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Impact of Farm Ponds on Aquaculture Farming: A Case Study of Nashik District in Maharashtra

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1. Introduction:

Agriculture Geography is one of the most highly developed branches of geography of the twentieth first century. An understanding of the principles of operation of capture and culture fisheries helps to throw light on the definition of aquaculture. The expressions capture and culture fisheries are self-explanatory. In the former, one reaps the aquatic harvest without having to sow, whereas, in the latter, one has to sow the seed, nurse it, tend it, rear it and harvest it when it grows to marketable size. Examples of capture fisheries are the natural fisheries of the seas, estuaries, rivers, lagoons, large lakes and farm ponds etc.

The principles of management of capture and culture fisheries are very different from each other. In the case of capture fisheries one has to attempt to harvest maximum sustainable yield by regulating fishing effort and mesh after taking into account parameters of population dynamics such as rates of recruitment, natural and fishing mortalities, fish growth and size at which recruitment occurs. Management of capture fisheries requires knowledge of the dynamics of the fish populations under exploitation. The extended exclusive economic zone of 200 miles brings into focus the national and international complexities of regulating the capture fisheries of the seas and the oceans and apportionment of the marine harvest because fish populations do not abide by man-made boundaries.

A definition of aquaculture can be attempted.

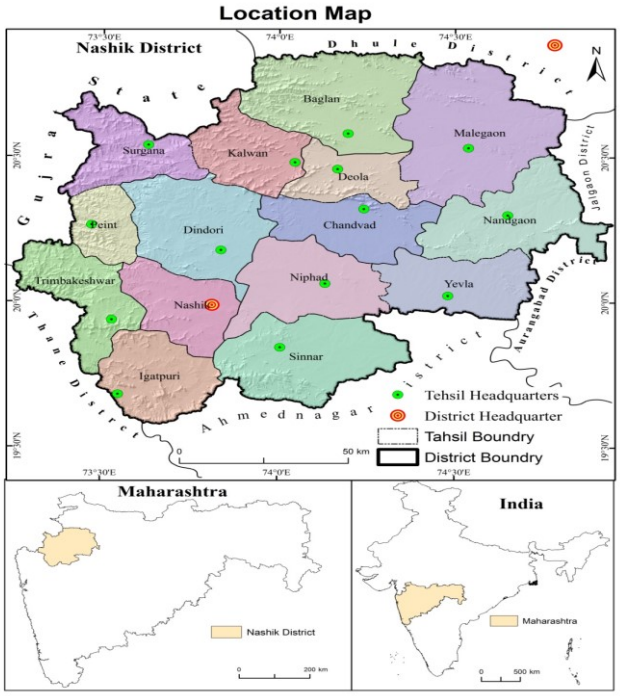
Aquaculture is an industrial process of raising aquatic organisms up to final commercial production within properly partitioned aquatic areas, controlling the environmental factors and administering the life history of the organism positively and it has to be considered as an independent industry from the fisheries hitherto.

Aquaculture is organized production of a crop in the aquatic medium. The crop may be that of an animal or a plant. Naturally, the organism cultured has to be ordained by nature as aquatic.

2. Study Area:

Nashik district is one of the parts of deccan plateau is located in the northern parts of the western ghats. The latitudinal and longitudinal extent of district is $19^0$33' to $20^0$53' north and $73^0$16' to $74^0$16' east. Area of Nashik district is 15530 square kilometers. It ranks fifth in state with 5.04% area. According to the census of 2011 the population of the study area is 6109052 while the rural population is 3056000. The density of population of study area is 393 per square meter. These rural populations are engaged in agriculture.

This district consist of 15 tahsils, namely Chandwad, Devala, Dindori, Igatpuri, Kalvan, Malegoan, Nandgaon, Nashik, Niphad, Peth, Satana, Sinnar, Sugana, Trimbakeshwar, Yevale. The average height of study areas from mean sea level is about 600m. The average rainfall in this region only 100 to 110 cm. Nashik district is famous for the grape, sugarcane, onion, pomegranate, cotton and other vegetables.



3. Objectives:

i. To analyze spatio-temporal changes in artificial agro ponds in study region.

ii. To study the significance of Aquaculture study region.

4. Database And Methodology:-

Database

The primary and secondary data have been utilized for present research work. The whole research is a concern with the farm pond farming of the study region. The data of farm pond farming from the location of study area. The present study took to consider the opinion of farm pond farming. The methodology is adopted to fulfill the objectives of the present study, which can be divided into two major components viz. fieldwork and laboratory components. In the fieldwork component collecting primary and secondary data and personal visits to case study location for intensive field survey.

