

A CASE STUDY OF AQUACULTURE IN MADHUBANI DISTRICT OF BIHAR

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Abstract: Aquaculture or Aquafarming is one of the fastest growing industry of the world. It not only contribute in the fooding of a country but also in the economy of the nation. China, Indonesia, India, Vietnam are the well-developed countries in the field of aquaculture. The demand of aquaculture products are increasing day by day. The seafood are inrich in vitamins, minerals, calcium etc. India is inrich in aquaculture. Now a days, the demand of aquaculture products are increasing very rapidly which increase the economy of the nation also. It is very good opportunity for Madhubani like flood prone region. Pisciculture, *Euryale ferox*(foxnut) and *Eleocharis dulcis*(water chestnut) are closely related with the socio-cultural tradition of the Madhubani district. The paper explores the potentials of aquaculture, its present situation and the challenges facing by the people who are engaged in this work in the Madhubani district. The research adopt both primary and secondary method. Primary data collected from interview, purposive sampling and questionnaire whereas secondary data are collected from government agencies, NGOs, Research journal, books etc.

Keywords: Vitamins, Minerals, Pisciculture, *Eleocharis dulcis*, *Euryale ferox*

Introduction:

Aquaculture, also known as aquafarming, is one of the fastest growing industry of the world. It has great in the economic development through food, employment and earning. China has first position in aquaculture. After that, Indonesia, India, Vietnam, Bangladesh etc comes. The demand of seafood is increasing very rapidly throughout the world because of their nutritional values like as vitamins, minerals, calcium etc, The aquaculture products are comes in use of making various valuable products also. About 60 percent of global food is related with aquaculture. India is inrich in water bodies. It has 3rd position in the sector of aquaculture. Aquaculture contributes about 2 percent of the GDP and 6 percent of the agricultural GDP in the country. 70 million people of the nation are directly or indirectly engaged in aquaculture sector for their livelihood because it is one of the rapidly growing sector in the field of employment also. The engagement of 70 million people in this sector is equivalent to about 12 percent of the world population.

There is very close relationship between aquaculture and Madhubani district. Aquaculture of here is very developed, especially in fishing and *Euryale ferox* (foxnut). Foxnut and fishing is also related with the socio-cultural tradition of the Madhubani district. Aquaculture covers less area of the Madhubani district as compare to principle crops but its



production and profit is more. The people who are engaged in aquaculture earn more profit than traditional crop cultivators. Some industries of foxnut processing and fish-food feeding is also established in the Madhubani district. But this sector is facing some challenges also like as- problems in weed management, obsolete method of working etc. Various government schemes are also running in this field for the development of aquaculture. Government start lots of training program for the farmers to help them in better production.

Study Area:

Madhubani is also known as land of ponds, was carved out from the Darbhanga district in 1972. The region lies in the northern part of gangetic plain in the foothill of Himalaya on latitude 26°03' to 26°40'N and longitude 85°45' to 86°45'E. Infact this region is very close to the tarai of nepal. The important rivers of this region are Koshi, Kamla balan, Bhutahi balan, Sugerwe, Jeewach and Dhaus which drained the region. Flood is the major problem of this region. About 70 percent population of this region is suffering from the flood directly or indirectly. The total area of Madhubani is 3,501 sq. K.m. The district is divided into 21 blocks and 5 sub-divisions. The population of here is 3,570,651. The monsoon of here is influenced by the south-west monsoon (from june to september) and the average annual rainfall of this region is 1386 /54.6 inch per year.

Agriculture and aquaculture is the main source of livelihood of the people of this region. This region is blessed in water resources. About 12000 ponds are present in district and it will be very helpful for the economy of region. Ponds are comes in the use of aquaculture work like as foxnut farming and pisciculture. Some wetland areas are also comes in the use of foxnut and water chestnut farming. Benipatti, Andhrathadhi, Jhanjharpur, Babubarhi and Madhwapur has highest production than other blocks respectively. Now people of this region also taking interest in industries related with aquaculture like as foxnut processing unit and fish-feeding industry. The industries are located in Benipatti, Rajnagar, Andhrathadhi, Jhanjharpur and Pandaul.

Methodology:

The research include primary and secondary sources as well. The facts and figures are collected from both primary and secondary sources. Primary sources include focus group discussion, interview, scheduled, questionnaire, purposive sampling and observation where as secondary sources include data from various government agencies, books, magazines, research journals and NGOs. Tables are also given to show various data and facts.

Potentials Of Aquaculture In Madhubani District:

Madhubani is also known as the land of ponds. Here, about 12,000 ponds are present which create favourable condition for the aquaculture work.

- Euryale ferox (foxnut), pisciculture and Eleocharis dulcis are closely related with the socio- cultural tradition of the Madhubani district. That's why the people of this region are engaged in this field from very ancient time.



