

CATFISH AQUACULTURE IN ASIA
PRESENT STATUS AND CHALLENGES FOR SUSTAINABLE DEVELOPMENT
Cantho, Vietnam, December 5-7 2008

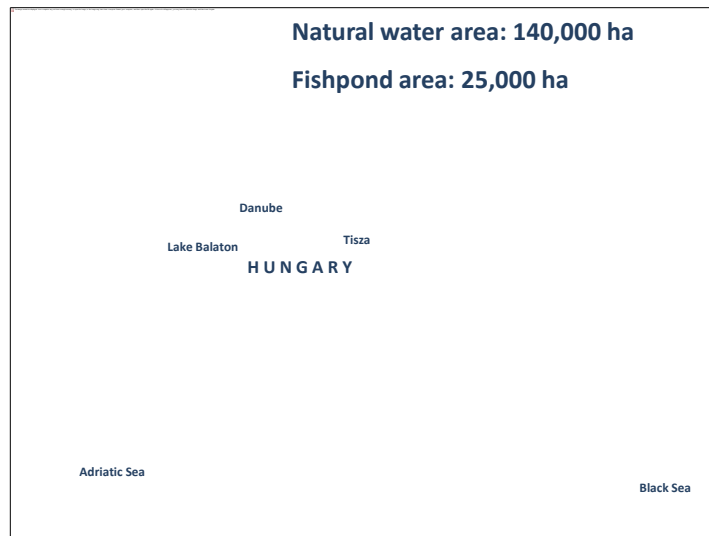
AFRICAN CATFISH PRODUCTION IN GEOTHERMAL WATER: A SUCCESS STORY IN HUNGARY

Laszlo Varadi and Ferenc Radics

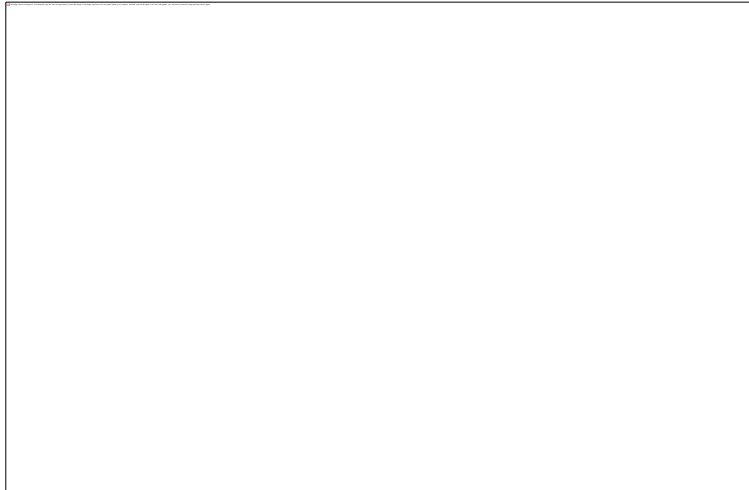
Hungary in Central Europe

Natural water area: 140,000 ha

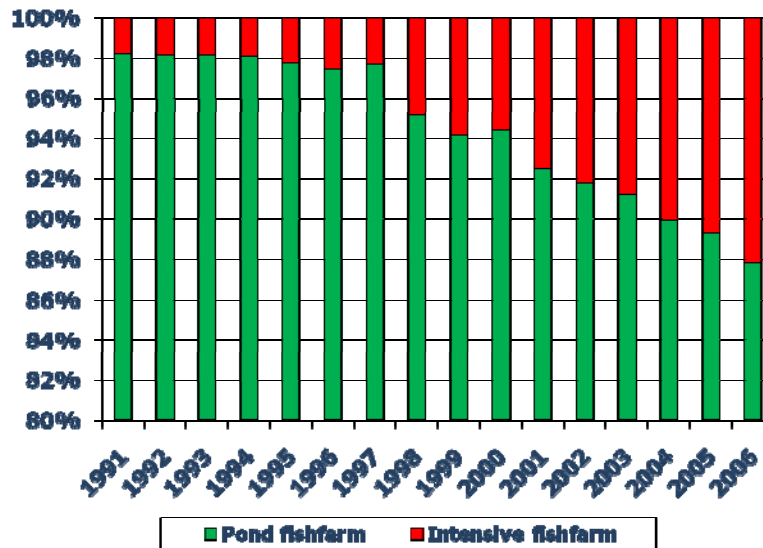
Fishpond area: 25,000 ha



