

A hand holding a small globe of the Earth, with flames in the background, symbolizing global challenges and environmental issues.

STIG and Global Challenges on:

**Food
Water
Energy
Community**



Aquaculture in Poor Rural Areas

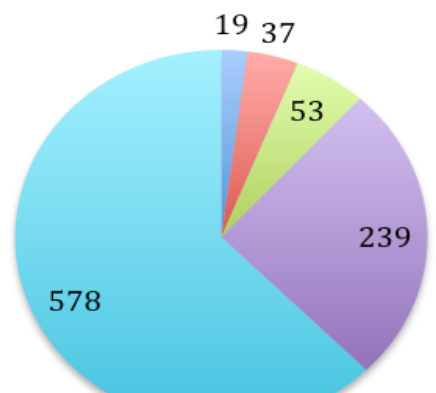
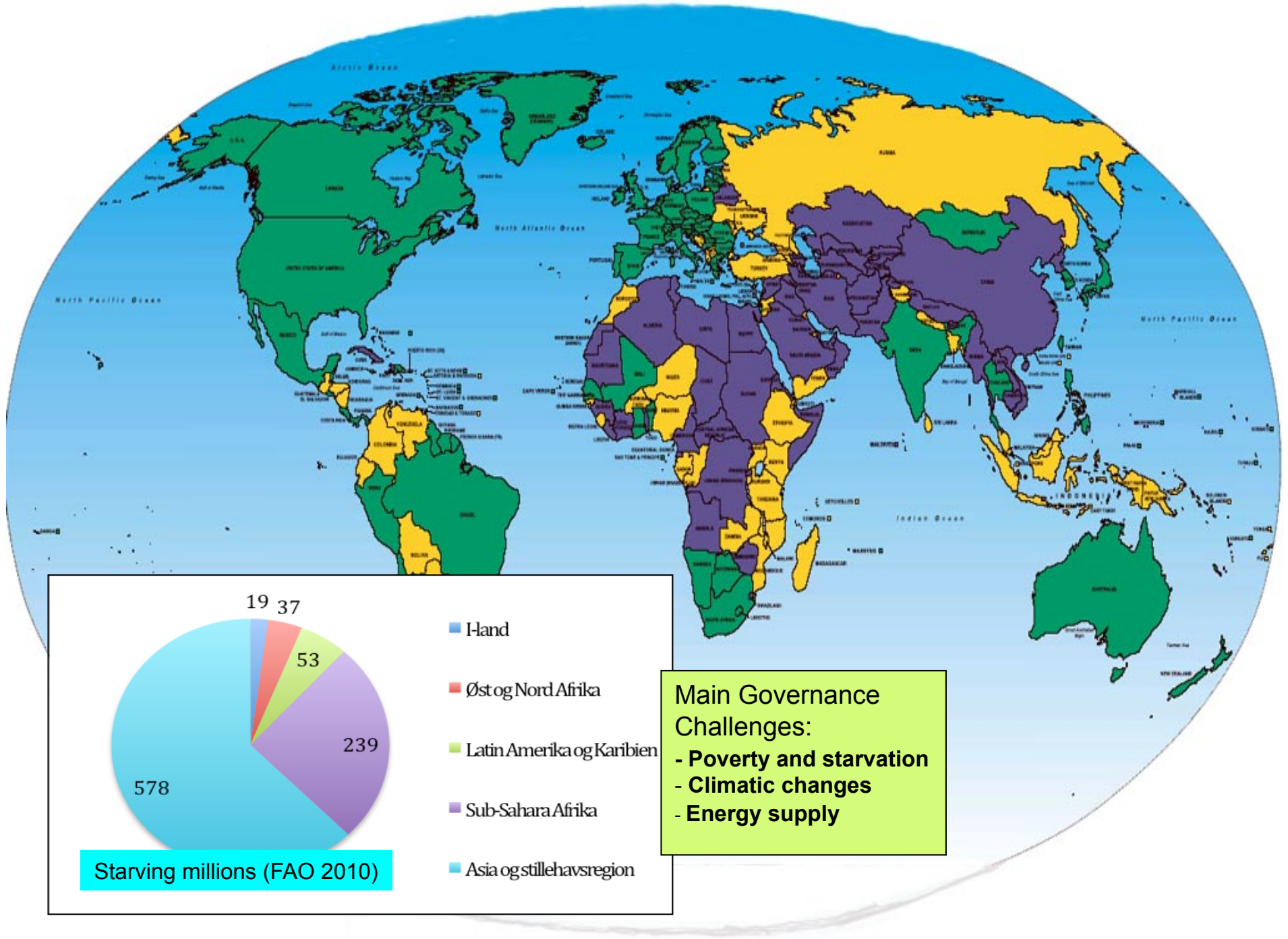
Fish Farming in Nepal (Capacity Building by NTNU)