Types of fish-

While carp form the most important species farmed in freshwater in Nashik, it is the shrimp from the brackish water sector which contributes the bulk of the production. The three Nashik major carps, namely, catla *(Catla catla)*, rohu labeo *(Labeo rohita)* and mrigal carp *(Cirrhinus mrigala)* contribute over 90% of the total Indian aquaculture production. Introduced to the carp polyculture system in the country, three exotic carps, namely, silver carp (*Hypophthalmichthys molitrix*), grass carp (*Ctenopharyngodon idellus*) and common carp (*Cyprinus carpio*) now form a second important group. The other finfish species of importance include climbing perch (*Anabas testudineus*), murrels (*Channa striata* and C. *marulius*), etc. Among the freshwater prawns, the giant river prawn (*Macrobrachium rosenbergii*), is the most important species followed by the monsoon river prawn.

The brackish water aquaculture sector is mainly supported by shrimp production, as well as, the giant tiger prawn (*Penaeus monodon*), which is responsible for the bulk of production followed by the recently introduced whiteleg shrimp, *Penaeus vannamei*. In fact, the culture of this shrimp picked up on par with tiger shrimp in very short span of time.

Supportive Government Schemes

National Horticulture Mission, which offers a subsidy for digging and lining the farm ponds, has played a key role in popularizing fish farming. The government of Maharashtra has been providing a subsidy to poor farmers who wish to construct a farm pond on their land, so as to encourage them to harvest rainwater.

In 2007, the state government decided to provide a one-time grant for building the ponds. But the project gathered steam only in 2009 when 25 drought-prone districts were selected and 37,000 ponds built. Construction of the ponds is being done through eight schemes, including the Maharashtra Rural Employment Guarantee Scheme. Between 2009 and 2012 around 90,010 ponds were completed in the state. Under National Horticulture Mission, Rashtriya Krishi Vikas Yojana and Jalyukt Shivar, 13,948 ponds were constructed during 2014-'16. Additional 24,652 ponds were proposed to be constructed in 2016-'17, of which 3,412 have been completed.

In February 2016, the Maharashtra government introduced the Magel Tyala Shettale (farm pond on demand) scheme. Initially, owing to lack of funds, the scheme was applicable only for villages with 50% crop failure. Now with funds available from MGNREGA, the scheme has been extended to the entire state and is being implemented

by the Department of Agriculture of Maharashtra. In Nashik district at the scheme of Magel Tyala Shettale completed 8233 farm pond on various tehshils during 2016 to 2020.

Sr. No.	Name of Tehsil	No of Farm Pond under Magel Tyala Shettale	Sr. No.	Name of Tehsil	No of Farm Pond under Magel Tyala Shettale
1	Nashik	39	9	Kalwan	183
2	Tribak	13	10	Dindori	565
3	Igatpuri	36	11	Surgana	89
4	Peth	3	12	Deola	222
5	Niphad	430	13	Malegaon	448
6	Chandwad	1716	14	Satana	846
7	Sinnar	1363	15	Nandgaon	382
8	Yeola	1898	**Total**		**8233**

Source: - Compiled by Researcher

Fish Production:

Nasik is a land locked district and hence there is scope for inland fisheries only. The potential source of fish beries lies in reservoirs, farm ponds, village ponds, irrigation tanks and rivers. Inland fisheries are undertaken mostly in reservoirs of natural resources or natural water bodies. The fish production in the district is 3500 MT. The estimated projection for this sector is assessed at 7.18 crore against the base PLP projection of 6.08 crore. The initiatives such as training of fish culture in ponds will have a positive impact for credit growth under this sector.

5. Conclusion:

The capture and culture fishing in the region is so traditional bounded. Most of the fishermen belongs to the fishing communities are having ancestral knowledge of the fishing. In whole of the region, free fishing in river water while, culture fishing in Dams, Ponds and in Reservoirs practiced on a lease period. In the region fish farming is practiced in dams, ponds and also in reservoirs reveals that the fishermen practice fish farming very traditionally. The fishing co- operative societies of the region have practiced fish farming in such a water bodies on a lease basis. Being a large water bodies none of the fishing co- operative society concentrate to improve the fertility of the ponds by providing fertilizers and supported food material as per requirement. However, they depend upon the natural fertility of the pond. The government provides facilities and fund to the fishing co-operative societies and also to the fishermen for development of the fishing activity and over all upliftment of the fishermen community in the region.

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