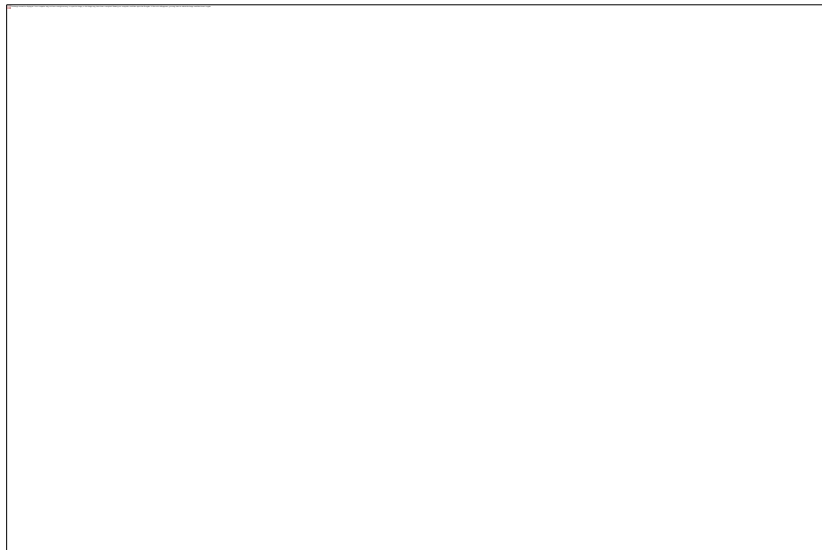
Aquaculture Production in Hungary



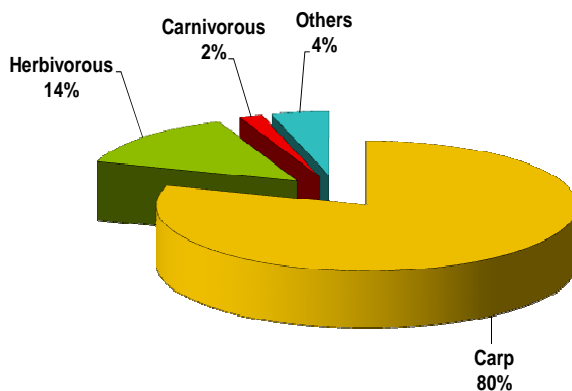
Share of pond- and intensive production



Area requirement of extensive and intensive aquaculture



Species composition in pond production



Main species of intensive production

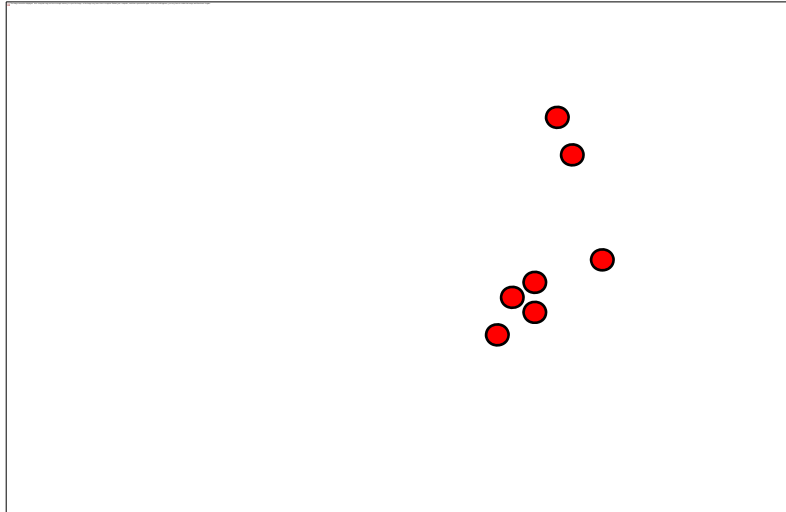
96%

of total intensive fish production in Hungary
is African catfish *Clarias gariepinus*

Why African catfish?