Nepal population: 29 mill (86% in rural areas)
Rural work force: 80% in agriculture

Per capita income: US \$ 240 a year
Economic growth down to 1-2%

6000 rivers and tributaries
185 fish species (mostly carps)

Aquaculture: 1% to GDP

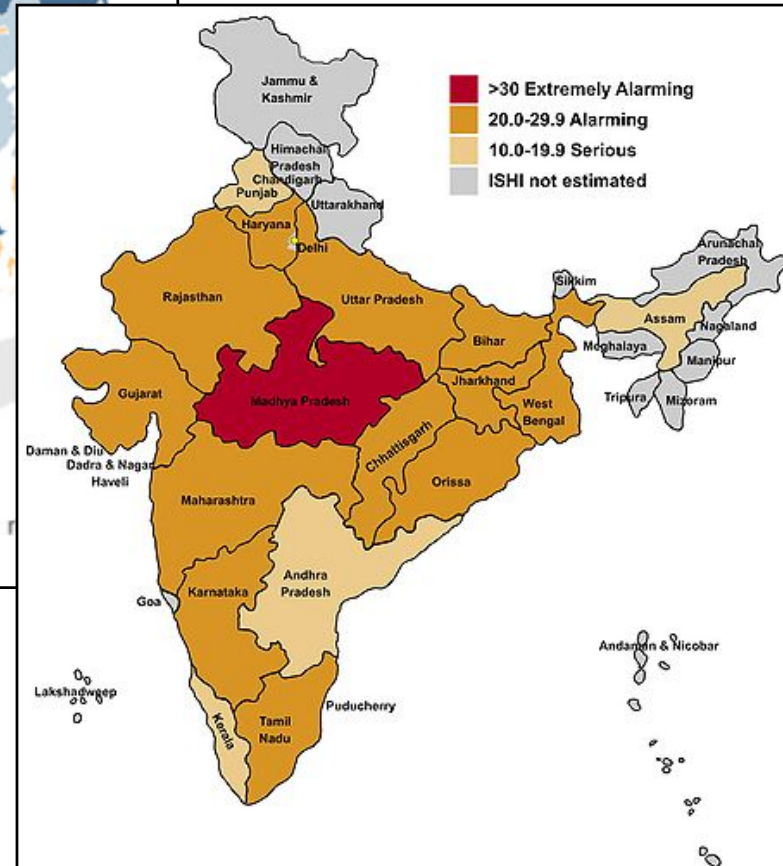
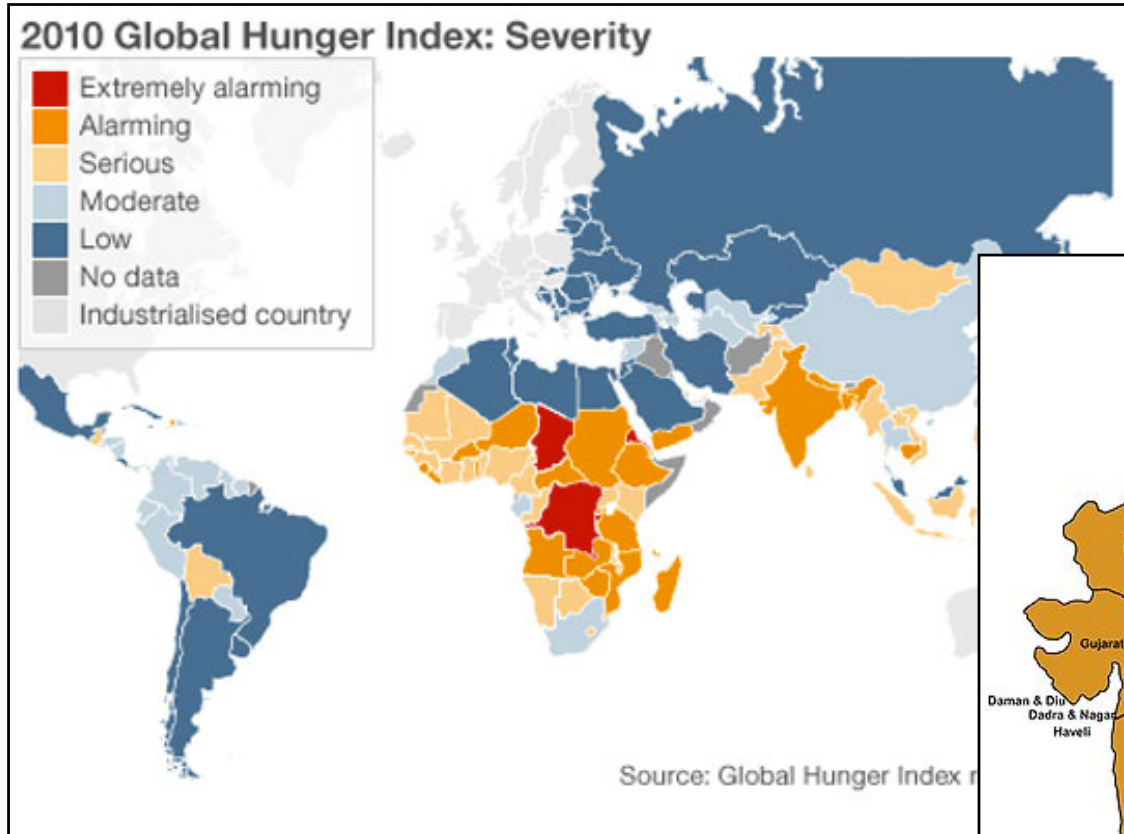


