

Pond construction process

The pond area is measured in Sq. feet or meters by taking the length and width of the area. Rectangular ponds as most encouraged fish ponds due to their high yield per production cycle.

The Pond is excavated in-wards till all the soil removed. The floor of the pond should be at an elevation to the inlet. This allows for easier draining, nutrient dilution and harvesting.

The fish pond should have a depth of relatively not more than one meter at the inlet and one and half a meter at the outlet. This helps to overcome the above tasks.

The pond banks, dykes and floor should be well constructed. The **pond banks** should be firm and at least 2-3 meters wide. This helps in controlling water seepage from the pond to the water channel and vice versa. In case the soils are too loose, the banks are reinforced by either sacs of soil or compaction from the outside of the pond.

Growth of grasses that can hold the soil particles together is also encouraged the main grass being *Paspalum*

The **pond dykes** should slope in-wards to control soil fall-in and also fish digging the banks. It also helps for easy draining of ponds and nutrient dilution. This is general since the pond slopes to the outlet.

The **pond surface** should slope towards the outlet. As above, this is good for easy nutrient dilution, easy pond harvesting and pond draining.

Pond inlets and outlets should be screened with monofilament nylon meshes to control wild fish and other contaminants from entering the pond to alter media for fish or the



Plate 1: Construction of pond banks

Pond Liming

This is done with quick lime to stimulate fertilization and maintain pH in the pond and, aids physiological growth of fish in a pond since the divalent mineral ions of especially calcium and magnesium are needed in the formation of different body parts of a fish.

The quantity of fertilizer to be used depends on the size of a fish pond. Both organic and inorganic manure is encouraged to be used in fish ponds.

Fertilization can also go on periodically when the pond loses its green coloration.



Plate 2: Pond liming activity



Plate 3: A well constructed fish pond

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BULINDI ZONAL AGRICULTURAL RESEARCH & DEVELOPMENT INSTITUTE



A GUIDE TO CONSTRUCTION OF FISH PONDS



MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES (MAAIF) UGANDA



THE REPUBLIC OF UGANDA

Background

Fish farming is becoming a traditional industry among farmers. There is a high decrease in the number of fish caught in Lake Albert due to either poor methods of fishing causing a strain on the fish population in the Lake.

Bulindi ZARDI being one of the research institute with a mandate of promoting adaptable research, has through the Aquaculture project set up fish ponds at the station for training farmers in fish farming.

This will help fish farmers in accessing fish seed to stock their native ponds.

Two fish ponds have been excavated at the institute site and are stocked with fingerlings on Nile Tilapia and African Cat fish.

In order to increase fish productivity, farmers need skills in pond construction. This would help the farmers to easily manage their fish ponds without any problems

Factors to consider before constructing a fish pond.

Before a farmer ventures into fish farming, a pond should be constructed. However, a pond can only be constructed if the following requirements are taken in consideration:

- Topography
- Water quality and water flow
- Soils
- Security
- Predation prevalence

Topography

The area in which the pond is to be established should be gently sloping for easier surface run off and also control flooding when the water levels increase most especially in the rainy season.

The altitude should be at least 5% of the total area of the slope.

Soils

The most preferred soils for pond excavation are the loamy-clay soils because of its high water retention capacity. This helps in holding the water in the pond for longer periods thus maintaining the levels.

However, if the soils are too loose to hold water, their banks can be reinforced by compacting them with clay soil or use of sacs containing soils.

Water quality and water flow

The water to be used for fish farming in ponds needs to be examined by a specialist to ascertain the suitability to fish growth. The major water parameters may include PH, temperature, oxygen levels, turbidity, salinity and conductivity. Any alternation in one of the above water quality parameters will lead to fish being stunted and thus poor yields at the end of the production cycle.

The main flow channel should be adjacent and slightly above the pond for easier flushing in when the levels go down. This also helps in the process of oxygenating the pond by increasing on the partial pressures in the water. However, the spill way should be slightly lower at the pond outlet for easier draining when need arises in majorly sampling, harvesting and nutrient dilution.

Temperatures

The temperatures of the area in which the pond(s) will be constructed needs to be established as different fish species grow well in different temperatures. In the Lake Albert crescent zone, the temperature ranges between 24°C to 28°C which is suitable for farming African Cat fish (*Clarias gariepinus*) and Nile Tilapia (*Oreochromis niloticus*)

Security

This is another most important aspect in fish farming. The security of the pond should be guaranteed. The fish pond should never be constructed far from the owners' house. This helps in the day to day monitoring of the activities in fish management and growth.

In case the pond is far from home, a small shelter should be constructed for the personnel, who look after the ponds in the day to day running of the ponds.

Predator prevalence

A fish pond should be constructed in an open area where there are no trees that may act as hiding places for the predatory birds like the wild geese and the king fishers. All the surrounding bushes need to be cleared to control the predatory animals like monitor lizards, snakes and otters. A chain link fence should at least be put in place to fence off the entire area covered by ponds to control on the animal predators.

Traps should also be set in place to control on the land moving predators like monitor lizards, otters and snakes.

To further control on the predators, a pond may be covered with a predator control net to stop them from accessing the fish.



Plate 3: Pond covered with a predator control net at BUZARDI