

STRUCTURING OF A SUSTAINABLE RURAL FISH FARMING

A new way of managing water and fish farming to enable farmers to become self-sufficient and autonomous in their production

OVERVIEW

- Organization data:
 - ✓ Name: **APDRA Pisciculture Paysanne**
 - ✓ Organization type: **NGO**
 - ✓ Year of foundation: **1996**
- Beneficiaries : **3000 fish farmers**
- Donors and financing: **German Ministry of Cooperation, through the GIZ - €1.4 million from August 2017 to June 2021**
- Location: **Itasy, Vakinankaratra, Amoron'i Mania and Haute Matsiatra regions, on Highlands, Madagascar**
- Beginning date: **2004**
- Motivations: **Increase the quantity of fish available and contribute to enhancing food security and improving the incomes of vulnerable populations**



CONTEXT AND ACTION

Summary | In Madagascar, the main crop is irrigated rice grown in many low-lying areas. This agricultural practice creates a strong dependence on access to water. The presence of these many irrigated areas has led farmers to practice rice and fish farming for centuries. In the face of climate change, water management is a major challenge. Indeed, rice fish farming requires that there be a sufficient blade of water in the rice fields to allow the carp to grow. In addition, fry production and fish grow-out were always considered as two distinct parts of the production chain. Producers in remote areas, who did not have easy access to fry, could not set up rice and fish farming.

Since the 2000s, fry production in rice fields has in turn increased in landlocked areas. These smaller fry production units are called peasant hatcheries. These peasant practices of carp reproduction within the rice fields do not require inputs and ensure the autonomy of each individual for the supply of fry. This agro-ecological practice provides several agronomic benefits: fish fertilize the soil with excreta and rid the water of parasites, while the refuge pond allows fish access to food when the water level drops and facilitates their fishing.

In the village of Betafo in 2004, APDRA (Association Pisciculture et Développement Rural en Afrique) met fish farmers who had developed rice and carp fish farming according to this different and innovative breeding system, in an area with a well-developed water network. This action has enabled APDRA to fully understand the dynamics of fish farming in the Highlands and to promote this technique on a larger scale. Today, APDRA works with 1600 carp growers in rice fields and has created a network of more than 700 farmer hatcheries.

Local challenges |

- Fry are supplied by a single network of producers, the Private Fry Producers: isolated areas are not served;
- High fish prices: Malagasy people consume very little fish, especially in landlocked areas;
- Heavy flooding allowing fish to escape and/or droughts and insufficient water preventing fish development;
- Progressive rise in temperatures and concentration of precipitation over an increasingly short period of time.

Local responses |

- Elaboration and dissemination of a reference system for the production of fry in farming environments;
- Work in partnership with training institutes and producer organizations to increase the number of active fish farmers;
- Technical responses to the difficulties encountered by producers: carp reproduction, genetic diversity, marketing, etc.;
- Reforestation of watersheds to better protect water resources from climate change.

BENEFITS

Environmental | Rice fish farming provides a means of controlling insects and weeds, limiting the use of herbicides and insecticides. It also improves soil structure and life by providing nitrogen from excreta.

Social | The actions carried out by APDRA in the Highlands regions have increased the availability of fry in landlocked areas, allowing the development of rice and fish farming. In addition, this practice provides the farmer with a diversification of his production and a source of protein in a rice based diet, thus contributing to the food security of local households.

Economic | On the same surface, rice-fish farming allows a higher yield than conventional rice farming, providing the farmer with additional income for a relatively inexpensive implementation: fish yield of 300 to 500 kg / Ha / year, and rice production increase by 10 to 20%.

SUCCESS FACTORS

- Compared to pig farming or off-season cultivation, expenditure on rice-fish farming is lower;
- The possibility of marketing surplus fry during the lean season has made the activity all the more attractive;
- Good knowledge by APDRA of fish farming practices adapted to the local environment;
- Recognition of APDRA by state actors and other support agencies.

OBSTACLES

- Fry and carp thefts cause farmers to be reluctant to practice rice fish farming;
- Lack of funding to carry out all the necessary actions on an adequate scale, especially for reforestation.



« It is thanks to the development of rice-fish farming that we have been able to send our children to school. »

**Esperance
RASOANIRINJANAHARY,
Fish farmer**

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- Related link(s) :

<http://www.apdra.org/spip.php?rubrique65>

<https://www.youtube.com/watch?v=14JFq3VHqg>