Starving millions (FAO 2010)

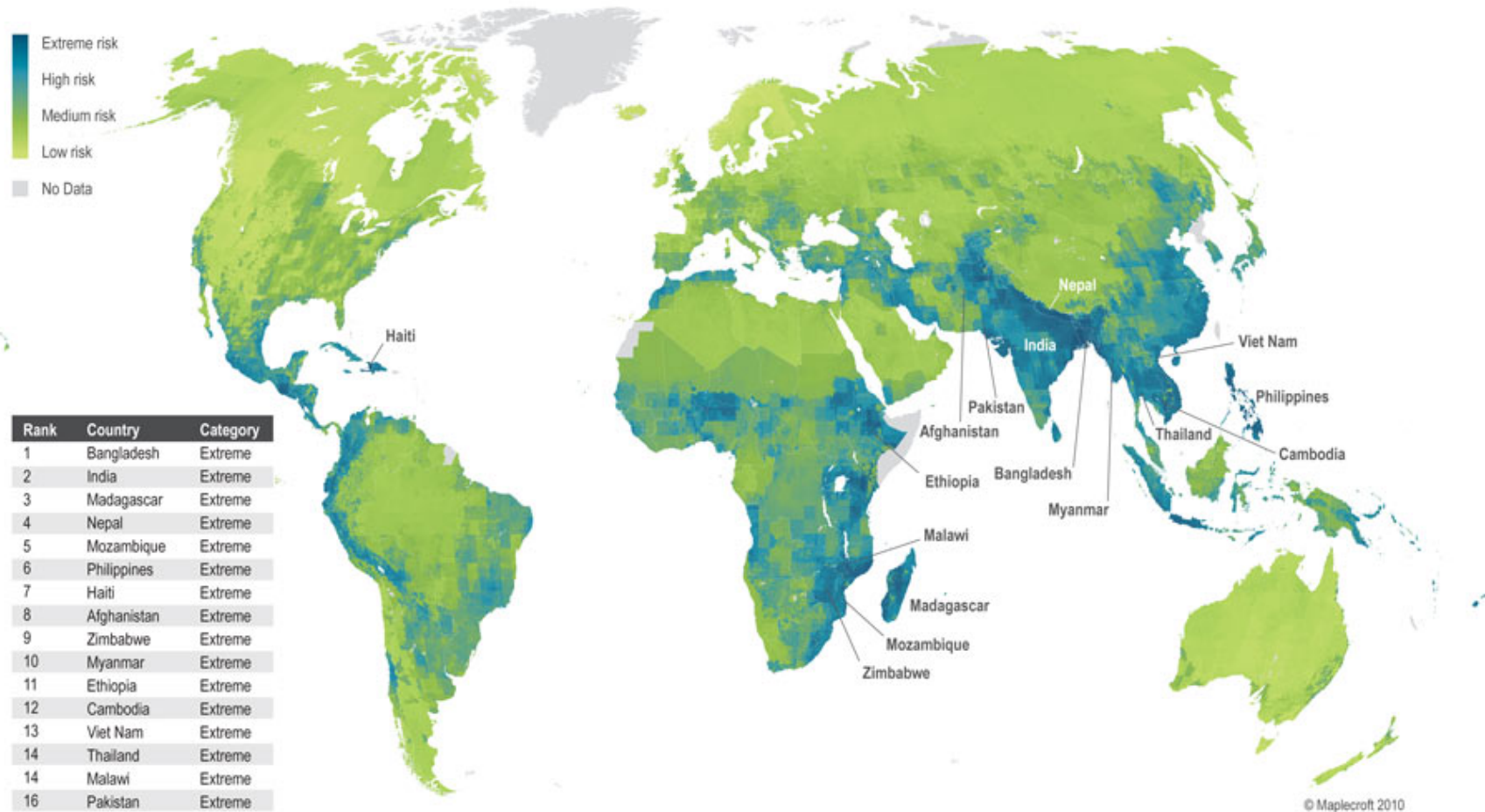
- I-land
- Øst og Nord Afrika
- Latin Amerika og Karibien
- Sub-Sahara Afrika
- Asia og stillehavsregion

Main Governance Challenges:

- **Poverty and starvation**
- **Climatic changes**
- **Energy supply**



Climate Change Vulnerability Index 2011



The DO-IT Partnership

- NEPAL:
 - Woman Group Khimti Khola, Nepal
 - Women Groups Andhi Khola, Nepal
 - Kathmandu University
 - Directory of Fishery & Development
 - Nepal Agricultural Research Council
 - Himal Power Limited
 - Butwal Power Company
- NORWAY:
 - NTNU
 - SWECO Grøner as
- INDIA:
 - Delhi University
 - Visva Bharati University



Bayantari Womengroup

Some members of the group with village officials
DoFD representative.

