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FISH FARMING PROMOTION

Tips and Challenges

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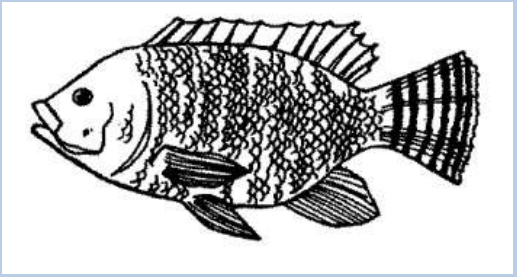
- Fish farming project and Outreach program of the ELCT-DAR
- Fish farming in a nutshell
    - What is fish farming
    - Cultured fish
    - Tilapia farming systems
    - Benefits of Fish Farming
- Achievements and impact to communities
- What contributed to success?
- Challenges
- Lessons Learned


UGANDA
Kagera
Lake Victoria
Musoma
KENYA
RWANDA
Mwanza
Serengeti Plain
Mount Kilimanjaro
5895
BURUNDI
Shinyanga
Igombe
Singida
Masai
Steppe
Kigoma
Tabora
Tanga
Pemba
Lake
Tanganyika
Dodoma
Zanzibar
Ugalla
Wami
Rubeha Mtzr
Dar es Salaam
DEM.
REP.
OF THE
CONGO
Great Rift Valley
Lake Rukwa
Sumbawanga
Rufiji
Mbeya
ZAMBIA
Songea
MALAWI
Ruvuma
Lake Nyasa
MOZAMBIQUE

What is fish farming

Fish farming is the raising of fish in ponds, tanks, net enclosures, cages, or raceways. Usually the goal is to grow the fish as fast and economically as possible to a harvestable size. Some of the factors that farmers manipulate to influence growth rate include pond environment, type and density of fish, food, fertilizer, water quality, and growth period

Tilapia Nilotica



Tilapia thrive in warm tropical areas. It is a good fish for resource poor farmers to grow because tilapia are:

- Easy to raise
- Fast growing and tasty
- Able to eat many types of foods and are low on the food chain
- Able to reproduce easily
- Highly disease resistant
- Hardy and can tolerate poor water quality conditions
- Easy to identify

Tilapia farming systems

Most Tilapias are still raised in ponds. There are a large number of farming systems, mainly aiming at the reduction of the excessive reproduction of Tilapia:

- Mixed culture
- All male, hand sexed
- All male sex reversed
- Mixed culture with a predator

A successful rearing system in one country can be a failure in another country

- In Ivory Coast, you are obliged to use all male fingerlings as the market only accepts large size Tilapia

- In Congo Brazzaville, mixed culture is successful as the market prefers medium-sized Tilapia

