

Climate Smart Aquaculture

FishAdapt

Objectives of the project

Assists government to enable stakeholders to adapt to climate change by understanding and reducing vulnerabilities, piloting new practices and technologies, and sharing information

Key areas

- Strengthening regulatory frameworks
- Adaptive capacity
- Fisheries co-management
- Integrated mangrove with fisheries and aquaculture
- Inland fisheries and small-scale aquaculture
- Land and resource tenure

Effects of climate change

- Uncertain rainfall
- Droughts
- Increased temperatures
- Storms severity
- Storms frequency
- Flooding
- Sea level rise
- Salt inclusion in river and agricultural lands

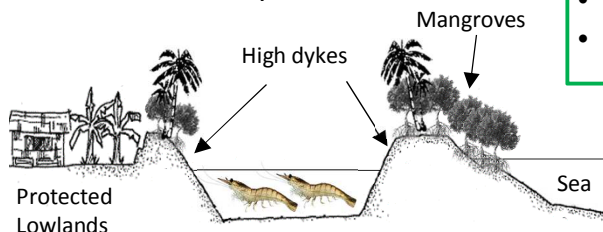
Effects on aquaculture

- Reduced productivity
- Water seasonality
- Increased mortality
- Increased diseases
- Destruction of farm dikes by stronger storms
- Loss of animals for flooding
- Loss of habitats for animals

The importance of mangroves in coastal aquaculture

Mangroves have been severely impacted by illegal logging, deforestation for aquaculture or agriculture, particularly along coasts and delta areas. Mangroves give fundamental ecosystem services by cleaning water, providing habitats for animals and absorbing greenhouse gases. In addition they contrast the effect of extreme climate events such as storms. Farmers claim relevant losses and decreased yields, caused by the breakdown of weak and unplanted pond embankments, but also from the higher seawater temperatures caused by no forest coverage.

Taller and wider embankments covered with mangroves will prevent erosion by tides and waves. Solid forested embankments at sea and riverfront are the main line of defence against flooding and future sea-level rise expected to permanently flood lowlands in 20-30 years.



Planting in narrow ponds mangroves and tall salt-resistant plants, such as palms, increases shadow and reduces water temperatures. Cooler temperatures in water, also by means of deeper ponds, increase survival and growth rates.

Benefits from mangroves

- Protection against storms/flooding
- Stronger embankments
- Less soil erosion from sea/river
- Protection of lowlands with dykes
- Carbon absorption, oxygen release
- Food & habitat for wild species
- Absorption of nutrients from wastes
- Shadow to cool down pond water



Plans for mangrove reforestation and embankments against sea level rise and storms should be integrated between concerned ministries to coordinate policies and laws. Allocation of resources for land planning and engineering should be organized according to state and international development budgets.

What is needed?

- Coordination between MoALI, MONREC and concerned departments (DoF, Dep.Agriculture, forestry) to coordinate land planning in connection with local communities through comprehensive Ecosystem Approaches linking all sectors
- Planning made based on the environmental and socio-economic impacts

FishAdapt

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