

Prospects for Fish Culture in *Char* Areas of Bangladesh

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Abstract

Fish production is considered in the barren *chars* or sandy land masses created through siltation along river banks and deltas in Bangladesh. The prospects for fish culture in ponds and cages or pen culture in rivers and canals are examined. The socioeconomic implications of fish culture as a livelihood source for communities living in *char* areas are also discussed.

Introduction

Bangladesh has a land area of 144 000 km² with a population of over 120 million. It is one of the most densely populated and impoverished countries in the world. Almost 80% of the population is poor and landless. The life of the landless people is full of uncertainties. They are always on the move in search of better living conditions, usually migrating to the urban areas where there are better economic opportunities. The migration of rural people to the cities creates social problems and puts pressure on the Government to provide them with basic amenities. Many landless people remain in the rural areas and survive by working on farmlands or as servants to landlords. Others settle in uninhabited lands, like the *char* lands.

Char Lands

Char or sand bars, are new land masses created by siltation. Extensive *char* areas have been created along the bed or basin of big rivers such as the Brahmaputra, Jamuna, Padma and Meghna. The

*US\$1 = Tk42

char areas are also prone to erosion as well as natural disasters such as cyclones, drought and floods. Up to 10 million people already live on old and permanent *chars*. However, the number of landless people inhabiting *chars* is increasing.

Char land is characterized by sandy soil, poor vegetation and isolation from the mainland. In *char* areas, where people have limited access to formal education, health care and other services, the living standard is lower than on the mainland. There is a scarcity of drinking water, poor sanitation and people are prone to water-borne diseases. The nutrition level of the people in *char* areas is very low, especially during the months of June/July and October/November, when some people are only able to have one meal a day.

People in the *chars* are usually exploited by *Jotdars* or powerful landlords who live on the mainland. During the working season the daily wage is Tk30-35/day*, falling to Tk10-15/day during the off-season. There are continuous conflicts over land possession and occupation changes with the change of season. It is common for

the men to leave the *chars* in search of livelihood, leaving the women with the responsibility of raising the family. There is a high incidence of early marriage, polygamy and divorce. Many of the men who leave for jobs do not return or come back with another wife. There are increasing numbers of abandoned or divorced women in the *char* areas, as well as those forced to live with their husbands' second wives.

Source of Livelihood

Agriculture is the main livelihood in the *char* areas with rice, pulses, wheat, peanuts and corn as the primary crops depending on the season. However, production is always uncertain due to natural disasters, drought or floods. Very few are engaged in livestock rearing as these animals are easy target for thieves.

Fishing is also a source of income of the people in the *char* areas. It is a seasonal occupation. During the fish breeding season (February-July), people set traps in the river to catch fingerlings of carp species like catla (*Catla catla*) and mrigal (*Cirrhinus mrigala*). They usually sell their catch to pond

owners on the mainland. Fish commands a higher price during lean periods (February-April). There is also fishing in canals and open waterbodies during the flood season. Hilsa (*Hilsa ilisha*) fishing from May to September is a good source of livelihood.

Resources Available for Fish Culture in Chars

Ponds and ditches of different sizes and depths are created when soil is dug up to make the platforms for the houses. The soil at the bottom is usually sandy and they are rained. The new ponds or ditches retain water for 3-4 months. The older ponds and ditches which retain water longer are used for fish culture. Stocking is dependent on the supply of fingerlings usually supplied by fish vendors. The ponds and ditches are stocked with mixed species and sizes in undetermined number, and no particular management practices such as feeding and fertilization are followed.

Water remains for 6-8 months in the roadside canals and natural depressions, like beels that also exist in *chars*. Local fish species such as *tengra* (*Mystus tengara*), *mola* (*Amblypharyngodon mola*), *gulsha* (*Mystus cavasius*), *kachki* (*Corica soborna*), abound in these waters and are fished when the flood waters recede.

At present, the major constraints discouraging people from fish culture are the non-availability of suitable fingerlings, lack of initial capital, lack of technical know-how and security problems.

Prospects for Fish Culture

The ponds, ditches, canals and beels in the *char* areas offer opportunities for fish culture and could be a source of income and

food. Appropriate technologies that utilize locally available materials should be introduced in order to make the operations affordable and to promote aquaculture. This could create new employment opportunities, especially for women, and improve the economic and nutritional status of the people living there.

