Fish farming in Developing Countries

Industry Development
Bottlenecks, Challenges and Opportunities

Private Sector Development Seminar

7 June - Oslo
The presentation:

• GenoMar ASA, what we are, what we do and why we are focusing on tilapia:
• Comparison of the tilapia industry in 3 countries:
• How can public sector participate in building a safe sustainable fish farming business in developing countries?:

GenoMar
GenoMar ASA

Your gateway to:

Safe
Sustainable
Sea-harvest
Breeding Enterprise

Productivity development 1940-

Productivity, % (1940=100)

Year


100

200

300

Chicken

Cattle

Pig

Atlantic salmon

Tropical Finfish Tilapia
Nature’s own tag

The best tag there is!
Online Track and Trace of Seafood

The DNA pattern follows the fish from egg to plate!

GenoMar’s DNA Finger Print Technology verifies origin of seafood and provides Brand Protection and Fraud Detection.
World Population Growth, 1750–2150

Population (in billions)

Global whitefish landings

Existing resources
World Meat Production at present (FAO, 2002)

- Pork meat: 94 million tons;
- Poultry: 73 million tons;
- Red meat: 60 million tons;
- Terrestrial Meats: 237 million tons;
- Farmed Fish: 29 million tons;
- Total Fisheries: 127 million tons;

China = 21% of the world population; 20% of the chicken;
China Farmed Fish: 20+ million tons, 70% of the total;

Annual growth of Meat and Fish Farming:
- 1.4% red meat; 2.2% pork; 2.9% poultry; > 9% fish farming
World Population Growth Rate: 1.9%; demand for meat, 2.7%
The problem

The world's population is increasing, and the demands for fish from that population are also rising. The average consumption per person has almost doubled in less than half a century.

According to data from the Food and Agriculture Organisation of the United Nations (FAO), 70% of the world's oceans are already over-exploited, meaning that harvesting wild fish has reached its limits.

Does this also mean that sustainable aquaculture is the solution to our protein needs?

Most of the nutritional value of fish is lost during the process of growing them in the sea. However, the technology to grow fish in seawater is continuing to improve.

Global production of seafood (1950-2025) (1,000 mt)

- World population (bn) (rhs)
- Aquaculture
- Wild catch

25 million tons of salmon, cod or tuna will require approximately 100 million tons of wild catch – sustainable?

Alternative feed – SCP? Expensive, unstable. Vegetable feed such as soya – quality??

Many questions must be asked – why are they not addressed??

Tilapia and carp are very different from marine predators!!!
Tilapia’s prime sustainable feature:
- Plant based and low lipid diet

Why Tilapia?

Tilapia

Most other species in aquaculture
Salmon: increased volume, lower price
Total farmed production; first-hand price per kg
For high end consumers
Tilapia: increased volume; stable price
Total farmed production; first-hand price per kg
For all end consumers

Consumption of tilapia surpassed cod consumption in the USA in 2005
Tilapia at a glance

Tilapia Market: Production

Africa except Egypt
Is not represented
Why?
GenoMar’s Hatchery operations
Tilapia at a glance

Tilapia Natural Environment - Farmed Tilapia
Central Africa Lake and a typical pond

A challenge for the authorities in terms of water rights, environmental matters, licensing, biodiversity, etc..

Regulatory framework and transparent legal framework for Private sector must be established
A big informal sector may actually prevent an export industry from developing. Limited quality control and veterinary screening. Bad seeds – no profit.
Some are doing it right
Why China is succeeding despite its climatic disadvantages?

- Government is directly participating in developing infrastructure, ponds, building for processing plants etc.
- Leasing infrastructure to private sector operators
- Government is trying hard to comply with international food regulations – China is processing thousands of tons of Norwegian fish every year for re-export to Europe!
- Feed production of scale – China is a major buyer in the commodity market.
- Government has incentives for private sector – also targeting foreign technology providers
- Informal sector mostly addressing domestic market – export market dominated by formal and integrated players
- Right of way, land titles, land rent, etc. seems to be fairly transparent
- Law enforcement is good (GenoMar’s experience)
- Most transactions in the industry are based on cash on delivery or short term suppliers credits
- Infrastructure is good.
- High speed internet even in the provinces at the farm!
- International container traffic is cost efficient and frequent
- Environmental issues may be a major problem in the future
Why the Philippines are sliding sideways?

- Limited efforts from Government promoting industrialization and integration
- Right of way, land titles, land rent etc is difficult. Land owners are often overseas. Easy to be trapped in a legal dispute.
- Infrastructure is old and inefficient – just outside Manila there is no high speed internet!
- Fairly good feed supply – however more expensive than China but competitive
- Informal sector dominates the industry – no quality control – family connections and loyalty bonds to local community
- Most hatcheries and farms are family owned
- Small scale farms dominates the industry
- Officials and employees in the regulatory authorities are running their own tilapia business on the side
- Most transaction are based suppliers credits – there is no cash in the industry – even labor are paid at harvest – lack of working capital to bring the fish to export size.
- Regulations in place but limited enforcement – mayors are free to "sell" permits and licenses
- Law enforcement is weak
What about Uganda?

- **Huge potential – good climate – plenty of water**
- **Could be self sufficient in fish feed developing a competitive tilapia industry**
- **Big processing industry based on wild catch from the lake running on 40% of capacity**
- **Almost no fish farming today**
- **No feed factories of scale**
- **Uganda is suffering from unfair trade agreements – no markets to develop agriculture of scale that could provide a competitive agricultural industry**
- **Fortress Europe? – Norway spends more money on agricultural subsidies than development aid. WTO and agriculture? Fair?**
- **Regulatory framework??**
  - Fish farming licenses in the lake
  - Water usage for pond farming
  - Environmental regulations
  - Credit schemes for farmers
  - Veterinary authorities
  - Market access
  - Etc..
GenoMar’s experience:

- Only where public sector is involved
  - Licenses,
  - Permits
  - Etc..
- How do we avoid the corruption squeeze?
  - Good Local lawyers
  - Doing our homework
  - It takes time, sometimes years to do it right
  - All permits and documents in place before investing!

- Norad’s support for FS and Pre-Investment activities are very useful
Provide a platform for private long term direct investments!

- Create a platform for the private sector to develop the industry – production of scale
- Fair play and predictability
- Implement proper rules and regulations for all
- Improve enforcement and strengthen veterinary authorities
- Provide credit facilities for farmers – working capital and insurance?
- Provide technical support to farmers
- Increase international trade in agriculture products in general
- Aid to small scale (Informal sector) entities may not contribute much developing a safe and sustainable agricultural industry
- Food production is a sensitive industry that needs proper regulations and control – Government role