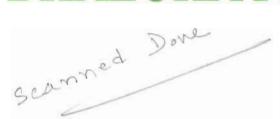




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BHALUKA FISHERIES







PROBLEMS AND PROSPECTS OF BHALUKA FISHERIES

Prepared By

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Prepared For

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Submission date: 30 December 2009

East West University

Letter of Authorization

12 December 2009
Md. Mazaharul Islam
1D # 2005-1-10-111
Department of Business Administration
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Letter of Authorization

Dear student

At your earliest convenience you are cordially requested to prepare a project report on "Problems and prospects of Bhaluka Fisheries". I believe that you are qualified to prepare this paper.

In your report, find out the problems of this organization and how they may proceed to improvement of the business resolving these problems.

Please submit the paper to me by December 2009. Though time frame is very short to prepare such a paper but regardless of all limitation try to prepare a complete report. I will help you in any circumstances.

Do not hesitate to call me or email me.

Thanking You



S I Nusrat A Chaudhury Associate Professor Business Administration -7

Letter of Transmittal

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30 December 2009

S I Nusrat A Chaudhury Associate Professor Business Administration 45 Mohakhali C/A, Dhaka-1212

Letter of Transmittal

Dear Sir,

I submit herewith the project report on "Problems and prospects of Bhaluka Fisheries".

1 have really learned a lot and have gained valuable experiences while collecting material for this report. I have tried our best to prepare this term paper up to the required standard.

I hope that my project report will be able to satisfy you.

I would therefore hope that you would be kind enough to grant my application and accept my project report.

Sincerely Yours.

Md. Mazaharul Islam ID# 2005-1-10-111 Department of Business Administration

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Acknowledgement

I am grateful to almighty for helping me all the way till completion of my project report as a part of my B.B.A. Program. This report is prepared on the basis of my theoretical knowledge and from the information that I have collected from different sources in the researched area.

I would like to convey my sincere and deep sense to appreciation to all the people who helped me to prepare this report.

First of all I want to express my gratitude to my course coordinator, Associate professor, Mr. S I Nusrat A Chaudhury, who gave me guidelines and suggestions to prepare this report and extended his valuable support as and when needed. Without his kind cooperation, it would have been very difficult for me to complete this report.

I want to pay my gratitude to Mr. Alhaj Afjal-ul–Islam, a leading business entrepreneur in Bhaluka for helping me with providing required information, for what my paper got its informative nature. By the help from everyone, today I am done with my project report on "Problems and prospects of Bhaluka Fisheries".



1. Introduction

1.1. Background of the Research

Bhaluka Fisheries is a well known fishery performing its operation of business in the area of Mymensing. This business was started in March 2000 with only four ponds within 1 acre. Initially there were only two employees to look over the projects. At first, this business was started only with 7,000 Pungush. But now at present this business in no more operated in that short arena. Now this business is expanded to a huge area of operation. It has more than 20 ponds within 45 acres of fishery land. Now there are 15 employees working whole day for its maintenance. The total value of the assets of this business has increased to more than three crore taka. Currently there are about 2,50,000 Pungush fish in the different ponds. As this is a big business and need to continue this business in an errorless manner. To do that I need to perform a research to find out the problems of the business and have the clear idea how to resolve them. And in this business line there are many prospects available which suits the resources and assets base of this organization.

1.2. Objectives of the Research

The objective of this study is to find out the problems and prospects of Bhaluka Fisheries.

Specific Objective

The specific objectives of this paper are to know,

- Industry Analysis
- Finding out the existence of Oxygen depletion
- Finding out the existence of Embankment problems
- Pouching of fish
- Finding out predators
- Finding fish diseases
- Finding out the major problems which are obstacles for the improvement
- Suggestions how to improve the business

1.3. Scopes and limitations of the Report

- The report has been conducted only based on study at Bhaluka.
- Very small numbers of respondents were selected as interviewee due to time constraints.
- The interviewer were probably bit biased to the prosect of the business in Bhaluka.