Norwegian Embassy (KTM): 3.9 mill NOK (2006-2011)
: 20 mill NOK (2012-2015)



Fish Ponds Rural Mountain Areas

Project: Leasing ground
Supply feed
Training (DVD)

PWG: Contract ($\frac{1}{2}$ & $\frac{1}{2}$)
(No Micro Finance)



Poor Women Group Excavating Pond

(2000t earth & rocks)

(Seepage tests)



Fish Seed Release



Protocol

Fish harvest
Bank deposit
Restocking
Training

Biology/Economy



Farming Benefits

Fish vs Plants
flood & landslide

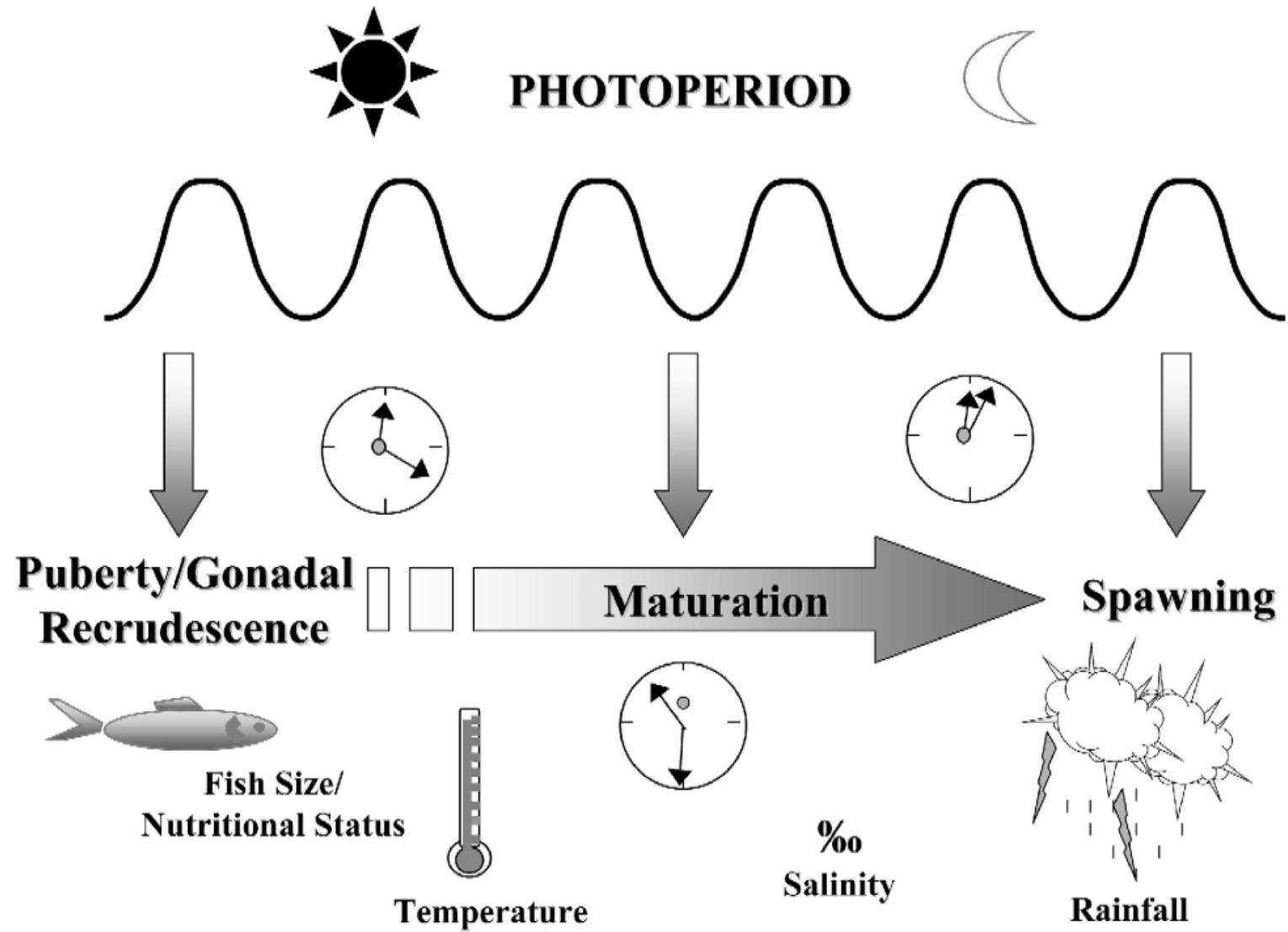
