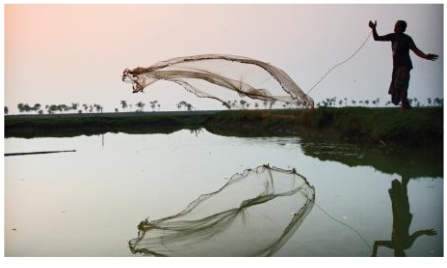
INTEGRATED RICE FISH AGRO-SYSTEMS
TO IMPROVE FOOD SECURITY AND CLIMATE RESILIENCE

In November 2020 a research on how integrated rice-fish production can improve food security and climate resilience was published as a result of strong collaboration by WorldFish, the International Water Management Institute (IWMI) and the International Rice Research Institute (IRRI), under the leadership of the CGIAR Research Program on Fish Agri-Food Systems (FISH).

Sarah Freed, research scientist at WorldFish, is the lead author of the study Maintaining Diversity of Integrated Rice and Fish Production Confers Adaptability of Food Systems to Global Change published by the frontiersin.org website.

The study was based on the principle that agroecological approaches that support biodiversity and utilize natural processes are particularly relevant for achieving a transformation toward food systems with more inclusive, nutrition-sensitive, and ecologically sound outcomes. The research looked across the Asian region to develop a typology of rice-fish systems, in particular by studying the characteristics of the systems adopted in Bangladesh, Cambodia, Myanmar and Vietnam.

The production of fish with rice is an ancient practice across Southeast Asia. Rice and fish are preferred foods, critical for healthy and nutritious diets, and provide the foundations of local and national economies across Asia. In some systems rice and fish are present at the same time. In others, rice is grown during the dry season while fish occupy the land when it is flooded. The fish may be wild or deliberately stocked. Such systems provide the nutritional diversity important for good health and make good use of the land and water. In recent decades, however, intensive monoculture of rice and fish (separately, in aquaculture), has displaced combined rice-fish systems in many countries. While monoculture boosts short term production and profitability, it also causes environmental damage and reduces resilience.



The study demonstrated how a diverse suite of integrated production practices contribute to sustainable and nutrition-sensitive food systems policy, research, and practice. The study at first develops a typology of integrated production practices illustrating the nature and degree of: fish stocking, water management, use of synthetic inputs, and institutions that control

access to fish. It summarizes recent research and innovations that have improved the performance of each type of practice. The study also synthetizes data on the prevalence, outcomes, and trajectories of these practices in Bangladesh, Cambodia, Myanmar and Vietnam, that heavily rely on fish and rice for food and nutrition security.

Focusing on changes since the food systems transformation brought about by the Green Revolution, the study illustrates how integrated production practices continue to serve a variety of objectives to varying degrees: food and nutrition security, rural livelihood diversification and income improvement, and biodiversity conservation. Based on these analyses, it concludes that widespread implementation of a diversity of agroecological approaches to rice and fish production also can enhance the adaptability of food systems to global change.

This research was undertaken as part of the CGIAR Research on Fish Agri-Food Systems (FISH). CGIAR is a worldwide partnership addressing agricultural research for development and environmental improvement. Their strategy will contribute directly to the achievement of the Sustainable Development Goals (SDGs) outlined by the United Nations, in particular to reduce poverty, to improve food and nutrition security for health, to improve natural resources systems and ecosystems services, to face climate change and other challenges. Their researches are carried out by 15 CGIAR centers in close collaboration with hundreds of partners, including national and regional research institutes, civil society organizations and academia

A relevant bibliography, presented in the final part of the study, allows access to texts of great interest published on different topics of integrated rice and fish agro-ecological production systems.







To know more

Study presented in CGIAR website

Maintaining Diversity of Integrated Rice and Fish Production Confers Adaptability of Food Systems to Global Change

Rice-fish systems in Myanmar in CGIAR website

Rice fied fisheries in Cambodia in worldfishcenter.org website

Study tour to Bangladesh in fish.cgiar.org website

Blog.worldfishcenter.org - rice fish systems back to the future

Worldfishcenter - facebook.com

Rice fields fisheries in sciencedirect.com website

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