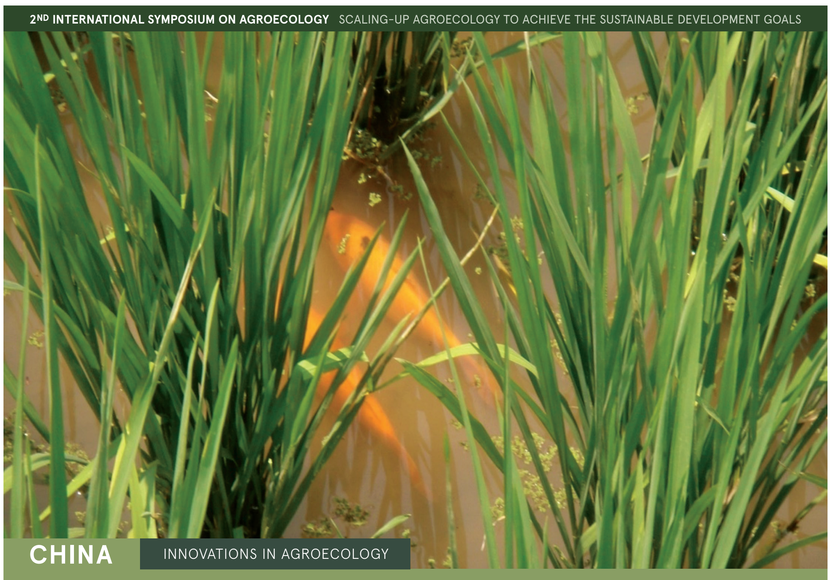


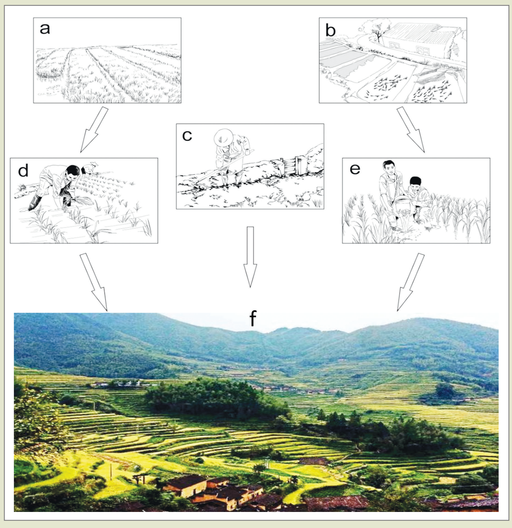
CHINA INNOVATIONS IN AGROECOLOGY

RICE-FISH CO-CULTURE SYSTEM

Rice-fish co-culture in southern China dates back more the 1000 years. The rice-fish co-culture system in Qingtian, Zhejiang Province is one of FAO's Globally Important Agricultural Heritage Systems (GIAHS). Co-culture rice with fish provides both rice grain and aquatic protein. Rice-fish farming systems have tremendous potential for increasing food security and alleviating poverty in rural areas; they also use the same land resource efficiently to produce both carbohydrates and animal protein. In rice-fish farming systems, water can be used to simultaneously produce the two basic foods.

DESCRIPTION OF THE INNOVATION

The technical package includes the following components: (1) installation of temporary physical structures, such as trenches and pits to protect the fish during field operations, and to prevent them from escaping; (2) rice and fish varieties which are more adapted to rice-fish co-culture systems, including rice varieties adapted to deeper water than in rice monoculture, and fish varieties adapted to shallower water than in fish monoculture; and (3) daily field management procedures, including the coordination of irrigation, fertilization, pest control, and fish feeding.



DESIGN AND SHARING OF THE INNOVATION

Rice-fish system processes in a hilly area:

a. rice seedling breeding;

b. carp fry breeding;

c. field preparation that includes field configuration for rice culture and fish, and water outlet and inlet;

d. rice transplanting;

e. fry releasing into rice field;

f. a setup rice-fish co-culture system

BENEFIT FOR FAMILY FARMERS AND FOOD AND NUTRITION SECURITY

Raising fish in rice fields can improve the stability of rice yields, and increase rice yields up to 5 percent in most cases. Rice-fish co-culture usually reduces or eliminates chemical inputs; thus, the rice products can be certified as organic food or green food, and can be sold at a higher price in the market. Fish produced in the system can reach an average level of 970 kg/ha, at which the gross income of fish is much more than that of rice in monoculture. Moreover, fish production can effectively increase family farmers' protein supply, thereby improving their nutrition.

SOCIAL, ENVIRONMENTAL AND ECONOMIC IMPACTS

- High economic returns can help to recover abandoned rice fields in the region.
- Non-point source pollution is reduced compared with rice monoculture.
- Water consumption is decreased compared with fish monoculture.

LESSONS LEARNED AND RECOMMENDATIONS

Rice-fish co-culture systems can also be used in plain areas, such as the picture showed below, in Deqing County, Zhejiang Province. A well-designed refuge, with a trench and pit, is important. Machines, such as those used for transplanting and harvesting, can be used in rice-fish co-culture systems in plain areas.

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