

NAME: NWIMO CHARLES CHIMAOBIM
MATRIC NUMBER: 18/ENG08/012
DEPARTMENT: BIOMEDICAL ENGINEERING
COLLEGE: ENGINEERING
COURSE: AFE 202
TOPIC: REPORT ON FISH FARMING

Fish farming or pisciculture involves raising fish commercially in tanks or enclosures such as fish ponds, usually for food. It is the principal form of aquaculture, while other methods may fall under mariculture. A facility that releases juvenile fish into the wild for recreational fishing or to supplement a species' natural numbers is generally referred to as a fish hatchery. Worldwide, the most important fish species produced in fish farming are carp, tilapia, salmon, and catfish. Demand is increasing for fish and fish protein, which has resulted in widespread overfishing in wild fisheries. China provides 62% of the world's farmed fish. As of 2016, more than 50% of seafood was produced by aquaculture.

Fish farming is known as pisciculture in the academic world. It's major form of aquaculture, farming of aquatic organisms like fish, crustaceans, molluscs and aquatic plants. Fish farming involves raising fish commercially in ponds, tanks or enclosures. There are hundreds of species of fish among which are; sea trout, cyprinids, pangas catfish, freshwater fishes, silver seabream, common carp, catla, greasy grouper, bighead carp, Nile tilapia, grass carp (who knows, maybe there are thousands more?). But most of them are not suitable for fish farming in Nigeria, either because of their nature or because of the low demand in the fish market or the profitability of their species. That's why the most common fish species fish farmers grow for commercial purpose are carp, salmon, tilapia and catfish (while the last two, Catfish and tilapia is the most common species in Nigeria fish farming industry).

This same Tilapia and Catfish have reported to be the best for farming. Java, blue and Nile tilapia are the best species for backyard fish farming. The exceptional taste and hardy resistance to disease and parasites of catfish makes another good choice for beginning fish farmers. Catfish grow quickly (Note that a large fingerling can reach 1 pound within five months).

Fish could be grown in two ways:

-Extensive aquaculture where fish grow under natural water (i.e. river or stream).

-Intensive aquaculture where fish are fed with external food supply.

Intensive aquaculture is the area we're focusing on in this tutorial because it's easier for commercial fish farming in Nigeria. (Smaller scale)

Some of the advantages of fish farming include;

1. Creation of employment.
2. Source of proteins
3. High fish yields and maintenance of fish populations. However, fish farming is expensive to set up and contributes to water pollution.

1. Creation of Employment

Aquaculture has resulted in job creation in fields such as animal research and fish hatchery management. Also, harvested fish contributes to employment creation in food processing industries, transport sector and restaurants. On the other hand, fish farming is an important source of income for aquaculture investors.

2. Source of Proteins

Fish farming provides an important source of proteins and nutrients essential for healthy living. With the growing global population, fish helps to supplement other protein sources such as animal meat, milk and beans. In addition, fish contains omega-3 fatty acids that assist in brain function, normal development and reduces the risks of heart diseases.

3. Limits Overfishing

As a result of growing world population, the demand for fish increases day by day. Fish farming sets to meet this demand hence preventing overfishing of wild fish from the oceans and lakes.

4. Easy to Maintain

Compared to cattle farming and poultry farming, fish farming is easy to maintain and has low running costs. Fish farms can be set up almost anywhere with clean water supply and a large water body. In this regard, if properly managed, fish farming is commercially profitable due to low running costs.

5. High Yields

Fish farming methods shield edible fish from marine predators such as large fish, bears and fish-eating birds. This stabilizes the fish population hence resulting in high fish yields. In addition, farmed fish are constantly monitored for parasites, sickness and other factors that might hinder their development.

Moreover, fish kept in fish farms are left to mature over a given period of time before they are harvested. This ensures maximum yields by eliminating the capture of young fish as experienced in standard fishing methods.

6. Prevents Extinction of Some Fish Species

Aquaculture helps to revive the populations of some fish species, such as cod, sea bass and red snapper. The high demand of such fish species necessitates the need for breeding in fish farms in order to prevent their extinction.

Disadvantages of Fish Farming

1. Water Pollution and Infections

Farmed fish are often treated with antibiotics, disinfectants and pesticides. These chemicals combined with fish wastes may find their way into surrounding fresh water hence resulting in water pollution.

Moreover, the congestion of fish in one area may result in the death of some fish. Dead fish encourage the growth of bacteria and other infections, which may threaten the entire fish population in the water source. Also, due to fish congestion, infections spread easily among the fish population since they are often in close contact.

3. Expensive to Set Up

The initial setup costs for fish farming may be expensive due to the need to install fish cages, hatcheries and provision of processed fish food. In addition, as opposed to fish farming in large water bodies, fish farming in ponds requires costly excavations and channeling of river water into and out of the fish ponds.