- Propagation and rearing all the year round in geothermal water
- Efficient „water user” due to high stocking density
- Low oxygen requirement and high tolerance against ammonia
- High growth rate and good feed conversion
- Minimal health problems
- Good quality of flesh

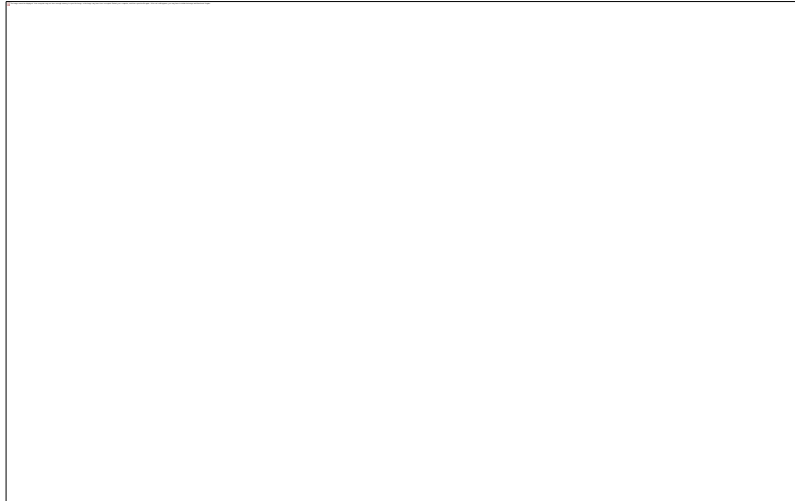
Geothermal water resources in Hungary



History of African catfish culture in Hungary

- 1984 first introduction of African catfish from The Netherlands
- 1984-1990 experimental works in HAKI and TEHAG
- 1990 start of commercial production (145 t in 1991)
- 1993 number of farms increased up to 10
- early 1990's production mainly for export
- late 1990's active marketing
- by 2008 number of farms decreased down to 3
- by 2008 almost all of the production for local markets

African catfish production in Hungary

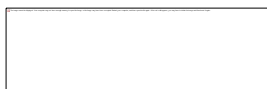


Challenges in production

- Efficient propagation and rearing technology
- Appropriate facilities (water and energy efficiency)
- Effluent treatment

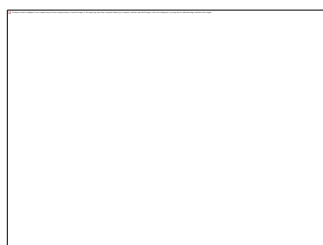
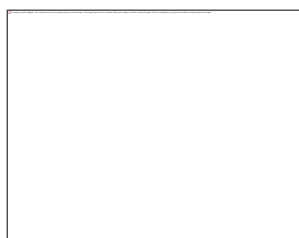
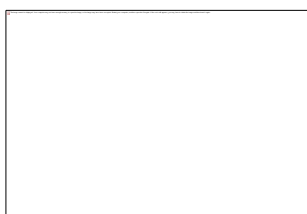
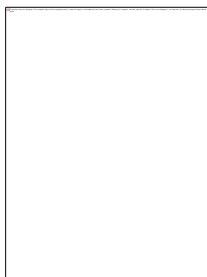
Meeting the challenges

- Collaboration between producer and research institution
- Innovation and development
- Collaboration among producers (Section of Intensive Fish Producers in the Hungarian Fish Farmers Association)



HAKI

Propagation and rearing technologies



Main parameters of the growout technology

- Production in geothermal water all the year round
- Feeding with pellet of 42-45 % crude protein
- Growout period is 10-12 months (from larvae stage)
- Yield is 250-300 kg/m³
- Final body weight is 1.5-2.0 kg

