



## Economics of Fisheries and Development of Bihar A Case Study of NMCH and Bazaar Samiti, Patna

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**Abstract :** *India has a vast and diverse potential for fishing resources comprising 2 million sq. kms of Exclusive Economic zone for deep sea fishing, 7,250 kms of coastline, 29,000 kms of rivers, 1.7 million hectares of reservoirs, nearly 1 million hectares of tanks and ponds for inland and marine fish production.*

*India is the second largest producer of fish in the world. 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 growth of a number of subsidiary industries and is a*

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*source of cheap and nutritious food besides being a foreign exchange earner .At present, the fisheries sector is a source of livelihood of over 14.4 million people engaged fully, partially or in subsidiary activities pertaining to the sector. Marine Fishing Policy 2004 laid the foundation for a sustainable level of marine fish production keeping in view ecological and bio diversity considerations.*

*Fishery is an important source of livelihood and fish, is an important source of protein. There are 14.4 million fishermen in the country. India ranks second in world fish production contributing about 5.4% of global fish production. It is also a major producer of fish through aquaculture .Total fish production during 2013-14 is estimated at 9.45mt with 6.10mt coming from the inland sector and 3.35mt from the marine sector. The fisheries sector contributes about 1% to the overall GDP and represents 4.6% of agricultural GDP.*

*Bihar occupied third position in inland fish production after Andhra Pradesh and West Bengal respectively in 2013-2014. It contributes about 1.6% of Bihar GSDP. It has plenty of natural resources of water. The paper finds that there is still 9.41 hectare wetland which is unexploited or unexplored yet. Where we practise fish culture with intensive and semi intensive and super intensive technique for more production of fish .If these wetland comes in use then may be in coming years Bihar can rank first in inland fish production.*

**Keywords:** *ecological, nutritious, aquaculture, intensive, subsidiary.*

## **Introduction :**

Fishing is one of the oldest occupations of man. Man learnt fishing much before he could learn something about agriculture. Fishing has assumed much more importance in view of the rapidly increasing population and depleting land resources. Fish provides protein rich food and is also a rich source of vitamins A, B and D. There are about 30000 species of fishes in the world out of which 18,000 are found in India. Fish forms an important part of diet of the people living in the coastal areas of Kerala, West Bengal, Orissa, Andhra Pradesh, Tamilnadu, Maharashtra, Karnataka, Goa and Gujarat.

The economics of fisheries is the study of aquaculture and fisheries in terms of socio economic development of a country, employment generation and foreign exchange earnings. The importance of fisheries is growing in recent fisheries sector. The fisheries sector contributes to the National Income, exports, food and nutritional security and employment generation.

The vast technological options available to the fishery sector led to a fast shift from traditional to mechanized and motorized fishing methods in marine fisheries and from traditional to improved seed production and culture practices in inland fisheries.

Fish constitute an important and plentiful source of high quality animal protein. Fisheries contributes 1.04 per cent to the national GDP and 5.34 per cent to agriculture and allied activities. Fishery resources are of two types viz., marine and inland. Among the Asian countries, India ranks second in aquaculture and third in capture fisheries. The top 10 fish producing countries in the world are China, Japan, India, Chili, Vietnam, Indonesia, Thailand, Bangladesh, Korea, and Philippines respectively. Total catch has climbed fairly steadily since the 1950's. Now about 100 million tonnes per year are taken from the sea.

Bihar is blessed with vast varied fisheries and aquaculture resources. Bihar occupies third position in inland fish production (4.32 LMT) after Andhra Pradesh (6.80LMT) and West Bengal (9.88LMT) as in 2013-14 .However,despite such natural resources and fish as highly preferred food item, aquaculture and open water fisheries resources remain highly underutilized. The underutilization of aquaculture resource, unscientific management of water bodies and lack of entrepreneurship are some of the most obvious reasons for the gap between demand and supply. In spite of these problems fisheries sector provides avenues of self employment. It also provides opportunities for marketing inside and outside Bihar.