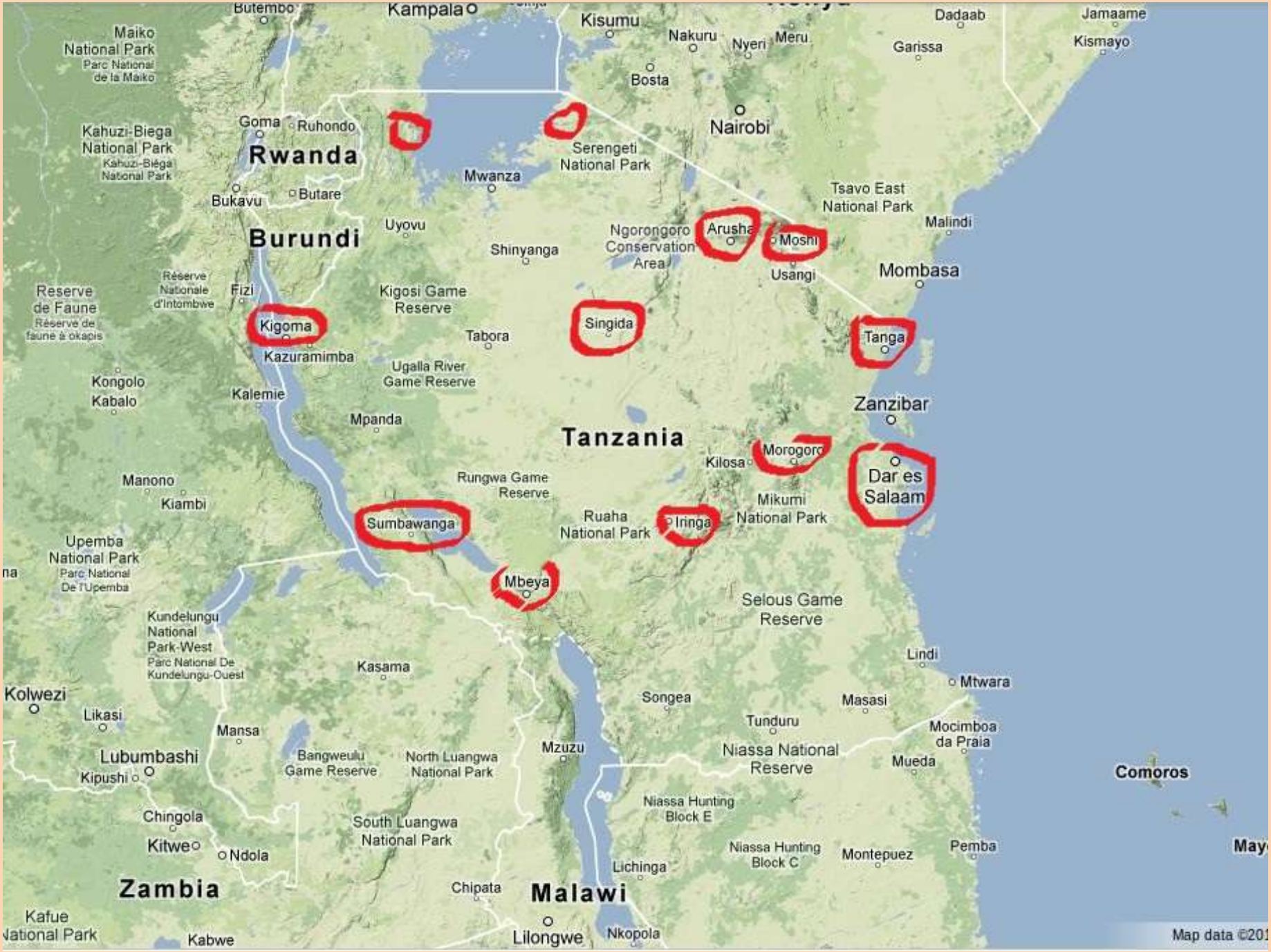
Benefits of fish farming

- Fish are nutritious (high in protein)
- Fish from ponds are readily available to farmers
- Simple technology and low capital investment
- Very productive and profitable (demand rises as supply declines)
- Fish are efficient (1:2) and diverse feeders
- Good use of land and water

Achievements and Impact to Communities

- Trained more than 800 fish farming motivators
- By the end of 2008, more than 7,000 fish ponds built
- Improved family diet
  - Cases of malnutrition/kwashiorkor reduced
- Increased farmers income (TSh. 80,000/= about US$ 51 per pond) – Schools fees, health services etc
- FFP practiced in 11 regions of Tanzania out of 21
- 10 years after end of project farmers continuing raising fish in ponds – Sustainability

(ELCA, CIDA, LWR, BfW, HPI)


Butembo
Kampala
Kisumu
Nakuru
Nyeri
Meru
Dadaab
Garissa
Jamaame
Kismayo
Maiko National Park
Parc National de la Maiko
Bosta
Nairobi
Goma
Ruhondo
Kahuzi-Biega National Park
Kahuzi-Biéga National Park
Rwanda
Serengeti National Park
Mwanza
Bukavu
Butare
Tsavo East National Park
Malindi
Uyovu
Burundi
Ngorongoro Conservation Area
Arusha
Moshi
Shinyanga
Usangi
Mombasa
Réserve Nationale d'Itombwe
Reserve de Faune
Réserve de faune à okapis
Fizi
Kigosi Game Reserve
Kigoma
Singida
Tanga
Tabora
Kazuramimba
Ugalla River Game Reserve
Kongolo
Kabalo
Kalemie
Zanzibar
Mpanda
Tanzania
Morogoro
Kilosa
Dar es Salaam
Manono
Kiambi
Rungwa Game Reserve
Mikumi National Park
Ruaha National Park
Iringa
Sumbawanga
Upemba National Park
Parc National De l'Upemba
Mbeya
Selous Game Reserve
Kundelungu National Park-West
Parc National De Kundelungu-Ouest
Kasama
Lindi
Mtwara
Kolwezi
Songea
Masasi
Likasi
Tunduru
Mansa
Mocimboa da Praia
Lubumbashi
Mzuzu
Niassa National Reserve
Bangweulu Game Reserve
North Luangwa National Park
Mueda
Kipushi
Comoros
Niassa Hunting Block E
Chingola
South Luangwa National Park
Kitwe
Ndola
Niassa Hunting Block C
Montepuez
Pemba
Lichinga
Zambia
Chipata
Malawi
Kafue National Park
Kabwe
Lilongwe
Nkopola
Map data ©201