1.4. Research Design and Methods

The most part of the study has been conducted using primary data. But for some assistance secondary data was also been used. Primary data was collected through field work and interview.

1.4.1. Data Sources

Data was collected through personal interview of the business people who are currently performing their business in the similar line of venture.

1.4.2. Data Analysis

After completion of data collection, all the information were reviewed. And thereby be analyzed to shed the purpose of this research.

2. Industry Analysis

2.1 Fisheries Resource of Bangladesh

In the south Asian sub-continent Bangladesh is situated in the north eastern part between $20^{\circ}30''$ and $26^{\circ}30''$ north latitude and $88^{\circ}01''$ and $92^{\circ}41''$ east longitude. Bangladesh is bounded by Indian on the west, north and the north –east, Myanmar on the south east and the Bay of Bengal on the south. It is a country of low –lying and fertile land which consists of an area 1,47,570 sq.km.

Bangladesh has a vast water area which includes river, pond, canals hoar-boar, flood plain, laks,beel etc. these water bodies are very rich in fisheries resource. Fish plays a very important role to food and nutrition security in Bangladesh . Fish and fisheries are inseparable part in life and culture of people of this country. The economy of Bangladesh basically depends upon agriculture, livestock and fisheries . Fish is the main source of animal protein and essential nutrients in the people diet throughout the country. It has been estimated that about 58% of the available animal protein in the diet of the people of the country is contributed by fish . In 2007-08 fisheries sector is 20.87%. Bangladesh has earned tk 3396.28 core by exporting 75299 tons of fish and fishery products in 2007-08. There has a wide variety of fish species both freshwater and marine water. Among these, fresh water fish species 260, exotic fish species 12, fish water prawn species 24, marine water fish species 36 .Fisheries sector supplement not only the food and nutrition sector but also the job sector. Total fishermen are 12.80 lakh with 7.70 lakh inland fishermen and 5.10 lakh marine fishermen.

2.2. Fisheries Business is generally practice in pond. A fish is not a just a hole in the ground that holds water but a properly constructed place for growing fish. An ideal pond should not be too large or too small but be a reasonable size and preferable rectangular in shape with a reasonable depth for the specific purpose of the culture to be employed.

2.2.1. Different parts of a fish pond are:

Dike/ wall: the dike/ wall retain water and form the pond. Their size depends on the size of the pond and depth of the water. A deep pond must have larger wall than a shallow one. It is very important that the wall be sloped. The slope on the in side wall should be about 2:1(horizontal to vertical) and the slope on the outside of the wall can be about 1:1. Slope will vary with the type of the soil, for firm soils the wall can be sleeper, where as for sandy soil the wall should be more gradual.

Bottom: the pond bottom may or may not be excavated depending on the topography and soil conditions but the supply and drainage channels and harvesting pits to be excavated.

Pond inlet : The pond inlet is the place where can be let in to the pond.

Pond outlet : The place where the water can be let out of the pond is called the pond out let. This is usually a pipe underneath the bottom of the pond wall.

Emergency spillway : This is the surface drainage way thrall will carry off surplus water in periods of heavy rain or flood.



2.2.2. Water quality in Aqua Farm

Culture of fish and other aquatic organism of commercial importance i.e. Fisheries Business depends almost completely on the different qualities of the aquatic environment. In turn, the quality of the aquatic environment of that geographical region. Quality of aquatic environment generally depends on tour kind factors. Such as

- I. Physical factor
- II. Chemical factor

I) Physical factor:

Pond soil: Productivity of pond water depends largely on the bottom soil. Generally pond constructed in unproductive agricultural land without outside ie. input of nutrients, is not productive and it is productive where soil is productive.

Depth: Pond should not be shallower than I m and deeper than 5m and the optimum depth should be 2m, where there is arrangement of regular water supply.

Light: Light to be used at the night to protect the fishes from stealing. This also provides an additional advantage for as the fish feed cause in the dark the insects gathers around the light and they fall into the water, which the fishes can take as their natural feed.

