

**BUSINESS PLAN**

**BY**

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**IN**

**CHEMICAL ENGINEERING DEPARTMENT**

**FOR**

**AFE 202 ( FOOD SECURITY)**

A BUSINESS PLAN FOR THE DEVELOPMENT OF AN ACRE ABOUT 100FT \* 100 FT FOR A FISH POND (A CAT-FISH FARM) AND CONTINUOUS HARVESTING OF CATFISH EVERY 4 MONTHS

**Executive summary / project description**

Fish farming is a lucrative business. It is also simple and can be started with a small capital. The cat-fish farm will be able to meet the demand of fish in the locality and country at large. It will be located in orhuwhorun township (swampy area), Udu local government area of Delta state. The opportunity to expand is necessary because of the growing demand for fish and health benefits on fish consumption.

This business will be hinged on preparing the already acquired land, digging of the two earth pond with a reasonable depth and size, treat the pond within two weeks, buy 2000 fingerlings for each of the ponds, feed them two times daily or more

(depending on the availability of feeds) till maturity at 4 months (could be extended to 6 month) and sales off to customers which are; market sellers, restaurants, hotels etc.

Overtime with reasonable expansion, exporting the product, when the local market is satisfied can be done; also hatching (production of young one's from an egg) can be done. Having sold off the stocking, brooding and sales, the entire process from pond preparation is repeated.

The risk of this business is mainly getting a market (buyers) which can be easily achieved. The cost benefit analysis plan shows that in the start-up year, with about 4000 fingerlings in stock and projected sales of 3800 adult fishes in one harvest, we would make 1 million naira (taking out cost of production), this implies that about 3 million naira is realizable annually for (3) production with a return investment of about 10%. The profit & return investment implies that the project is very much feasible, viable, profitable and as such worth investing.

### **Sponsorship**

This project is a privately owned business (a sole proprietorship) sponsored and owned by Miss Aka Peace Otaoghene

### **Management**

For now, the legal form of ownership is sole proprietorship and is subject to available cash but, it can be opened to other business structure like partnership. The control of management will be solely on one person. Miss aka manages the business on a day-day basis and two workers for the start-up year.

The professional and advisory support includes;

- Board of director
- Attorney
- Accountant
- Insurance agent
- Banker
- Consultants
- Mentors and key advisors

### **Technical Assistance**

Technical assistance is the operational arm of fisheries and Aquaculture department for translating the excellence of the technical expertise in fisheries and aquaculture into practical application in support and provision of advice to their members. The Food and Agricultural Organisation (FAO) is one of such organisation. Some of the FAO technical assistance include; identify fish farm and fisheries to illustrate management problems and solutions, execution of a farm management program for selected fish farmers, set up training programmes for agricultural extension agents

etc.

The government try as much as possible to be involved in the agricultural sector but less involvement in a privately owned one man business.

### **Market and Sales**

There is a very high demand for catfish all year round. Since there are no religious, cultural or demographic barriers on the consumption of catfish, the non-seasonal customers shall be household, individual, market sellers, hotels, fast food eateries, agriculture merchants and restaurants. Overtime with further expansion processing of the fish (drying and smoking) is possible and even exporting of the product to earn foreign currency.

Marketing of the business can be done through online adverting (having a business page showing when you have fishes for sale) ,advertising produce in agriculture and food related magazines and websites, marketing in open markets for market sellers to know when you have fish for sale this simple means encouraging the use of word of mouth marketing (referrals), engage in direct marketing , banners for farm identification, introduce the business by sending introductory letters alongside brochure to stake holders in the agriculture industry, households, hotels and restaurants through this means you can be able to draw customer's / partners to buy from you ranging from restaurants, hotels or processing company.

The fishery's marketing operations will be minimal once the first harvesting season is done due to the ongoing relationship between the previous customers. Very little marketing will be required to maintain this relationship. At the start-up of the business having a strong business relationship with the local marketers must be

achieved so the fish farm will always have a predictable stream of income (in case other buyers back out) however in the future branding of fish items produce can be done. In this instance proper marketing/advertising can be accepted to give the business a good image so it can directly sell packaged fish to major groceries, supermarket, farmers market and select retailers.

The prices for the various sizes of fish shall depend on feeding. For the prices to be favourable some factors need to be followed namely; good location for the fish farm, choosing of a good breed that will guarantee bountiful harvest, cut the cost of running the business to the nearest minimum and of course try as much as possible to attract buyers to the fish farm to eliminate transportation cost

The Pricing is illustrated in the table below;

SIZES	PRICE (NAIRA)
SMALL	500/KG
MEDIUM	650/KG
LARGE	800/KG

## **Resources and Environment**

### **Resources**

The human resources are basically the owner and her executives while the material

resources include;

- Fingerlings
- Feeds
- Pumping machine
- Scale
- Scale bowl
- Fuel
- Netting system
- Drag net
- Piping system
- Power generator
- Storage house etc.

## **Environment**

A sloppy topography (loamy soil) or a location with adequate drainage system is best for a fish farm so that discharging the water waste would not waterlog the environment. Physical need includes; plot of land, storage facility, water inlet & outlet system and power supply. Access to the site is also very important.

## **Competition**

Catfish farming Industry is still in its infancy in Nigeria, with the commodity very expensive because it is insufficient to go around. Most of the practitioners do it on a small scale in their backyards and near their houses, with enough financing the country will be able to witness large scale fish farming running into hundred millions of naira.