Motivators training

What contributed to success

- Proper project design
- Community support

Detailed information given to NGO/Farmers

- Steps in starting up fish farming project
- Responsibilities in the program
- Explanation of the motivator system
- Guidelines for selecting motivators
- Topics in the motivators training course

Steps in starting and implementing fish farming project

- Locate potential project sites *Water, Soil Clay loam or sandy clay.
- Awareness creation
- Community/Farmers request for more information and assistance in fish farming to the project
- Fish Farming Project (FFP) staff visit area to assess project feasibility and have initial discussion with Farmers and village leaders
- Farmers may visit FFP; Farmers/Farmers groups decide to begin fish farming
- FFP appoints Area Project Supervisor
- Farmers select fish farming volunteer motivators
- Volunteer motivator signs agreement form
- Conduct FF course for Volunteer motivators
- Motivators return home and start FF work in communities
- Project supervisor organizes regular meetings for motivators and makes follow-up to motivators on site
- Fish farming trainer conducts advisory visit to monitor progress every 3-6 month

Steps in starting and implementing fish farming project cont.

- Motivators return home and start FF work in communities
- Project supervisor organizes regular meetings for motivators and makes follow-up to motivators on site
- Fish farming trainer conducts advisory visit to monitor progress every 3-6 month
- FF trainer conducts refresher course for motivators
- Motivators + Project Supervisor conduct village seminars for farmers
- Community/Farmer group conduct project Self assessment once a year
- Project conducts project evaluation
- Motivator and project supervisor collect project data and write and submit report to village office and project

Challenges

- Extension services: Lack of knowledge and skills, Lack of operational funds and transport
- Availability of quality seed (fingerlings)
- Availability of fish nets/ high cost of fish nets

Problems

- Theft, Otters, Water shortage, Health hazards

Lessons Learned

1. Keep it simple.

Strive to keep the project and technologies simple, inexpensive, and replicable with the least dependence on outside assistance as possible.

- *Use local materials and resources*
- *Use fish species which are easy to grow.*

Lessons Learned

2. Promote Self Reliance. The focus of projects should be on what farmers can do, not what the project can do for them. Caution is needed not to offer assistance until all local resources and initiatives are tried and prove to fall short.
Ask not how can I help but how can you, the farmers, do this?

- *This approach will nurture self reliance and a "can do attitude" and keep away from the **dependency syndrome** which is all too common in development projects.*

Lessons Learned

3. Encourage Realistic Expectations.

Before practicing fish farming, farmers may have unrealistic expectations of the results they can achieve raising fish, i.e. profitability and productivity.

- During introductory meetings and discussions with interested farmers provide accurate information on the amount of work, capital, and resources needed, profitability, productivity, and common problems to be expected.

Unrealistic expectations can lead to disappointment for farmers and loss of interest in the activity.

Lessons Learned

4. Seek Participation at All Levels. The greater and wider the participation the better. As in all activities in our lives the more invested we are in something — our time, money, enthusiasm, and hope — the harder we work on it. So it is with fish farming projects.

- *Strive for project participation at as many levels as possible - families, community, local government and religious leaders, community workers, government staff, etc.*
- *Avoid having farmers raising fish in isolation. It is better to have farmer groups that can raise their fish individually and work together on pond construction, harvesting, marketing, purchasing supplies, ideas exchange, securing loans, and lobbying.*

Lessons Learned

5. Promote Training & Capacity Building.

Build capacity, build capacity, and build more capacity

- Teach farmers all they need to know about fish farming; train select farmers to train others (hatchery management; farmer groups in management and leadership; train community leaders how to support farmers; train extension workers in fish farming/extension skills; and train project staff.

