Husbandry Department up to 1981, but looking to the vast water resources available for the fisheries development, a separate department of fisheries was established in 1982 with the following mandate-



- 1) Development and conservation of Fisheries resources.
- 2) Ensure availability of quality fish seed.
- 3) Increase fish production
- 4) Employment generation.
- 5) To promote diversification of aquaculture activities.
- 6) To earn Revenue for the State.

Rajasthan State has made steady growth in inland fisheries during last three decades. Fish production has increased from 14000 mt. in 1980-81 to 28200 mt. in 2010-11. Area under fish culture and fish production both have gone up. Annual growth rate has gone 12.6% between 2000-01 and 2010-11 as compared to the national average 8%. About 60% of the total fish production comes from reservoir and the rest from tank & ponds. While the productivity of large reservoir (55 kg/ha.) is above the national average, productivity of small water bodies (1.2 mt/ha/yr) is far less than the national average. State ranks 18th in the country as regards the fish production.[7,8]

- 4.23 lakh ha water area in the form of reservoirs, tanks and ponds at the full reservoirs level.
- Fish Farmer's Development Agency (FFDA).
- Laboratories and technical expertise are available at Fisheries College of MPUAT.
- Subsidy 20% (Gen), 25% (SC/ST) for different activities (pond excavation, inputs, hatchery establishment and integrated fish farming).
- Inputs for fish based industries and fish markets.

We have prepared a perspective fisheries development plan with the aim to achieve potential fish production of 88277 mt. by increasing both productivity & area through stock enhancement with appropriate seed size & quality by the end of 2020 and fish production of 1,36,311 tons with average productivity of 725 kg/ha by adopting intensive fish culture technology beyond 2020. It is estimated that more than 70,000 livelihood may be sustained directly in fisheries sector by the end of 2020.[9,10]



The total seed demand would be 368.5 million fingerlings/year, while the present supply is only 30% of the demand. The huge demand supply gap has to be bridged-up by producing seed within the State. We have already started innovative scheme for promoting hatcheries and rearing area in private sector under RKVY. We have planned to establish hygienic and modern fish markets in all districts having moderate and high potential for fisheries. Establishment of modern wholesale market in the Jaipur city has started this venture. We are also prepared to start diversifying the aquaculture activity. Establishment of ornamental fresh culture units and fish cum prawn culture under RKVY has clicked the program.

In Jhalawar district of Rajasthan, aquaculture practices are done in ponds, tanks and several reservoirs created by fish farmers, and introduction of fish is done from many seed farms from where they are bought.[11,12]

Details and status of functional seed farms (containing hatchery and rearing space) in Rajasthan are follow-

S. No	Name of the farm (CCH with rearing space)	Functional status (according to the field study)	Production capacity (in millions)	Present Production (in millions)			
			Spawn	Fry	Spawn	Fry	
1.	M.P.U.A.T. Seed farm, Udaipur	Functional & satisfactory performance	100		Produce spawn only	46	-
2.	Chouhary Fish hatchery, Hanumangarh	Functional & satisfactory performance	40 (under stated)		-	40	-
3.	R.T.A.D.C.F. hatchery, Jaisamand	Functional & satisfactory performance	30		-	30	-
4.	Lupin seed farm, Bharatpur	Non functional since 2006	1.71		0.60	-	-
5.	Guvadi seed farm, Bhilwara	Functional Under Performance	100		10.0	60	2.50(25%)
6.	Kasimpura national seed farm, Kota	Functional Under Performance	100		10.0	60	3.00(30%)
7.	Rawatbhata seed farm, Kota	Functional Under Performance	100		10.0	60	2.5(25%)
8.	Bhimpur national seed farm, Banswara	Semi functional	100		0.60	6.4	-
9.	Silised seed farm, Alwar	Semi functional	50		-	10	-
10.	Soorsagar, Kota	Functional	50		-	15	-

From these seed farms fishes are brought and introduced in ponds of Jhalawar and fish culture is propagated. Different water resources are built artificially or are natural in Jhalawar viz. tanks, ponds, rivers, canals etc. where fishing is done.



