

1. Introduction

“There is rice in the fields, fish in the water.” This sentence inscribed on a stone tablet from the Sukhothai period - a Thai kingdom that flourished 700 years ago - depicts a scene that must have been as idyllic then as it continues to be now. Having rice in the fields and fish in the water is an epitome of abundance and sufficiency. No other combination would seem to be so fundamental and nutritionally complete in the Asian context. As such, few other plant and animal combinations seem to be more appropriate to culture together to improve nutrition and alleviate poverty. Fish culture in rice fields provides the means for “the contemporaneous production of grain and animal protein on the same piece of land” (Schuster 1955), and in this environmentally conscious age, few other food production systems seem more ecologically sound and efficient.

In the strictest sense rice-fish farming means the growing² of rice and fish together in the same field at the same time. However, it is also taken to include the growing of rice and fish serially one after another within the same field or the growing of rice and fish simultaneously, side by side in separate compartments, using the same water. Fish by no means strictly refers to fin-fish. It means aquatic animals living in rice fields including freshwater prawn, marine shrimp, crayfish, crab, turtle, bivalve, frog, and even insects.

Rice-fish farming is practiced in many countries in the world, particularly in Asia. While each country has evolved its own unique approach and procedures, there are also similarities, common practices and common problems.

Global recognition of, and interest in, the potential of rice-fish farming in helping combat malnutrition and poverty has been well known for a long time. The FAO Rice Committee recognized the importance of fish culture in rice fields back in 1948 (FAO 1957). Subsequently it has been the subject of discussions by the Indo-Pacific Fisheries Council (IPFC), the General Fisheries Council of the Mediterranean (GFCM), the FAO Rice Meeting and the International Rice Commission (IRC). IPFC and the IRC formulated

a joint program for promoting investigations to evaluate the utility of fish culture in rice fields.

However, international interest gradually waned over the years perhaps due to the use of chemical pesticides and herbicides in the early attempts to boost rice productivity.

It was not until the late 1980s when global interest in rice-fish farming was renewed. Rice-fish farming was identified as a project of the International Rice Research Institute’s (IRRI) Asian Rice Farming Systems Network (ARFSN). This project, led by the International Center for Living Aquatic Resources Management (ICLARM), the present WorldFish Center, was implemented as a collaborative effort involving many institutions throughout Asia. At the same time, the International Development and Research Center (IDRC) of Canada co-sponsored China’s National Rice-Fish Farming Systems Symposium in Wuxi. The papers presented at the symposium were translated into English and published by IDRC (MacKay 1995). Much of the information on China in this review was obtained from that book.

Over the last 15 years, the spread of rice-fish farming has been uneven and campaigns to promote the practice have often been discontinued. There are a multitude of reasons for this including inappropriate extension campaigns, cheap and readily available pesticides, and lack of credit facilities.

This report seeks to review rice-fish farming as practiced in different countries, explores the similarities and differences, and identifies experiences that may be useful to promote rice-fish culture in other parts of the world. This is not a “how-to” manual; instead it aims to describe how it was done or is being done in various parts of the world.

The report is structured in four main sections and a brief conclusion. After the introduction the first section begins with background information including a brief history of rice-fish culture (Chapter 2) and a description of the rice field ecosystem (Chapter 3). The second section then

²“Growing” is taken to mean the intentional culturing of organisms of either wild or cultured origin.

continues with the system itself with descriptions of modifications needed for fish culture in rice fields (Chapter 4), the various production systems (Chapter 5), the culture techniques and management (Chapter 6), production and yields (Chapter 7), and pest management (Chapter 8). The third section aims to put rice-fish culture in context by discussing its importance to farmers as

well as its social and environmental impact (Chapter 9). The fourth section reviews the experiences and status of rice-fish worldwide (Chapter 10) and concludes with the prospects and program for the future and the lessons learned, primarily in Asia, that can be useful in the promotion of rice-fish culture in other parts of the world (Chapters 10-11).