It improves the chance of project sustainability and success.

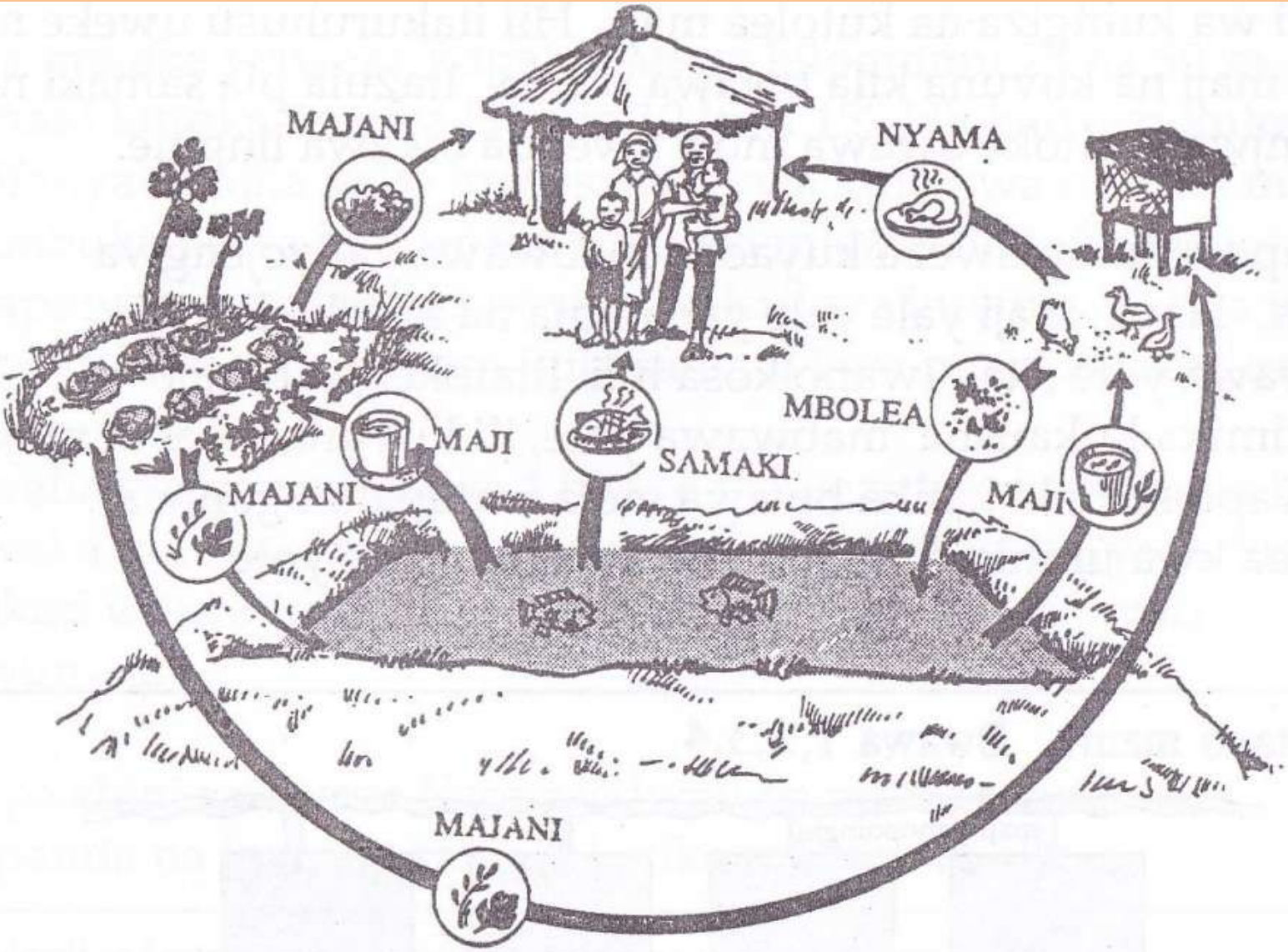
Lessons Learned

6. Remember that Small is Beautiful. Keep projects on a scale that is manageable so that quality can be maintained. When good results are achieved in a project, the tendency is to expand (geographically, numerically, the scope of activity).