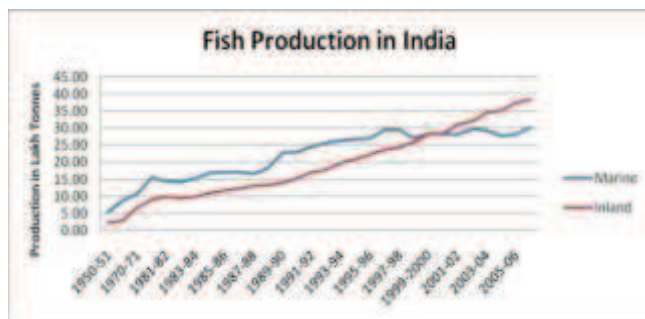
## **Fish Production :**

India is the second largest producer of fish in the world after China. China's reported harvest was more than 10 times that of the second –ranked nation, India. The top 10 producers of fish in world are China, India, Japan, Chili, Vietnam, Indonesia, Thailand Bangladesh, Korea, and Philippines. Aquaculture contributes over one third of the country's total fish production of 9.06 million tons during 2012-13. The total aquaculture production of 4.43 million tonnes was valued at US \$3.5 billion of which carp alone was responsible for as much as 4.18 million tones . As the second most important producer of fresh water fish after West Bengal, Andhra Pradesh markets the bulk of its produce to the eastern and north-eastern states of India through an organized and established marketing network.

The fish catch in India is of two types:

- Sea or Marine Fisheries-It includes coastal, offshore and deep sea fisheries mainly on the continental shelf up to a depth of 200 meters.
- Inland or Fresh Water Fisheries-Rivers, lakes, canals, reservoirs, ponds, tanks, etc contain fresh water and provide fresh

water fish. Inland fisheries also include those obtained from estuaries, delta, channels, back waters, lagoons and coastal lakes.



Source: Indian fisheries.icsf.net

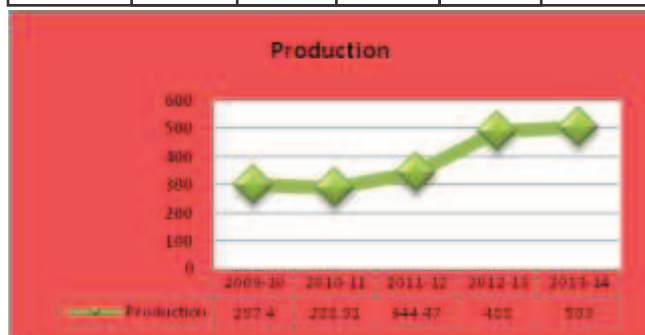
### Fish Production in Bihar :

Bihar occupies third position in inland fish production (4.32 LMT) after West Bengal (9.88 LMT) and Andhra Pradesh (6.80 LMT) as in 2013-14.

### Fish Production of Bihar for year 2009-10 to 2013-14

Table: 1 Production in TMT (Total Metric Tonne)

Year	2009-10	2010-11	2011-12	2012-13	2013-14
Production	297.40	288.91	344.47	488	503

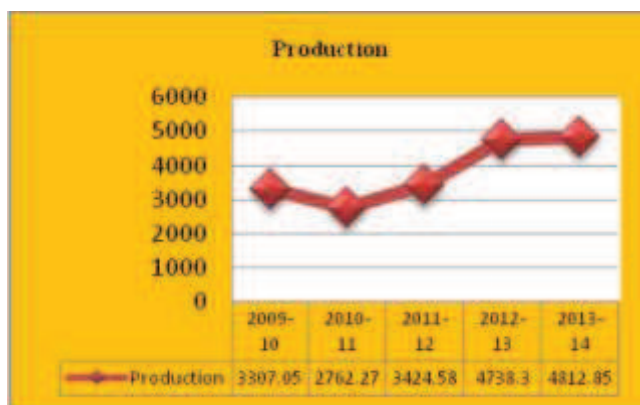


Source: Govt. of Bihar, Department of animal and fish resources (Fisheries) Handbook on fisheries statistics (2013-14)

### Fish Seed Production of Bihar for year 2010-11 to 2013-14

Table:2 Production in TMT (Total MetricTonne)

Year	2009-10	2010-11	2011-12	2012-13	2013-14
Production	3307.05	2762.27	3424.58	4738.30	4812.85



Source: Govt. of Bihar, Department of animal and fish resources (Fisheries) Handbook on fisheries statistics (2013-14)

### Current status of fisheries in Bihar :

Bihar has bountiful natural resources of water in the form of 80,000 hectares of ox-bow lakes and more than 50,000 hectares of water logged area. The demand for fish in state is 5.18LMT but it only produces 4.32 LMT which shows that there is deficit in production. The demand in seed production is 900 million tonnes but production is 4.81 million tonnes only. The target of 12<sup>th</sup> five year plan (2012-13 to 2016-17) in fish production is 8.86 LMT and in fish seed production is 1243 million tonnes.