Temperature : This has a tremendous impact over the growth of the fishes. In the dry season if it lasts for long hot weather and scarcity of rain fall, the growth of the fishes are hampered seriously. On the other hand in the winter season for less temperature the fishes don't take the food as required so it also causes the problem. Therefore optimization of the temperature is essential for fish cultivation.

Turbidity: In the turbid water the fishes face lots of problems. Especially they lack oxygen sufficiency. It also caused to increase the amount of amino acid in the water. Because of these reasons, the likelihood for the fishes to be infected by various diseases increases much.

II) Chemical factor:

- I. Dissolved oxygen
- II. Carbon dioxide
- III. Hydrogen sulphide
- IV. Ammonia
- V. Methane
- VI. Nitrogen

The gases which are found in dissolved condition in natural water are oxygen, nitrogen, CO2, H2S, NH3, methane, SO2 and carbon monoxide and critical one is oxygen, which is explained in depth in the up coming part of the paper. In fish culture pond the normal required amount of dissolved through scientific management for getting high yield of fish production.

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Sources of dissolved oxygen

The sources from while oxygen become dissolved in water are,

- I. Atmosphere
- II. Photosynthesis

Causes of reduction of dissolved oxygen:

The cause of dissolved oxygen reduction should be known and carefully observed by the fish farmers for avoiding the mortality due to serious oxygen depletion.

They are –

- Respiration by organisms
- Decomposition of dead organic matter
- Cloudy weather
- Rise of temperature
- Turbidity
- Presence of iron.

Dissolved oxygen requirements

Requirement of dissolved oxygen by fish vary with temperature, physiological state, age, time of the day, species, season, food consumption etc. Fishes with accessory respiratory organs, generally called ear breathing fish can survive a very low level of dissolved oxygen or even oxygen less condition. Fish without accessory respiratory organ is in danger at low level of dissolved oxygen.

Dissolved oxygen at levels of 3ppm or lower should be regarded as hazardous to lethal and 5ppm or more of dissolved oxygen should be present in water, if condition is to be favorable for fresh water fishes.

Effects of Dissolved Oxygen Insufficiency

Fishes, suffering from insufficient dissolved oxygen for long time, become infected by various bacterial and other diseases. Fishes, living in a water body of insufficient dissolved oxygen, become physically weak and for this physiological weakness fishes become easily attacked by diseases. Insufficient dissolved oxygen is generally accompanied by high quality of CO2, ammonia and acidic PH which are very harmful for fishes.

Insufficiency of dissolved oxygen may cause fish mortality in small shallow water body in hot summer which is called "summer kill" and fish mortality in winter under ice cover may happen in the cold region of the world which is called "winter kill"

Symptoms in Fishes in Insufficient Dissolved Oxygen

When dissolved oxygen falls to harmful or lethal level fishes show restlessness moving abnormally at the surface and gulps at the surface. A fish, died after suffering from low concentrations of dissolved oxygen, is found having the mouth open.

Remedy of Dissolved Oxygen Deficiency

We can remove dissolved oxygen deficiency temporarily by emergency measure for oxygen supply and semi permanently by semi permanent measures. When fishes show symptoms of dissolved oxygen deficiency and / mortality has started or will start very soon then emergency measure for oxygen supply must be taken. Emergency measures are those through which we can supply oxygen to water urgently. We can agitate with surface of a pond with bamboo polls or by swimming with precautions for avoiding turbidity or we can aerate water through different types of aerators.

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2.3. Selection of Fisheries Business Species

Proper selection of fish species is the most important factor for successful Fisheries Business. There are several characteristics to be considered in case of species selection. They are as follows,

- Growth rate must be sufficiently high
- Prove satisfactory to the consumers
- Support high stocking density
- Seed availability
- Adaptation to climate of region
- Possible accept cheap artificial food
- The test value of fish for eating
- High market price
- Alive low oxygen concentration
- Be resistant to diseases



2.4. Mortality of fish seed during transportation

- I. High C02 tension and deficiency of O2 in the transporting medium
- II. Toxicity of accumulating wastage like ammonia and other metabolites in the medium
- III. Hyper activity, strain and exhaustion of the fish and infection contacted during transport
- IV. Physical injuries, predation

The following steps should be considered for cat fish. (pangus) culture with commercially importance.