- *focus on the core activities and improve on these.*

Lessons Learned

7. Integrate. Fish farming does well when integrated within a farming system. Encourage farmers to combine it with vegetable gardening, growing rice, animal husbandry, etc. This leads to a cycling of resources and nutrients in the system and is mutually beneficial.


MAJANI
NYAMA
MBOLEA
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Lessons Learned

8. Spread the Idea and the Technology. When early fish farmers are successful in raising fish, others are often attracted and want to begin. Without some technical assistance they will achieve mixed results.

- Although raising tilapia is simple it does require some knowledge and skills.

Lessons Learned

We have found the following methods most effective in spreading the idea:

- Farmer to farmer exchange and discussions
- Field trips to visit project farmers
- Fish Farming Volunteer motivator system

Fish Farming Volunteer motivator system

is a system having project farmers promote and provide basic fish farming extension support in their communities and in new areas.

- Fish farming volunteer motivators are selected

by their communities and receive additional training in fish farming and extension methods.

-They promote fish farming, provide ongoing extension support, and report

on project activities.

- They usually work with about 10 farmers each.

- Motivators enables wide coverage at low cost;

- Motivators are local, knowing culture, language, and the people;

- Motivators are volunteers and therefore not dependant on outside “project” funding;

- Knowledge and skills are in the hands of the local population.

Lessons Learned

9. Maintain Project Standards. Start with and adhere to approved project standards of fish farming - especially pond construction, pond management, and regular harvesting with drying ponds.

- Do not agree to stock fish in poorly constructed or incomplete ponds; it is better to wait until all work is completed and project standards are met.

“If you give people fish, they will have food for a day. If you teach them how to fish, they will have food for their lifetime”.

Chinese proverb


Asante sana
Thank you
Merci

Common Problems and Possible Prevention and Solutions	
Problem	**Prevention/Solution**
Theft	• Build pond near house • Frequent pond visits • Build fence or hedge around pond • Place sticks in pond to hinder netting
Predators	
Birds	•Keep pond fertile (green color) • Scare off or kill
Otters	• Hedge or fence pond • Trap • Place sticks in pond to slow otters
Snakes	• Keep grasses on banks short and clear of bush
Wild fish	• Screen inlets and outlets • Remove by netting
Frogs	• Remove by nets • Remove tadpoles and eggs • Raise ducks in pond
Stunted fish	• Follow stocking rate • Good pond management • Drain pond and dry at least annually
Pond seepage	• Proper pond site selection and construction • Fill holes caused by termites, moles, etc. • Add manure and compost to pond bottom and compact soil • Continue to replenish water until mud seal is formed and seepage slows
Fish kills	• Avoid sudden and large water temperature changes • Avoid low oxygen levels by not using excess feeds and manure or overstocking • Add new water when dead fish are observed in pond
Water shortage	• Select sites with reliable water source • In areas with seasonal water availability plan to use ponds only during times when water is available (usually 4-6 months is adequate) These are known as seasonal ponds
Health hazards ➢ Malaria ➢ Schistosomiasis (Bilharzia)	• Not a problem when ponds are kept free of weeds and stocked with fish; tilapia eat the mosquito larvae • Remove snails from pond • Make pond banks steep • Keep catfish and ducks in pond; They eat snails • Make sure no one urinates near or in pond

Recommended Guidelines for Fish Farming Projects	
Pond size	Min. 100m2; average 200m2
Pond depth	Shallow end 30 cm; deep end 1m
Number of compost fences per 100m2	2
Number of ponds per family	4-6
Preferred species	Nile tilapia
Stocking rate	1-3 fingerlings (1-2.5 cm in length) per m2 of surface area
Frequency of feeding	Twice per day
Amount of feed	Amount that fish will consume in couple of hours
Frequency of fertilizing	Enough to keep water green or reddish in color
Frequency of final harvest	At least annually
Time period to drain pond after final harvest before restocking	2 weeks
Frequency of adding new water to pond	Only needed to maintain water level
Frequency of extension visits to new farmers	At least once every 2 weeks
Ratio of motivators to farmers	Not to exceed 1:10
Pond size	Min. 100m2; average 200m2