The current status of fisheries in Bihar are:-

Total number of Fish Farmers Development Agency.	38 (one in each district)
Total number of Carp Hatchery.	92
Total number of Fish Feed Mill (Existing).	04
Total number of Fishermen population.	4959516
Total number of Fish Seed Farm (Govt. Sector.)	121
Total number of persons engaged in fish culture and allied activities registered under fisheries department.	67905
Total number of Government's Jalkar with area.	30164 (56710 ha.)
Number of reservoirs and area.	35 (25000 ha.)

Source: Govt. of Bihar, Department of animal and fish resources (Fisheries) Handbook on fisheries statistics (2013-14)

### Types of fish produced in Bihar

There are 4 types of fishes produced in Bihar are:- *Rohu*, *Catla*, *Bangda* and *Mrigal*. Among which Rohu is the highly demanded fish and *Bangda* is least demanded fish.



### Fish industry :

The ultimate aim of fishing industry is to catch more fishes and make it available to the consumers in an excellent condition. Fish, a highly perishable commodity reaching the consumers in an excellent condition is itself a problem.

- **Production industry** : This industry includes the production of fish. The production industry is classified into sub industries which are given below:
  - (a) Marine fish capture industry
  - (b) Pisciculture industry
  - (c) Fish seed collection industry
  - (d) Fish breeding industry
  - (e) Aquarium industry
  - (f) Sea weed industry
- **Processing industry** : As we know that fish is a highly perishable commodity, that is why it is processed before packing. The processing industry includes many sub-industries as given below :

- (a) Sun drying industry
- (b) Curing industry
- (c) Freezing industry
- (d) Canning industry
- (e) Pickling industry
- (f) Cold storage ice factory

- **Equipment industry** : For catching fish in water we need some equipments made in the equipment industry. There are 4 types of equipment industry.

- (a) Net making industry
- (b) Boat building industry
- (c) Fish hook making industry
- (d) Engine making industry

- **By product industry** : The byproduct industry includes 6 sub divisions given below:

- (a) Fish meal, fish protein, fish flour industry.
- (b) Liver and body oil industry
- (c) Pearl industry
- (d) Shark fins, fish mams industry.
- (e) Agar agar and algarics industry
- (f) Fish glue and pearl essence industry

### Objectives of our Research project :

The objectives of the research project are to identify:-

1. Role and relevance of fisheries in the development of Bihar.
2. Success rate of intensive/semi-intensive fish culture in tanks and ponds.
3. Socio-economic condition of fishermen in Bihar.
4. Credit-marketing relation in fisheries, and
5. To circulate the information on all matters related to fisheries.

### Hypotheses :

- There is significant impact of fisheries in the development of Bihar.
- There is significant change in the economic condition of fishermen in Bihar.
- There is infrastructural development of fish marketing.
- There is financial support to pisciculturists by the Government.

### Methodology :

**Area of study** – NMCH, Agamkuan and Bazaar Smiti Patna.

#### Tools and techniques of data collection –

- Case study of NMCH, Agamkuan for fish culture.
- Case study of Bazaar smiti Patna for fish marketing.

#### Data Analysis –

- **PRIMARY DATA** – Collection of primary data by method of Personal Interview and observation.
- **SECONDARY DATA**-Collection of secondary data from Magazines, Newspaper, net surfing etc.