Fingerling rearing and growout in indoor system



Fingerling rearing and growout in outdoor system



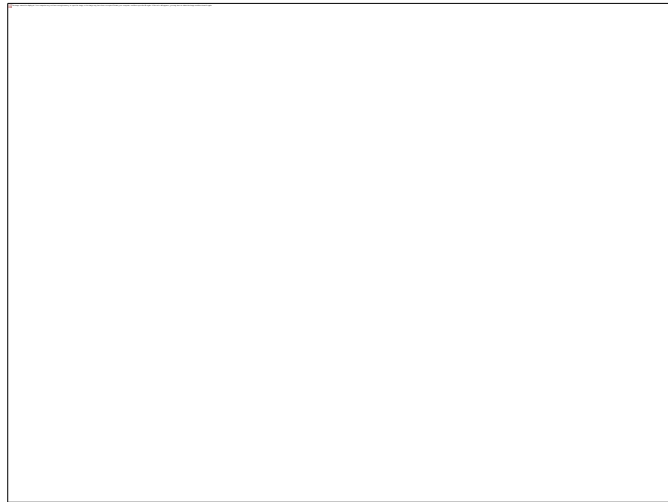
The scheme of the fish tank for intensive African catfish production



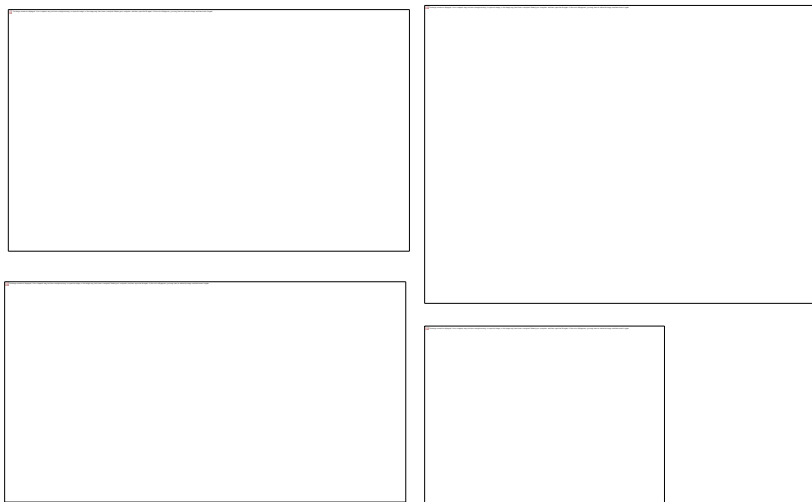
Continues internal water circulation by airlift pump

Regular sludge removal by syphoning

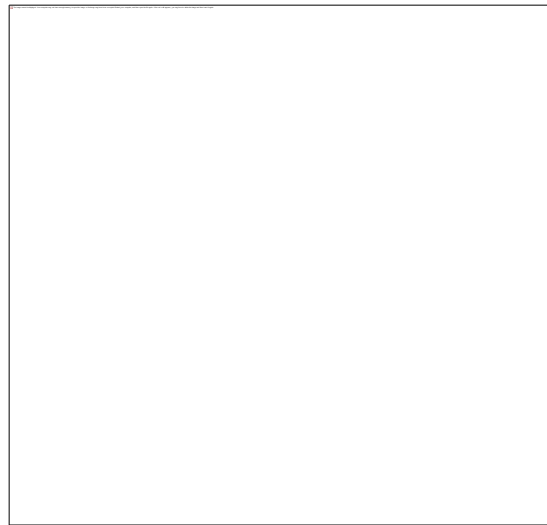
Cleaning the 300 m³ fish tank



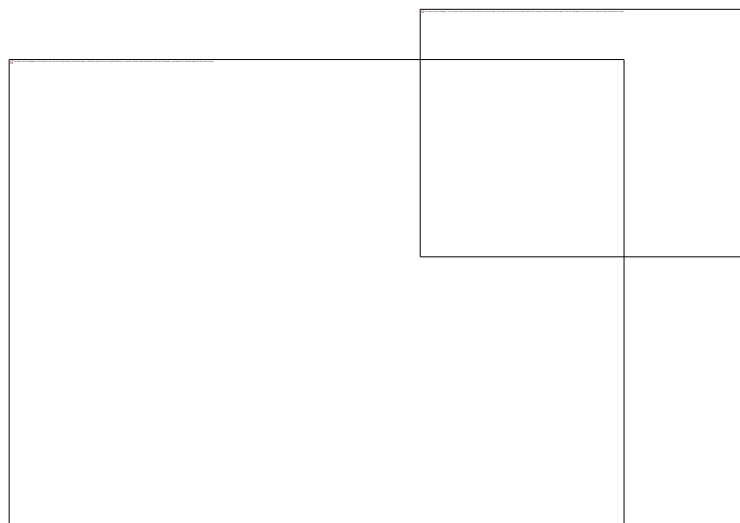
African catfish production at INNOFLEX fish farm



