



# 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

### FishAdapt

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## How can aquaculture improve agriculture in salinized areas?

Saltwater intrusion is annually seen in the coastal and estuarine areas. During prolonged periods of dryness saltwater invades water streams and rivers, going upstream for tens of miles. Salinity depresses agricultural productions: each gram of salt in water above the limit of 1.5 depresses yields by 24%. As a result in many areas lands are not cultivated during the dry season or are farmed with losses. Such very low income opportunities force rural communities towards emigration with net losses of workforce or force farmers to clear mangrove areas to produce more. Climate change is expected to worsen, with longer periods of droughts and raise of sea level.

Aquaculture can give a great support against saltwater by substituting the irrigation from salinized canals/rivers with water from deep rain fed ponds or reservoirs stocked with fish.

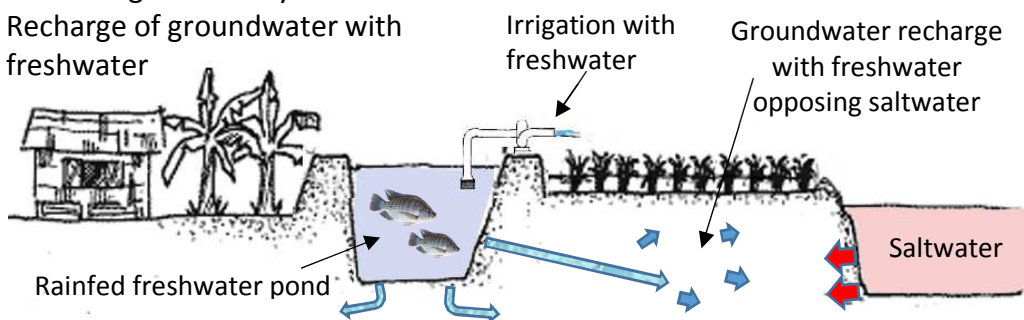
The abundance of rain in Rakhine and Ayeyarwaddy let the full storage of rainwater in ponds, if these are built.

By using a limited part of agricultural land for water storages it is possible to double the land productivity with two crop seasons a year. The action of ponds is double

- Direct irrigation in dry season
- Recharge of groundwater with freshwater

### Benefits

- Two rice crops a year instead of one
- Increase water productivity with fish and plants using the same water
- Improved livelihoods and nutrition
- Additional incomes from fish
- No need to clear more mangrove forests to produce more crops
- Water for household use
- Fish wastes used for fertilization
- Recharge of the aquifers with freshwater instead of saltwater
- Improved livelihoods prevent rural people emigrate elsewhere



*Extensive numbers of ponds in coastal or estuarine areas can supply freshwater to crops in the dry season and prevent saltwater intrusion into the ground*

A small “loss” of agricultural land for ponds could double the agricultural productivity.

### What is needed?

- Coordination between departments in MoALI to pilot the development of aquaculture for water supply in rain-rich but drought or salt-afflicted areas
- Review of the approaches in land uses. New amendments in the laws, regulations