4. Genetic Abnormalities

Farmed fish have limited gene pool during breeding. This increases chances of genetic abnormalities among the fish offspring.

5. There is no byproduct in fishery unlike poultry where even the drop can be harvested and sold to other farmers and make extra profit. In fishery, all you get is, the fish.

OBJECTIVES OF FISH FARMING

1. Meeting Global Demand

The Environmental Defense Fund (EDF) notes that the global demand for seafood has jump dramatically since the 1980s. An aging population will increase demand on seafood supplies, since older adults tend to eat more seafood than any other group. The EDF acknowledges that fish farming is the only reasonable way to meet the surging demand for fish around the world. The demand is especially high, which trails only Japan and China in per capital consumption of

seafood.

2. Protecting Species of fish

The fish most commonly raised on fish farms include cod, salmon, carp, tilapia, catfish and European seabass. Given the increasingly effective means of fishing available to the average angler and commercial fisherman, these fish might be at risk of being over-fished if not for the protected environments of fish farms. Aquaculture experts are always on the lookout for fish species that can be helped by fish farming and spared the risk of extinction.

3. Improving Quality of Fish

Though ongoing tweaks in aquaculture can help improve filtration, feeding, reproduction, net harvest and other aspects of fish farming, the safety and quality of the seafood can also be improved as the fish are studied in the controlled environment of fish farms.

4. Providing Economic Boost

When fishing restrictions have become law in states with thriving fish industries, a number of state governments have sought to cushion the blow by providing training programs for commercial fishermen to learn aquaculture. Coastal areas in particular may benefit from having fish farm operations in their communities, because of the jobs associated with the construction and operation of a fish farm.

BUSINESS PLAN ON FISH FARMING

Executive summary:

My business plan on fish farming shall begin with the production of catfish but later, tilapia shall be added. I shall sale fresh initially but later, the introduction of drying and packaging also follow. Customers shall be an open market, restaurant, and grocery. Over time with reasonable expansion, we shall commence exporting the product when the local market is satisfied. Note that the business and farm belongs to me, "NWIMO CHARLES VENTURES LTD" (ECV ltd)

Fish Farming Startup Expenses

The fish farming project would take approximately N1,500,000.00 (One Million Five Hundred Thousand Naira only). Note that If you want to set up a fish farming business with less amount, say, N500,000 or N1,000,000 then you will not include some equipment.

The pelletizing machine and dryer which would include would enable me to prepare my own feed which would be cheaper in the long run, thereby increasing my profit. This is because imported fish feed is expensive and would reduce the profit margin if depended upon throughout the six months grow-out period.

General Company Description

Our business will basically be hinged on preparing the site, acquiring two mobile ponds, fertilize the ponds within say 2 weeks, buy 500 fingerlings for each of the ponds, feed them two times a day till maturity at 6 months and then sale off as point-and-kill or as dried fish or both. Having sold off, we stock again and repeat the process of brood and sale. We shall also go into hatching over time.

Mission Statement: to be self-employed, create employment opportunities for others, provide protein to the populace and help save some foreign exchange for Nigeria.

Company Goals and Objectives: My goal is to have a healthy, successful company that is a leader in customer service and that has a loyal customer following. While My full time objective will be to have our dried fish in every pot of soup in Nigeria.

Business Philosophy: To earn a good living from what I offer to my customers, while they continue desiring that we serve them always.

Target Customer: Since there are no religious, cultural or demographic barriers on the consumption of catfish, our customers shall be the open market, restaurants and grocery shops. Over time with reasonable expansion, we (my fish business) shall commence exporting the product when the local market is satisfied or just to earn foreign currency.

Products and Services

This fish farming will basically be hinged on preparing the site, acquiring two mobile ponds, fertilizing the ponds within say 2 weeks, buying 500 fingerlings for each of the ponds, feeding them two times a day till maturity at 6 months and then selling off as point-and-kill or as dried fish or both. Having sold off we stock the ponds again and repeat the process of brooding and selling. At this point, we intend to keep some fish until we can use them for hatching. This would mean constructing another mobile pond as hatchery/nursery ponds, like say 3 numbers of 8 x 8 feet. At the onset of operations, the Fishery will have approximately 2 people to assist with the day to day operations. Another important product and service is the preparation and sales of fish feed. This would, however, require separate capital outlay not covered in this business plan.

Currently, Nigerian economy is slowly recovering from recession (neglecting the issue of the recent pandemic). This slowdown in the economy has also greatly impacted real estate sales, which has halted to historical lows. Many economists expect that this recession will continue through 2016, at which point the economy will begin a prolonged recovery period. However, this should have a minimal impact on the Fishery's ability to generate revenues, as much of its produced fish will be geared towards popular fish that are constantly in demand regardless of the general economic climate.