Total water resources available for fisheries in the Rajasthan State are 15838 no. of water bodies covering an area of 4,23,765 hectare excluding rivers and canals (30,000 ha.) and water logged area (80,000 ha.) at Full Tank Level (FTL). In addition to it 1,80,000 hectare salt affected area is also available. Details of types of water resources, number of water bodies & area at FTL is as

follows:-

Water Resources of Rajasthan (in Ha)		
Type of Water Resources	No. of Water bodies	Area(FTL in Ha)
Minor Tanks & Ponds (< 1 ha)	6913	4745
Medium Tanks & Ponds (1.1 - 10 ha)	6207	25516
Large Tanks & Ponds (10.1 - 100 ha)	2047	63,648
Small Reservoirs (101 -1000 ha)	346	82,396
Medium Reservoirs (1001-5000 ha)	35	64,151
Large Reservoirs (>5000 ha)	12	1,83,309
Total Water Resources	15,561	4,23,765
Rivers and Canals	5000 km	30,000
Waterlogged Areas	-	80,000
Salt Affected Areas	-	1,80,000

About 77% of water bodies (no.) with 66% of FTL area are present in the three division of Ajmer, Udaipur and Kota. Also the districts namely Bhilwara, Jhalawar, Sri Ganganagar, Banswara, Chittorgarh, Tonk, Ajmer and Udaipur have more than 25,000 ha. each of FTL area

constituting as much as 67% of total resources area.[13,14]

Auctioning is necessary for fish trade and economy. Committees for tenders/ auction shall be constituted as under :-

<b>At Directorate Level</b>
Deputy Secretary, Fisheries Department
Nominee of Director, Fisheries (not below the rank of Dy. Director)
Senior Most Accounts Officer in Fisheries Department.

<b>At Zila Parishad Level</b>
C.E.O. Zila Parishad
District Fisheries Officer
Accounts Officer Zila Parishad

<b>At Panchayat Samiti Level</b>
B.D.O. Panchayat Samiti
Nominee of District Fisheries Officer (Not below the rank of Fisheries Inspector)
Senior Most Accounts Perso in Panchayat Samiti

Fish economy in Jhalawar is under governmental control and Licence granted under rule 5 shall remain in force from the date of the issue of licence to 31st March each year including the closed season, declared by the State Government under Rajasthan Fisheries Rules, 1958.

- If the highest tender/ bid is lower up to 10% than the reserve price, the Director Fisheries may accept it. If the offered highest tender/ bid is 10% to 25% lower than the reserve price, the same may be accepted with the approval of Administrative Department in the case of "A" and "B" category waters. In case of "C" and "D" category waters such tender or bid may be accepted by District Fisheries Officer with the approval of District Collector.
- If the offered tender/ bid is more than 25% lesser than the reserve price, the same may be accepted after approval of Finance Department in case of "A" and "B" category waters while in case of "C" and "D" category waters such tender / bid may be accepted with approval of the District Collector.
- Director, Fisheries in the case of 'A' and 'B' category water and Fisheries Officer of concerned district in the case of 'C' and 'D' category waters, should

complete all the procedure for inviting tender/ auction for fishing rights as far as possible before expiry of previous lease period. Highest tender/ bidder shall have right of fishing only after confirmation of acceptance of his tender bid and issue of licence in the form No. 3 of 3A as the case may be, by Director, Fisheries in the case of 'A' & 'B' category waters and by Fisheries Officer of concerned district in the case of 'C' & 'D' category waters".

- In some special circumstances tender procedure can be adopted after 31st March.
- Registered Fishermen Cooperative Societies if participate in the tender/ bid along with the other participants shall be eligible for 5% price preference.
- The Director, Fisheries or auction committee authorized for accepting tenders or conducting auction shall have the right to reject any tender/ bid offered without assigning any reasons.[15]

### 3. RESULTS

Fish market and economy in Jhalawar is consented by the following officers in government sector.

1	Deputy Director Fisheries
2	Joint Director Fisheries
3	Fisheries Development Officer (DR)
4	Personal Assistant
5	Additional Personal Assistant
6	Administrative Officer
7	Additional Administrative Officer
8	Fish Fieldman
9	Fisherman
10	Fisheries Development Officer (PR)
11	Assistant Director Fisheries (PR)
12	Assistant Administrative Officer
13	Junior Assistant (LDC) (PR)
14	Junior Assistant (LDC) (DR)
15	Forth Class (Peon) (DR)
16	Fisheries Inspector

After the consent government fish farms, ponds, reservoirs are used in seeding, cultivation, small to large scale production, marketing and exporting of fish from Jhalawar.[14]

#### 4. CONCLUSION

Fish markets were known in antiquity. They served as a public space where large numbers of people could gather and discuss current events and local politics.

Since refrigeration and rapid transport became available in the 19th and 20th century, fish markets can technically be established at any place like Jhalawar.

However, because modern trade logistics in general has shifted away from marketplaces and towards retail outlets, such as supermarkets, most fish is now sold to consumers through these venues, like most other foodstuffs from Jhalawar to large cities.

Consequently, most major fish markets now mainly deal with wholesale trade, and the existing major fish retail markets continue to operate as much for traditional reasons as for commercial ones. Both types of fish markets are often tourist attractions as well.[15]

#### Conflict of interest statement

Authors declare that they do not have any conflict of interest.

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