Aerial view of the intensive fish farm and the wetland for effluent treatment



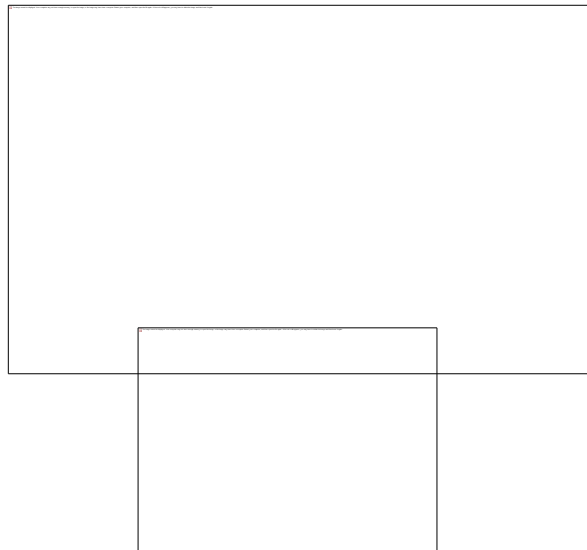
Effluent treatment on constructed wetland



Challenges in marketing

- Scepticism of traders
- Reluctance of buyers (appearance, origin of the fish)
- Difficult handling and storing of live fish in shops
- Competition with import

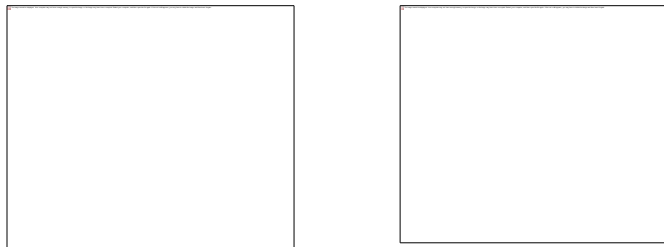
Number of hypermarkets in Hungary



Meeting the challenges

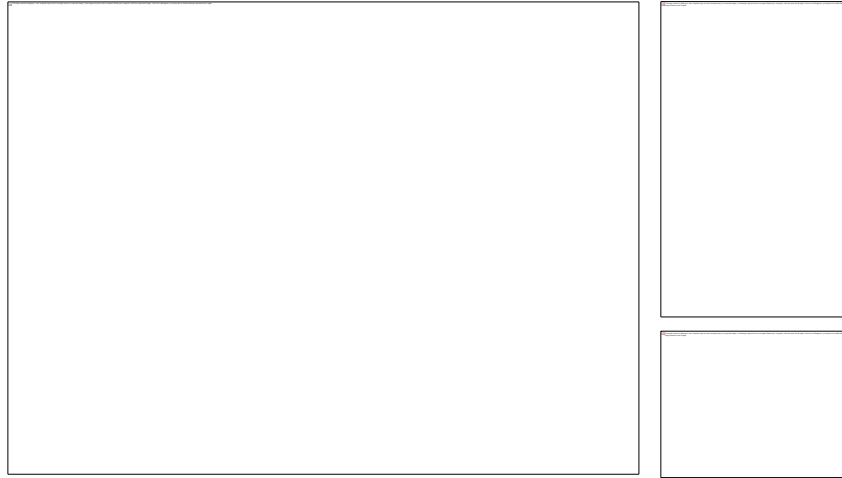
- Collaboration with retailers
- Market communication with consumers
- Processing and product development

Generic fish promotion



“Fresh fish from your neighborhood”

Processing



Conclusions

- An exotic tropical fish can contribute to aquaculture production even in temperate climate if appropriate conditions are available
- Geothermal water resources offer excellent conditions for intensive aquaculture
- Keys for success:
 - Collaboration between farms and research institutions
 - Processing and market development
 - Active marketing communication with consumers
 - Collaboration with large retailers

Thank you for your attention