



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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Insein Road, Gyogon Yangon
<https://fishadapt.org/>

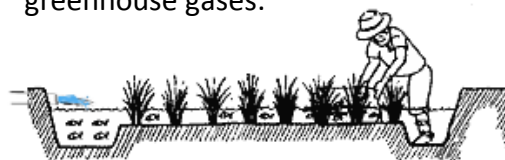
Climate smart rice culture and aquaculture

Rice production greatly affects climate change through emissions methane (CH₄) and nitrous oxide (N₂O) gases, which are 25 and 298 times more dangerous than carbon dioxide. Methane is produced from decomposing organic matter under water and no oxygen, while nitrous oxide it produced by the anaerobic decomposition of nitrogen fertilizers. Advances in rice farming are in non-flooded methods, as they are much more productive with less gas emissions: this gives great advantages and incomes in dry seasons. Aquaculture helps rice yields through bioturbation and control of benthos in flooded rice (rain fed), but also provides good mixes of organic matter and low nitrogen to fertilize dry paddies with potentially lower gas emissions.

System of Rice Intensification (SRI) has been validated in more than 50 countries worldwide. In SRI Soil is kept humid but not flooded to favour aerobic bacteria. Fertilization is through organic matter, which is a much slower nitrogen-releasing than chemical fertilizers. Lack of floods and minimum nitrogen supply combined to organic matter helps to consistently abate greenhouse gases.

Benefits from SRI

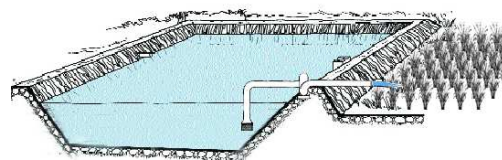
- 50% more yields than flooded rice
- 24% lower production costs
- 70% reduction of pests and diseases
- 44% less water
- Mitigation of climate change by consistently reducing gas emissions
- Soil enrichment with organic matter
- Increase sustainability



Rain fed rice-fish

Benefits

- Bioturbation of bottom
- Fish cleaning benthos
- Pest control
- Fish/plant disease control (with probiotics)



Pond with SRI in dry season

Benefits

- Pond as reservoir of freshwater and nutrients in salinized/dry areas
- No pollution from intensive fish farming



Increased agricultural productivity with simple integrated management

What is needed?

- Coordination within MoALI departments (DoF, DoA, DAR) and universities to pilot and validate such innovative solutions in local contexts.
- Development and testing of new protocols for pest/disease control using also beneficial microorganism widely used in organic management and aquaculture
- Scale up and by planning and coordinate Ecosystem Approaches in communities