- Selection of species
- Preparation of the pond
- Stocking ratio and density
- To give artificial food
- Periodic checking
- Prevention of disease
- Harvesting and marketing

2.5. Industrial pollution

Industrial development and environment are intimately related. Industrial activities may affect environment in different ways. Pollution of land, water, and air from industrial wastage and depletion of resource base due to extraction of industrial raw materials have major environmental impacts. There are various types of industry like agriculture industries, cotton textile, plastic and polymers etc. established in around of Bhaluka. These industries directly or indirectly discharge their untreated liquid and solid waste into the water bodies. As a result water pollution occurs and the rate of fish production decreased day by day.



3. Results from the Research

3.1. The existence of Oxygen depletion

Dissolved oxygen level is one of the most important production factors in fish culture. Loss of fish due to reduction in dissolved oxygen content of water is not uncommon in fish ponds of Bangladesh. Low level of dissolved oxygen decrease appetite and growth rate of fish. Repeated exposure to low dissolved oxygen make the fish susceptible to diseases. Oxygen deficiency appears as frequent hazard factors when the intensity of fish production increases.

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3.2. The existence of Embankment problems

- 3.2.1. Traditionally the slopes of fish ponds are prepared too steep. The slope should be at least 1:2. Old construction should be strengthened at the weak points from time to time. The best solution is to make a fence by bamboo poles on the original embankment and fill the collapsed part with compressed dry soil. As soon as possible plant grass on this part to avoid erosion. Leakages and possible connections with other water bodies must be stopped. The above mentioned method can be used with some soil filled bag also.
- 3.2.2. Cultivation (horticulture) on embankments should be limited to the top. The sides and 1-2 feet on the brink of embankment should be kept for grass to stop soil erosion.

Decomposing roots of dead or cut trees also create holes in the dike which can cause erosion. These holes should be closed with soil.

3.3. Pouching of fish

In some places this problem causes more damage than other, hazards. Some suggestions which may give some protection besides proper guarding:

- Putting bamboo twigs or branches of trees in the water along the dike sides, closely blocking the use of nets.
- Fixing barbed wire under the pond surface in criss-cross manner is fairly effective.
- Fencing the farm/fish pond properly.

3.4. Predators

Snakes and birds can cause problems in fish ponds by feeding on fingerlings. It becomes a real problem in the nursery stage of the fishes. I that time if there is not enough protection from the predators then it may lose up to 50% of the production. But when the fishes are grown up then this problem becomes much easier to handle.

3.5. Diseases of the fishes

There are various types of diseases which may attack the firm fish. In the next part of this paper these diseases are being discussed.

3.5.1. Outbreak of fish diseases in most cases originate from management mistakes such as --

- Over fertilization
- Overstocking
- Giving substandard/contaminated feed (mouldy, rotten) or in insufficient quantity
- Stress, rough handling at netting etc.

3.5.2. Diseased fish can be detected by their unusual behavior and appearance of some clinical and sub-clinical symptoms.

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Warning symptoms in pond are:

- The fish staying at the surface of the pond water
- Gulping at the surface of the water
- Irregular swimming
- Loss of appetite
- Mortality of several fish of the same species with similar symptoms
- Erosion of skin and fins
- Damaged or puffed scales
- Haemorrhagic spots on skin
- Haemorrhage or discolouration of gill
- Puffed, soft belly
- Puffed, soft belly + discharge from anus
- Exophthalmia (pop eye)
- Lesions and deep ulcerations
- Excessive mucus secretion and appearance of discoloured patches over the body



3.6. Major other problems

3.6.1. Water Level Fluctuation

Many ponds completely dry up in summer season (seasonal pond). If there is any such possibility, the water level should be maintained above four feet. Pumping water from shallow tube well or nearby water source could be a solution. But most of the rural ponds do not have this facility. In these ponds, the production can be maintained with proper management especially by stocking the ponds with fish as soon as water level increases and harvest them before the water level goes down too low to become risky for fish production. Repairing and strengthening of dikes are necessary before the monsoon starts.