Tilapia or silver barb could be cultured in ponds and ditches which retain water for 3-4 months. The ponds could be stocked after flood water has receded (August-September) and rice or wheat bran, duckweeds and napier grass, all available in these areas, used as feed. Fingerlings of 5-6 cm in length can reach 80-100 g in 3-5 months of rearing.

Cage or pen culture could be introduced in the rivers, canals and beels. Using bamboo enclosures, one can raise tilapia, common carp, silver barb for 5-6 months of the year. The advantages of fish cage or pen culture are: (i) easy and cheap construction of cages; (ii) fish cages can be collectively operated and are easy to manage; and (iii) harvesting of fish is easy.

Fish culturists in *char* areas depend on vendors from the mainland for their supply of fingerlings which are not always readily available. Furthermore, the high cost of transportation and high mortality rate of fingerlings in transit are among the major constraints to the expansion of aquaculture. However, this problem can be addressed by using the ponds constructed by nongovernment organizations (NGO) in flood-shelter areas for breeding and nursing tilapia, common carp and silver barb. Moreover, these ponds are safe from flooding. People in *char* areas also need training and capital for initiating fish culture and for leasing ponds. Easy availabil-

ity of credit could encourage people to take to aquaculture.

Involvement of Women

The men in the *char* areas are more inclined to work in farmlands or move elsewhere to look for jobs. They tend to opt for work that gives them immediate returns. Hence, it will be difficult to motivate men to take to fish culture. Women who are left behind or abandoned by their husbands to look after the household, should be encouraged to manage fish culture operations. This would provide a source of income as well as promote self-confidence. Economic empowerment will improve women's social status which in turn will enable them to stand against the injustices of their society. Women should be trained and provided with the necessary assistance for fish culture projects.

Role of NGOs

While a limited number of development projects are being undertaken by the government in the *char* areas, several NGOs are implementing a variety of development programs in areas of education, health and sanitation, social awareness and disaster preparedness and management. These NGOs can play an important role in the promotion of fish culture activities in *char* areas by:

- (i) motivating and encouraging people to undertake fish culture activities;
- (ii) organizing training programs, especially for women;
- (iii) providing credit support;
- (iv) facilitating the lease of ponds;
- (v) facilitating the supply of fingerlings; and

(vi) providing management and technical support.

Conclusion

Economic opportunities in the *char* areas are limited. Because of their harsh economic situation, the people are more vulnerable to the effects of flood and other natural calamities. It is these

people who need more attention and help from both the government and non-government organizations. The utilization of existing resources, like ponds, ditches, canals and other waterbodies for fish culture could mitigate the economic miseries of *char* people and improve their lives. A partnership between the local government and

NGOs could accelerate the development of fish culture in *char* areas.

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New Publications of Interest

Center for Tropical and Sub-tropical Aquaculture Publications

The Center for Tropical and Sub-tropical Aquaculture (CTSA), a regional aquaculture center established by the US Department of Agriculture to support aquaculture research, development, demonstration and extension for the enhancement of viable and profitable aquaculture in the United States, is jointly administered by The Oceanic Institute and the University of Hawaii. CTSA publishes its newsletter, *Regional Notes*, four times a year as well as manuals on aquaculture of various species and extension fact sheets on animal diseases.

CTSA Publication No. 129, *A Manual for Commercial Production of the Tiger Barb*, *Capeota tetrazona*, *A Temporary Paired Tank Spawner* is authored by Clyde S. Tamaru, Brian Cole, Richard Bailey and Christopher Brown. The manual features information on tiger barb biology, commercial production, growout systems, diseases and economics.

A new extension fact sheet titled *Aquafarmer Information Sheet: Prevention of Black Gill Disease in Marine Shrimp*, CTSA Publication No. 126, is also available. The fact sheet outlines ways of preventing gill discoloration during growout and after harvest, including gentle handling, fast distribution and adequate icing. Proper techniques for pond preparation, feeding and water quality management are also included.

The above CTSA publications can be obtained by writing to: Center for Tropical and Subtropical Aquaculture, The Oceanic Institute, 41-202 Kalaniana'ole Highway, Waimanalo, Hawaii 96795; Fax: 808-259-8395; E-mail: 74763.2237@compuserve.com (for manual) or 107776.2673@compuserve.com (for fact sheet); or visit the Aquaculture Network Information Center (AquaNIC) homepage at: <http://www.ansc.purdue.edu/aquanic>.

