

## CLIMATE RESILIENT RICE – FISH FARMING IN ASSAM

---

**In a nutshell:** Encouraging pisciculture in the paddy fields of Assam, taking advantage of the symbiotic relationship between the rice plant and the fish.

**Nodal agency:** Department of Fisheries, Assam

The Fishery Department, Assam has been implementing a pilot of rice – fish farming in about 431 ha of water bodies in 11 districts of Assam, covering 867 beneficiaries for the last three years 2018-19, 2019-20 and 2020-21. In paddy – fish systems, paddy and fish form a mutualistic symbiosis. The fish excreta provide nutrients for paddy. Also, the fish control pests in paddy field by feeding on insect eggs, larvae and on planktons. Rotation type paddy-cum-fish farming as a climate resilient farming practice gives an opportunity to increase the incomes of rural farmers, apart from nutritional security.

Around 2.3 million ha of seasonally flooded paddy cultivated lands of Assam have the potential for fish production along with paddy farming. However, productivity and viability of conventional paddy-cum-fish farming system is very low due to the lack of capacity and technological knowhow. Due to this, the paddy-fish farming system contributes only 5.43% of total fish production in Assam.

The technology partners of this initiative are World Fish and International Rice Research Institute. Some of the technical help extended include:

- Trench/pond preparation, renovation of canals, liming of ponds etc.
- Stocking fish seed, maintaining stocking density, feeding the fingerlings etc.
- Techniques in effective disease management of the fish.

### Impact

The production of a fish crop between the rice crops gives the farmers an off-season occupation which increases the income without increasing expenses. The combined culture leads to a reduction in labour in weeding and an increase in the yield of paddy by 10 to 25%. The increase in rice production (average 7.0 tonne/Ha/year) and nearly 2.0 tonne fish production/ha/crop is ascribed to various factors:

- Increase in organic fertilization by fish excreta and remains of artificial feed.
- Better tillering of the rice seedlings due to the activity of the fish.
- Reduction in the number of harmful insects, such as paddy stem borers, whose larvae are eaten by fish.
- Increased mineralization of the organic matter and increased aeration of the soil resulting from the puddling of mud by benthic feeders.

- Control of algae and weeds (by phytophagous fish) which compete with rice for light and nutrients.

The success and the experience gained in this pilot project will inspire other similar projects to be taken up, increasing both income and nutritional security of rice farmers.



Photos from the field site in Assam