#### Method of Data Analysis –

- Tables
- Pie charts
- Bar diagrams
- Graphs

### Research findings :

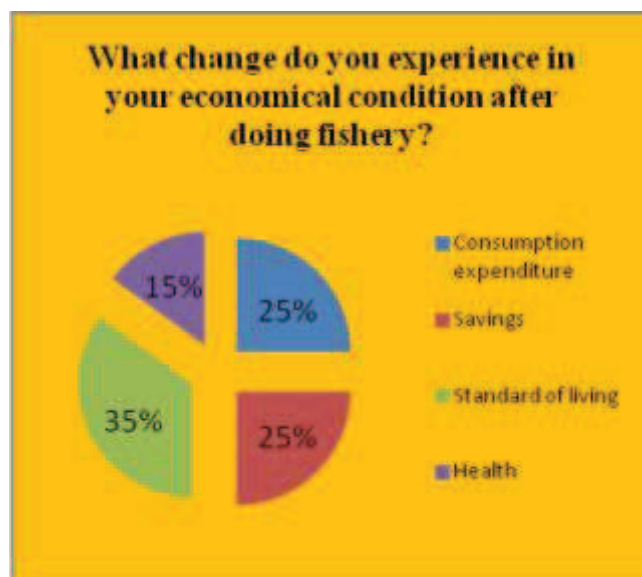
1. **Analysis related to first hypothesis :**  
Our first hypothesis was : **there is significant impact of fisheries in the development of Bihar.**

On the basis of our study of fish market in bazaar samiti we found that the fish market contributes below 1% to the

GSDP of Bihar which means that fisheries do not contribute much in the development of Bihar.

2. **Analysis related to second hypothesis:** Our second hypothesis was: **there is significant change in the economic condition of fishermen in Bihar.**

On the basis of our study regarding the fish culture in NMCH, Agamkuan, we found that 35% of the fishermen have experienced a change in their standard of living while the rest have experienced a change in their savings, standard of living and health. Thus, it was seen that the economic condition of fishermen in Bihar has significantly changed.



3. **Analysis related to third hypothesis :**  
Our third objective was : **there is infrastructural development of fish marketing.**

On the basis of our study of fish market in bazaar samiti we found that only a building was provided in 1984 after that no developmental process has been initiated by the Government as a result of which various problems like water

logging, lack of electricity, storage and hygiene, etc. are faced by the local shopkeepers. Thus there is no infrastructural development in Bazaar samiti

**4. Analysis related to the fourth hypothesis :** Our fourth hypothesis was : **there is financial support provided by the Government to the pisciculturists.**

On the basis of our survey among 20 fishermen in NMCH, Agamkuan we found that 15 out of 20 fishermen enjoy the facilities provided by the Government but the rest 5 are devoid of them because they are unaware of the facilities provided.

Thus, Government provides financial support to the pisciculturists but some of them are unable to retain the facilities given to them.



**Problems**

- Poaching is the main problem perceived by fish farmers in Bihar.
- The recurrent flood is also one of the main problems in Bihar.
- The problem like market access, labour, and diseases to fish are faced by fish farmers.

- Banks do not lend money or provide insurance of fish crops easily.

**Government policies :**

Government is circulating many programs and schemes for improving the quality and quantity of fish and providing many facilities to the fishermen. For the development of the inland waters, fishing rights must be with the SFD (State Fisheries Department). Fishermen get subsidies on digging ponds on their land. Many training programs are launched for the proper management of fish and its marketing.

**Conclusion of the research project :**

Fisheries sector in Bihar has a huge potential and can prove to be beneficial for the development of Bihar. The fishermen are practising fisheries using traditional method. Government provides many facilities and welfare funds for the fishermen but due to some middleman it does not reach the poor fishermen. There are many problems in the Bazaar Samiti like drainage, hygiene, D-box availability etc. The rapid growth of this sector has generated huge employment opportunities. The socio economic condition of fishermen has increased. Fish markets of bazaar samiti contribute very little to the GSDP of Bihar i.e., 1% (approximately). The socio economic condition of fishermen has been raised. There are about 9.41 lacs hectare wetlands which are unused and unexplored as yet. There we can practise fish culture with extensive, intensive, semi intensive and super intensive technique rather than traditional method. The rapid growth of this sector has generated huge employment opportunities for professional, skilled and semi skilled workers for the different support activities such as construction and the management of fish farms, hatcheries, fish food mills, processing units, etc. Thus, people see a good future in this profession and get attracted to it.

**Suggestions :**

- Awareness programs should be held at regular intervals so that the fishermen remain updated about the Government facilities provided to them.
- Proper extension support should be given to the fishermen and fish traders such as infrastructural, transportation and communication facilities.
- Credit facilities like loans should be encouraged by the Government.
- Government should promote community farming to avoid poaching.

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