Industry Analysis

Each year, the industry generates a lot of money from fish farming through retail fish sales. These sales also include the receipts generated by restaurants that specialize in the sale of seafood. Among importers and distributors, a lot of money running into billion is recognized annually among market agents. The industry also employs so many people. The growth of the industry is expected to continue as more Nigerians are seeking to add fish and other seafood products to their diets for both the taste and health benefits associated with seafood. One of the most common trends in the fishery industry is that newer technologies are actually increasing the net profit margins of the business while concurrently lessening the ecological impact of fisheries on the environment.

Customer Profile

It is extremely difficult to determine the customer profile of people that will acquire the fish produced by us because fish is consumed by all. The Company intends to do business with farmer's markets, fishery coops, and fish/seafood wholesalers that will acquire the Company's inventories of fish.

Fish Farming Marketing Plan

The Fishery's marketing operations will be minimal as once the Company solidifies ongoing relationship with fishery coops and wholesalers, very little marketing will be required to maintain these relationships. At the onset of operation, we intend to aggressively develop relationship with local and regional fishery coops that will assist the Fishery in maintaining stringent pricing (through forward and future contacts) so that the Fishery always has a predictable stream of income. However, in the future, we might seek to brand certain fish items that we produce. In this

instance, the Company will hire a marketing/advertising firm to properly position the Company's image and brand so that it can directly sell packaged fish to major groceries, supermarkets, farmer's markets, and select retailers.

This Fishery intends to maintain an extensive marketing campaign that will ensure maximum visibility for the business in its targeted market. Below is an overview of the marketing strategies and objectives of the Fishery.

Marketing Objectives

ECV Ltd, we intend developing relationship with major groceries and fish/seafood wholesalers that will acquire bulk inventories from us and polish ongoing purchase order relationship with cooperatives throughout the target market.

	AGE in months	PRICE (N)
Fingerling	up to 1	30
Juvenile	2	50
Table Size.	6	1000 per kg
Brood Stock.	8 and above	2500 per kg

The price of various categories of our fish

Features and Benefits

Fingerling production shall be within one-month order. This will enable us produce and supply any number demanded by our customers. We shall not be selling the last grade of fingerlings to our customers rather, we will grow them ourselves for dried fish purposes only. We must use daphnia or artemia to raise our fingerlings, for 2 weeks at least, to enable our fish longevity. What we have said so far also apply to our juvenile, which are grown with balanced rations. When you feed animals regularly with balanced rations, they grow out having more density and are testier because they had all they needed. Our table size shall be after 6 months, weighing between 1 and 3kg. As for the brood stock, we must make sure they stay up to 8 months and their eggs brown, before declaring them for sale.

Strategy

Our strategy shall be phone call and messaging and personal contacts to inform our readiness to sale at maturity and average prices.

Sales Forecast

Except for 10% mortality, which is provided for in any animal husbandry outfit, we forecast 95% sales of our output. We therefore predict an annual growth rate of 45%. The loan would have 2-year term with 10% interest rate.

Inventory

Major inventory in this business is fish and the feed, with some fuel to pump water. We shall also keep feed raw materials since we intend to formulate and prepare our own feed. We are looking at inventory investment of N480,000.00 (Four Hundred and eighty Thousand Naira only). The lead-time for ordering is 1 month.

Financial Plan

Our financial plan consists of a 12-month cash-flow projection and a break-even calculation. Together they constitute a reasonable estimate of our company's financial future. More importantly, we hereby present the financial insight into the inner financial workings of our company.

12-Month Profit and Loss Projection

As is evident in our 1 year Cash Flow in the table below, with a loan of N1.5m we will be able to generate 2,052,000 . We project 2 sales within the year, that is every 6 months. After the sales we restock our ponds and the cycle is repeated. We assume that each fish will grow out into 2 kilograms. This is not generally the case as the weights vary between 1kg and 3kg at grow out.

From the above projection it can be seen that we will be able to repay the N1.5m (One Million Five Hundred Thousand Naira) loan within one year but, we prefer the repayment spread over 2 years with 1-year moratorium.

There are associations involved in fish farming that one could possibly join. They include: Association Fish Farmers and Aquaculturist of Nigeria (AFFAN), United Fisheries Association of Nigeria (UFAN), Association of Fingerlings Producers of Nigeria (AFPON), Nigeria Union of Fishermen and Seafood Dealers (NUFASD), Association of Ornamental Fish Exports of Nigeria (AOFFN), Fisheries Society of Nigeria (FISON). it`s very important you register your farm with the Corporate Affairs Commission (CAC). This registration is easy and not expensive.

REFERENCES:

<http://worldwideaquaculture.com/>

<https://www.google.com/am/www.kmms.com.ng/>

<https://utibeetim.com/professional-catfish-farming-business-plan-with-financial-analysis/>

<https://www.profitableventure.com/fish-farming-business-plan/>