Fish and Plants
Paddyfield

Fish fertil. Plants
irrigation system



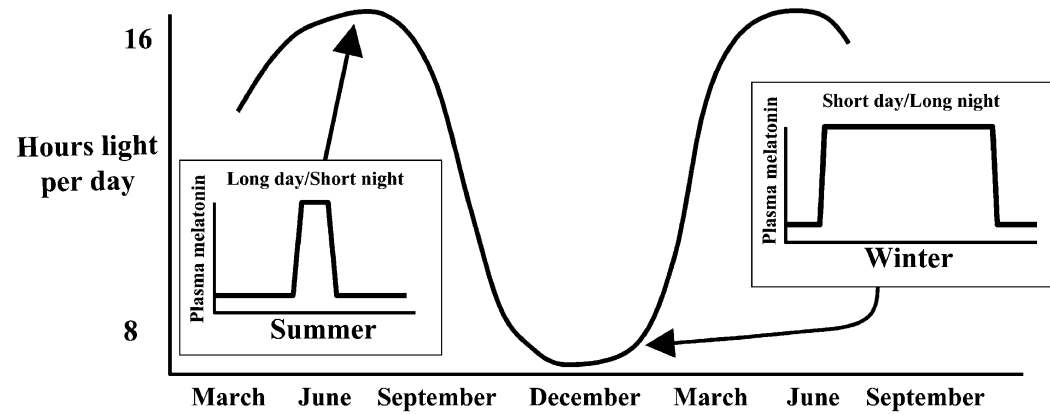
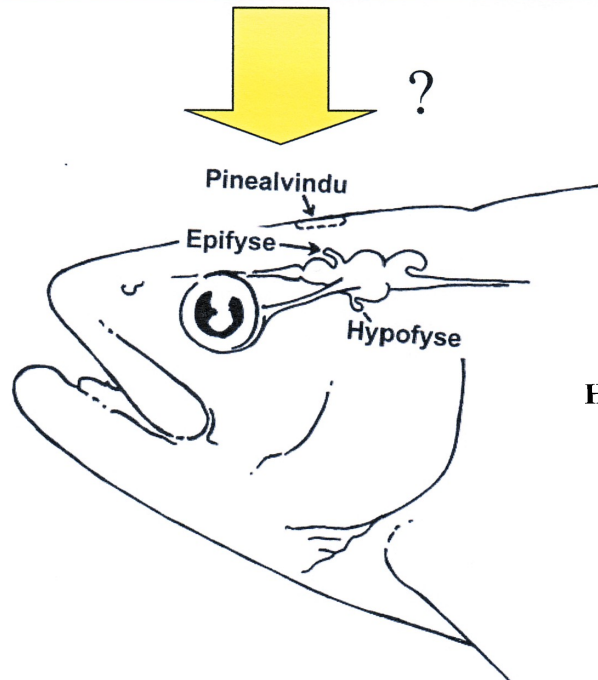
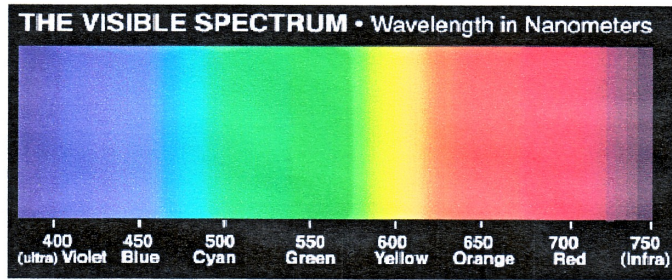


**Scaling up – National level
(Supply of Fries)**



RESEARCH: Reproductive Control – Manipulation

AIM: Female groups spawn at different seasons



Changes in photoperiod induces maturation



HP Mitigation - Hatchery



HP – Fish Farming – Environmental Mitigation = Empowerment & Stability