3.6.2. Flood

One of the major hazards to pond fish culture in Bangladesh is the recurrent flood. Everyyear, a considerable number of ponds get inundated with flood water. During inundation, most of the stocked fish get away from the pond and at the same time predator and weed fishes enter into the pond and thus the farmers are discouraged to take up pond fish culture in many areas of the country.

To protect the pond from flood, pond dykes if possible, should be raised high above the flood level or some changes have to be made in stocking and harvesting schedule viz. ponds in flood-prone areas are to be stocked with large fingerlings immediately after possible flood period (Sept.-Oct.) and harvested before the next possible flood (June-July).

3.6.3. Aquatic Vegetation

Aquatic vegetations in ponds whether floating, sub-merged or emergent inhibit fish production when they are in excess. They absorb nutrients from pond soil and water and hinder production of fish food organisms in ponds, hinder easily movement of fish in ponds, absorb oxygen at night causing anoxia, prevent penetration of sunlight to pond water, shelter fish pathogens and make harvesting difficult.

All aquatic vegetations are to be removed manually from the pond at the time of prestocking management. These vegetations, however, can be used favorably in fish culture as valuable manure. Some grass carp can be stocked to keep control of excessive growth of aquatic vegetation.

3.6.4. Prolong of Dry Season:

Climate is changing that's why rain is not happening in the just time when it is needed. On the other hand day by day water level is going down so it is becoming tougher to pull water. Because of lack of sufficient water at that time the fishes don't get the expected growth, though the fish feed is provided properly. So day by day the production cost is increasing and farm face loses.

3.6.5. Production cost high:

As the land of our country is very suitable for fishing business so this business is increasing enormously. But our country can't produce that much raw materials which is required for this industry. So we have to import raw materials from India, Thailand, and even from Australia. And that's why our production cost is increased. On the other hand, as the new farms are entering frequently so the supply of fish is increasing rather than demand. As a resultant selling price of fish is not increasing so the farm can't earn as much is needed.

3.6.6. Raw materials:

As this business is flourishing quickly the fish feed is required more. To produce this required fish feed raw materials (alt, rice polis, meat bon, salt, oil, flour etc) are highly demanded. Our country can't fulfill the required raw materials. So we have to import raw materials from other countries. That's why we have to pay more to buy raw materials. Moreover this cost is increased for the government tax for importing as well.

3.6.7. Credit sale:

Among this area farms are producing huge amount of fish. So we have to sell fish from bank of ponds. Here buyers are available to buy fish. As the supply is high so we have to sell fish on credit. Sometimes buyers do not pay the credit on time. Every so often these credit sales become bad debt..

3.6.8. Inbreeding:

In this area breeding occurs within the same species of fishes. We can't import high breed fish because of lack available communication options. When the breeding process occurs rapidly with in the same species, the expected growth doesn't increase. As the expected growth is not gotten accurately, it is not possible to harvest fishes timely. At the very beginning of fishing business we got more then 85% from using feed. But now it is bellow 60%. That's why we are facing huge lose.

3.6.9. Scarcity of labor:

Now Bhaluka is an industrial area. Huge number of industry establish here. So the job opportunity is high it is very difficult to find employee. On the other hand employee rate is very high which impact on production cost.

3.6.10. Lack of Specialist Doctor

Day by day we are facing different new types of diseases and the doctors available here are not that efficient to get a remedy for those diseases.

3.6.11. Exotic Fish

Exotic fishes includes- Telapia, Pirhana etc. It has a very high breeding rate that's why the density of the fishes increases very much. And for that reason many other types of problems may arise. Like scarcity of dissolved oxygen, increases the turbidity in the water and ultimately for these reasons the mortality rate of the fishes also increases.

