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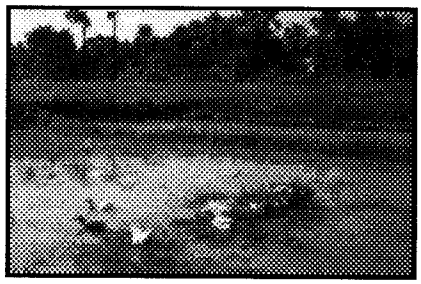
Rice-fish culture: supporting the rural poor

The aquatic phase of rice production creates a highly productive biological system that generates and sustains a wide range of plants and animals. And, to many rice farming communities in Asia, wild fish and other aquatic resources, such as crabs and frogs, are important sources of food. Fish species, such as carps, tilapias and catfish, can also be cultured (commonly yielding 50-300 kg/ha/yr) and their introduction to rice fields may effectively increase rice production by as much as 15%. This increase may be due to a number of possible causes: farmers often invest more effort in water management, spend longer with their paddies and may introduce fertiliser and/or potential fish feed stuffs. And, it is also because fish excreta increases soil fertility and the fish also contribute to the control of weeds and insect pests.

To date, most research into integrated rice fish farming has focused on areas of reliable rainfall or on irrigated systems, the so-called high potential areas. However, the Systems Group of the Institute of Aquaculture at the University of Stirling in Scotland is also turning its attention to more complex rain-fed areas where farmers must continually adapt their farming systems to respond to changing conditions. Where rainfall is unreliable, families often are poor and 'pre-packaged' technologies are usually inappropriate. An alternative approach is therefore needed if rice-fish culture is to be successful and sustainable.



The Systems Group at the Institute of Aquaculture is currently developing and using participatory research techniques for its development projects (funded by DFID) in several countries in Asia. In each of the projects, efforts are being made to build up a partnership between farmers and those involved in supporting their efforts (scientists, extension officers, NGOs, etc.). The development and management of such partnerships is new and complex: there are many problems that have to be overcome but the value of the approach lies in the potential benefits for those that are most in need of support in improving their livelihoods.

In Laos, where the Institute of Aquaculture has been working for two years, the vast majority of rice production (97%) is rain-fed. However, different regions are affected by varying periods of water availability. To investigate the different options available for fish production (through encouraging wild fish populations or by stocking and culturing fish), the project is addressing the technical, social and economic constraints to rice-fish culture in three Districts in the Savannakhet Province. Several organisations are collaborating in the work but a particularly crucial role has been played by the Lao Women's Union in order to understand and appreciate the role and view of women in aquaculture. Graham Haylor of the Institute of Aquaculture feels that this is very important and, as he says, "It is commonly considered that men are mainly involved with aquaculture so that, too often, the role of women has been neglected. But, in Laos, women are very much involved in the decision making for aquaculture so participatory monitoring and evaluation has been essential to access the

difference in knowledge, experience and attitudes between men and women. As Graham Haylor also observes, "Farmers respond very well to sharing their experiences and government institutions are eager to promote that forum for the exchange of ideas and for them to then use and disseminate the information more widely for the benefit of others."

Participatory methods are also being used in a new project in Eastern India. The project covers extremely poor rural areas in three states (Bihar, Orissa and West Bengal) where fish are highly valued but fish culture is currently not a common practice. The project is to improve the long-term livelihoods of poor farmers by encouraging and supporting the integration of aquaculture. Thirty-seven different trials are already planned with groups across West Bengal. The particular aspects of each trial has been determined by farmer groups and one of the main areas of interest has been to develop fish production even if water is only present for part of the year. Researchers are investigating carp and other indigenous fish species which can be spawned outside the rainy season. The idea is to produce fingerlings for stocking temporary ponds at the start of the rainy season which will grow fast enough for farmers to harvest a reasonable crop before the water dries up.

In Bangladesh, INTERFISH, one of two aquaculture projects (managed by CARE Bangladesh and funded by DFID) operates farmer field schools for men and women in four districts with an aim to greatly increase the adoption of rice-fish integration in farming systems. By the year 2000, it is hoped that these projects will have promoted more socially and environmentally sustainable farming to more than 70,000 farmers throughout Bangladesh. Using a number of participatory learning methods (discussion and hands-on learning etc.), farmers are introduced to basic ecology, pest management and other issues relating to rice-fish culture. The INTERFISH approach and transfer of knowledge to NGOs will ensure that the adoption of these field management approaches will benefit the farming community and improve the environment for all. As Muzaffar Ahmed of CARE says, "INTERFISH recognises that farmers are the experts and that they are the decision makers. If the farmers can also recognise the benefits that they have gained then their activities will continue long after the project has come to an end."

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