- Madhubani is a flood prone region. Flood badly affect the agriculture of this region. The crops are ruined due to the waterlogging in the farmland for long time. So, aquaculture will be the best option for those areas.
- People leave those lands barren which are unfit for agriculture. These lands can comes in the aquaculture work by proper dressing.
- Wetlands are also unfit for agriculture, so people leave them barren.If we use these lands for foxnut and water chestnut than they will give better outcome and wetlands will also comes in use.
- There is huge potential for aquaculture based industries at here like as – fish feeding industry, makhana processing unit etc
- People leave those lands barren which are unfit for agriculture. These lands can comes in the aquaculture work by proper dressing.

Blocks with highest no. Of ponds & watery area

Block	No. of ponds	Watery area
Benipatti	500	200.10
Babubarhi	250	150.14
Andhrathadhi	230	120.18
Madhwapur	198	200.53
Jhanjharpur	200	190.18
Bisfi	170	150.53

	Particulars	Madhubani
A.	Distribution of ponds	
	Small (upto 0.5 ha)	14 (15.57)
	Medium (0.5 to 2 ha)	12 (13.33)
	Large (above 2 ha)	4 (4.44)
	Total	30 (33.34)
B.	Nature of ponds	
	Govt. ponds (Jalkars)	27 (25.23)
	Private ponds	3 (2.80)
	Total	30 (28.03)
C.	Area of ponds (in ha)	
	Govt. ponds (Jalkars)	24.46
	Private ponds	2.50
	Total	26.95
	Avt. (per ha)	0.898
D.	Rent/Jamabandi (In Rs./ha/annum)	1484.81
E.	Avg. size of pond (in ha)	0.89

Source: District Fishery Department, Madhubani



Constraints In The Field Of Aquaculture In The Madhubani District:

- The demand of aquaculture products are increasing day to day but production did not compete the demand.
- The obsolete method of fishing, foxnut and water chestnut farming is responsible for less production.
- Lack of scientific knowledge and skill in farming is also the major problem of farmers in this field.
- Lots of government programs and projects like as running but information gap and lack of farmer's interest is very common in this field. The farmers are not taking interest in the training programs organised by the government or any authorised agency with the help of govt. To trained the farmers.
- Polluted water bodies are harmful for the fishes. The fishes die or face many disease problems due to coming of toxic substances in the water bodies.
- Sometimes farmland are facing waterlogging problem in the rainy season. During this situation, people cut down the pipe of water bodies to save their farmland, as a result fishes of the water bodies comes out which loss the farmer.

Present Situation Of Aquaculture In Madhubani District:

- The polluted water bodies are one of the major challenges for the farmers because it not only decrease the production of crops but also harmful for the aquatic organisms.
- Lack of storage facilities is one of the major problem. Product are ruined due the absence of good store house.
- Marketing problem is also an important problem. Farmers grow Foxnut and water chestnut in large amount but lack of proper marketing strategy is also a big issue.
- Madhubani produce about 75 percent foxnut of Bihar. SO, we can say that its production is really good. But it need to develop more on the commercial level.
- A foxnut processing unit is established in the Andhrathadhi block of the Madhubani district with the collaboration of central government and state government for foxnut processing and its development on the commercial level.
- ICAR established a regional center at the Darbhanga for the development of Foxnut and give guidelines to the farmers who are engaged in foxnut cultivation. Makhana research center introduce new methods and technology to the farmers for good production.
- Madhubani is good in pisciculture. Fish-feeding machines are established in many blocks like as- Jhanjharpur, Pandaul, Andhrathadhi, Rajnagar, Benipatti etc. 21 hatcheries are present in town. Government start many programs related with pisciculture and also give subsidy for their development.

Conclusion:

Aquaculture is very beneficial for the flood-prone region like Madhubani district. Waterlogging in the agricultural land destroy the crops. So, aquaculture will be the best option for these lands. Madhubani is blessed with large no. of water bodies also. But pollution in these water bodies is one of the major problem. The aquaculture of here is developed at here but need to develop more because the production is less as compare to



demand and no. of water bodies. Lots of hatcheries are also running on the government and private level. Many government schemes and training programmes are also running to train the farmers and increase the production of aquaculture products but it didn't give proper result. If we develop aquaculture of the Madhubani district then it will be very helpful for the economy of the region. The people of the Madhubani district are also interested towards the industries based on aquaculture like as *Euryale ferox* (foxnut) processing unit, fish feeding industries etc. The scientific method of aquaculture or aquafarming and establishment of industries related with it not only fruitful for the farmers or people engaged in this work but also increase the economy of the district. So, aquaculture or aquafarming will be the best option for the Madhubani.

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