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4. Comparison between the Industry and Bhaluka Fisheries Itself

As we have identified this industry as one of the most prospective business sector for Bangladesh economy in the earlier part in the industry analysis, we can substantiately tell that Bhaluka fisheries is also not far from that potential advancement. Here in this part The Bhaluka Fisheries will be evaluated on the basis of the overall industry situation.

To signify the comparison it must be mentioned that the fisheries farm those are currently operating at this business are not able to avail the favorable environment like few of the good farms like Bhaluka Fisheries.

- In the industry analysis we have seen that there are different types of ponds and the maintenance of those are also different which is not correctly maintained by most of the business farms. But Bhaluka Fisheries maintains those ponds in a more scientific manner. There is a huge problem in inletting and out letting the water in pond and Bhaluka fisheries is very much efficient to handle this problem.
- Basically this business is flourishing in the rural areas where electricity is not much available. But lighting is highly required in this business for the security of the fishes to protect from theft. A Bhaluka fishery is getting this advantage to use the electricity around the ponds because electricity is available in this area.
- Regarding another hazardous problem identified as the industry problem is the damage of seeds in the time of transportation. Bhaluka Fisheries is not affected by this problem as this farm produces the seeds itself for its business.
- Turbidity is another major problem faced by the industry in general. But Bhaluka Fishery is careful in this matter. To reduce the turbidity we use different chemicals so that this may not effect the normal growth of the fishes.
- Insufficiency of dissolved oxygen is another key problem in this business. To make the dissolve oxygen sufficient in the water we use concentrated mechanism where is creates the wave in the water and increases the availability of dissolved oxygen in the water.
- Another factor is the water scarcity in the pond during the dry season. But Bhaluka fishery uses submersible machine to pull water from bottom. And it becomes easier for us as we have the access to electricity.

5. Suggestions to eliminate the problems of Bhaluka fisheries:

Bhaluka is the land fishing business. This land is very suitable for fish cultivation. Here fishes get high growth and get matured very quickly. About the economic advantage is that fishing business is a tax free business. So this is a great opportunity for Bhaluka fisheries. For managing the business in a more appropriate manner if any loan is needed then this is also very easy to get loans for this business moreover the interest rate is very low. Presently, Bangladesh bank provides interest free loan maximum for 8 years. The farm is planning to export fish to outside the country. Now about the inbreeding problem, to reduce this problem the farm has brought fish from Thailand. So they are able in produce more fishes within a lesser time. Especially the farm is importing Telapia fish from Thailand, because high breed Telapia is required for exporting. Another opportunity for Bhaluka fisheries is that the workers of this organization are high skilled. So if they can be trained more professionally then they would be able to reduce wastage of feed which would minimize the production cost. They would be able to recognize disease and can provide the proper treatment. Another aspect of this business is that we face less productivity because we are using the same pond years after years, but in that case the fish growth and productivity declines gradually and it increases the likeliness of the fishes to be infested by different diseases. So a remedy the ponds should be processed again in a regular basis once in two years. It will cost some but in return the outcome would be better. Another problem is the depth of the ponds. In the dry season the ponds need more water to be added to maintain a minimum level of depth. These are the major areas where this business should bring its concern and work on to it to improve thereby.

6. Conclusion

Fish cultivation has become one of the major business areas in our economy. And it is also flourishing so rapidly. About the problems of this business I would say about the production cost first. It is increasing in an increasing rate day by day. If it continues to raise this way this business culture is at the edge to be destroyed. So government should reduce the tax on the imported raw materials for this business purpose. The other problems lies with the quality of pond, quality of feeds, water crisis, unavailable raw materials, and very bad diseases of the fishes. To protect this business these problems should be faced with a very strong remedy actions. In this paper some tricky advises are being suggested to this business that how this business can build up a very strong basis and can improve to a large and profitable organization.



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