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Family farming

Number 19

Intensification of fish farming systems in tropical countries

The joint research unit *Integrated and Ecological Intensification for Sustainable Fish Farming* (UMR INTREPID, CIRAD/IFREMER) is organized around three key lines of research: innovation, domestication and environment. The 'Innovation processes and systems in aquaculture' line involves development-oriented research and is focused especially on family farming. It is supported by three researchers specialized in agronomy and breeding in aquaculture systems. This research deals with the intensification of aquaculture systems in a sustainable development setting, while incorporating expertise already existing in the unit and that of external partners through a variety of disciplines related to biology, economics and socioanthropology.

Without overlooking other types of fish farming, through the CIRAD research team, UMR INTREPID has for some 15 years been focusing on key factors governing technical and organizational fish-farming innovation in rural agricultural systems in tropical countries, mainly Thailand, the Philippines, Brazil and Cameroon. The concepts applied are derived from an approach involving systemic agronomy, the sociology of translation (actor-network theory) on a territorial scale and complex system analysis, while using participatory farm survey tools. Scientists' research proposals are validated on the basis of the innovation co-construction model whereby experimental systems are set up within an ethical framework negotiated with development partners.

This participatory action research approach is combined with other research models depending on the issue being investigated (laboratory research or field research where the researcher must make decisions alone).

Research carried out on fish-farming intensification, and more generally on its contribution to family farm intensification, could be ranked in three broad categories: optimizing breeding system functioning; monitoring change dynamics on farm and territory scales; and the role of public-private partnerships.

Research on the 'Innovation' line is conducted in partnership with research units in France and other areas worldwide (Africa, Latin America and Asia). •••

Ré-SyPiEx project—a research and development network on extensive family fish farming systems in West and Central Africa

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▲ *A dammed fish farm pond, with the service pond on the right, Guinea.*

Traditional extensive fish farming contributes to the sustainable development of family farms and the fight against poverty in Benin, Côte d'Ivoire, Cameroon and several other African countries. However, due to its sometimes 'confidential' nature, the socioeconomic impact of these production systems in rural areas currently seems to be overlooked in national development programmes, which are predominantly focused on small and medium enterprise (SME) and industrial fish-farming initiatives. An argued rebalance of this situation would now be warranted, but without questioning the support for these latter types of aquaculture. It would be especially important to show public policymakers that commercial aspects are at the core of traditional or extensive fish farming systems, in addition to other sustainable development aspects.

UMR INTREPID, in collaboration with many African and French partners, has been involved since 2013 in the Ré-SyPiEx project, which perpetuates partnerships initiated since 2011 through the 'Ecological intensification of extensive family fish farming in West and Central Africa through an analysis of innovation processes – Extensive fish-farming systems' (SyPiEx) project (supported by the West and Central African Council for Agricultural Research and Development). Both of these projects have a dual objective: (i) contribute to the intensification (ecological) of traditional (catfish production in flood ponds or *wedhos** in Benin) or extensive (polyculture based on tilapia in dam ponds) fish-farming systems integrated in family farms in West and Central Africa, and (ii) strengthen international partnerships between research organizations and universities, and between these organizations and the private sector.

Olivier Mikolasek, olivier.mikolasek@cirad.fr

For further information: www.sarnissa.org / www.apdra.org

* Trenches with an area of up to 5 000 m² or more, which are hand dug in the OUEME River Delta floodplain in Benin. They are used to trap fish when the waters recede.