Although the fish farmers put together cannot yet saturate the market there is still little competition between the fish farmers and their customers (due to varying prices and size of fishes). So it right to say competition is too early to be given consideration in catfish production in the Nigerian contest.

Other competitors include; Imported frozen fish but tastes different, the indirect competition from meat (beef, pork, chicken, goat meat etc.). Other fish farmers are excluded because put together production is still not enough to accommodate the growing population. The competition is only on customers who want point-and-kill must have catfish or nothing at all. Competition analysis would have been necessary if only fish farming becomes industrialized in Nigeria

## **Profitability**

Each year the business generates a lot of money from fish farming running into billions is recognised in the long run. The growth of the industry is expected to continue as more Nigerians are seeking to add fish and their products to their diet for both the taste and health benefits entangled with fish. The end product of fish farming is the grown up (adult) fish for sale in the market. The revenue will be based on the sales of the adult fish to the market.



Assuming the catfish were well raised and has a low mortality rate (about 5%, which means starting with 4000 fishes, 200 die along the way), and the surviving fishes (3800) expected to grow to a minimum of 1kg each giving you a total weight of 3800kg. Market price for a kg (large fish) is 800 so generated sales equals 3 040 000 naira ( $3800 \times 800$ ). With an invested capital of 1.5 million, the revenue equals 1 540 000. It should be noted that this profit will be tripled since harvesting will be done 3 times a year. (Using 4 months for growing) Catfish Farming does not have a good cash flow, but boosting your profits can be done with time by smoking/drying of fish for importation.

It should be noted that most of the structure put in place for fish farming are fixed assets in nature and can their cost would be recovered over several productions. The trick in catfish farming is to know the techniques and practices that will reduce mortality rate, also ensure good feeding for growth (more weight) and production.

### **Business Implementation/ Timeline**

Business design (construction of site) and development plan

- Clearing of an already acquired land.
- Fencing of the land.
- Dig the ponds: 2 ponds of 100ft by 100ft each which will take the shape of square, and should be at least 4ft deep.
- De-mud your pond which simply means to remove mud from the pond
- Ensure dike/embankment: a dike is a barrier or a mound of earth/soil that is

built round the pond to prevent water from overflowing. This is to prevent loss of fishes during raining season. Dikes should be big/tall enough at least 2 to 3ft higher than the highest water level of the pond.

- Ensure there's an inlet and outlet for water flow in and out of the pond. For changing of water frequently. A pumping machine is used to pump water into the ponds (through the use of pipes) and a gutter for the outlet.
- Treatment of the pond so as to prevent predators (examples include snakes, tortoise, monitor lizards and other fishes) from feasting on the fingerling catfish. So the pond is treated with chemicals that can kill all the organisms in it. Once the pond has been treated, it can be used after 2 weeks.
- Netting system. Netting of pond is done to prevent the fingerlings catfish from being eaten by predators (mostly birds) as they grow.
- Storage house construction.

### **Stocking**

Stocking is the process of introducing fingerlings catfish into the pond.

### **Feeding of the catfish**

Often, the difference between a catfish weighing a kg or 2 within four months has to do with feeding. Feed make up cycle, feed quantity and quality are the main factors to be considered when feeding catfish to ensure optimal performance.

The table for catfish feedings is shown below;

CATFISH SIZE	FEED REQUIREMENT SIZE
Fingerlings	1.5mm
Post	2-3mm
Table size/ adult size	4-9mm

Catfish are to be fed two times daily (morning and evening) lastly is harvesting/sales.

### **Timeline**

A month can be used for the pond and storage house construction. Then 4 month for the growing stage. A total of 5 month will be used for the fish farming before harvest.

### **Financial Evaluation**

#### **Project cost**

#### **Start-up Expenses**

	PRICE (N)	QTY(quantity)	AMT (amount)
fingerlings	10	4000	40000
Feeds			
1.5mm(for fingerlings)	8000	4	32000

2mm-3mm (post)	8600	4	34400
4mm-9mm ( table size)	6000	80	480000
Pumping machine	60000	1	60000
scale	15000	1	15000
Scale bowls	5000	2	10000
Fuel	20000	Litres	20000
Drag net	10000	1	10000
Netting system	5000	1	5000
Chemicals			20000
Power generator	100000	1	100000
			<b>TOTAL=826400</b>

### CONSTRUCTION EXPENSES/PAYMENT OF WORKERS

		AMOUNT(N)
1	POND CONSTRUCTION	
	Digging of the ponds /de- mudding/dike	30000

	cost of plumbing (inlet& outlet facilities)	20000
	cost of pond treatment	20000
	Cost of labour	20000
	Cost of pumping machine to pump water to the overhead tank (water source)	15000
2	Storage house construction	
	Sand from digging	
	½ Trip of gravel	15000
	20 Bags of cement	40000
	wood	15000
	zinc	10000
3	Miscellaneous/ additional expenses (workers)	488600
		<b>TOTAL: 673600</b>

**TOTAL PROJECT COST = STARTUP EXPENSES + CONSTRUCTION EXPENSES**

**TOTAL COST = 826400+673600**

**= 1500000 (1.5 million)**

## **REVENUE**

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Therefore a profit for a year equals  $3\,040\,000 \times 3 = 9\,120\,000$

## **CONCLUSION**

The project is technically feasible and very well practical to achieve. It is easy to start up (with a small capital) and with increasing profit yearly. Fish farming is a gradual process and can lead to a big company at large with little competition.