



AQUATIC BIODIVERSITY AND HUMAN NUTRITION - THE CONTRIBUTION OF RICE-BASED ECOSYSTEMS

AQUATIC BIODIVERSITY, RICE FIELDS AND FOOD SECURITY

The Lao PDR is a country with a rich aquatic biodiversity in its rivers, lakes and wetlands. This richness has always been tapped by humankind for food, barter and income, and numerous studies have shown its importance for the nutrition and livelihood of the Lao people.

Rice-based ecosystems, that is, rice fields and the small water bodies in their immediate neighborhood, have been less recognized as a source of aquatic animals for human nutrition and food security; they are usually seen as a source for rice only. However, rice fields form part of the intricate system of wetlands that can be found throughout the country, and therefore also harbor a highly diverse set of aquatic organisms. The catch from rice fields is usually modest and only sufficient for a single day. For this reason, the fish and other aquatic animals caught from rice-based ecosystems go largely unnoticed - making it an 'invisible' fishery. Nevertheless, since many people are involved in this type of fishery day after day, the total amount can be quite significant.

ASSESSING THE IMPORTANCE OF RICEFIELD FISHERIES IN LAO PDR

In realizing the need to 'make the invisible fishery visible', the Laotian Government gave priority to the assessment of the contribution of rice-based ecosystems to the nutrition of rural households. Through its Ministry of Agriculture and Forestry's (MAF) Living Aquatic Resources Research Center (LARReC) and with support from the FAO-Netherlands Partnership Programme (FNPP) it initiated a household survey in an attempt to create a suitable methodology to collect data on fish catch and consumption on a larger scale. A questionnaire was developed, field tested and improved, 240 households were selected in three provinces, and field staff of the Department of Livestock and Fishery (DLF), MAF, were trained to conduct interviews in a one-year pilot study. Since late 2006, the field staff have visited target households once every month to conduct interviews and learn about local indigenous knowledge and all information was subsequently submitted to

LARReC where data have been entered into a comprehensive data base developed for their analysis. Capacity building of the field staff was considered critically important, and several training workshops were held to create a sound understanding of the purpose and process of data collection. Also, LARReC staff received additional training for the handling of the data input process and the data base management.

To date, ten months worth of data have been analyzed to gain preliminary insights. The findings clearly stress the crucial importance of rice fields as a source of aquatic foods: More than 50% of the fish caught by households come from rice-based ecosystems. In other words, in the areas surveyed the majority of fish no longer comes from rivers, lakes and reservoirs, which reportedly was the case in the past.





This implies that the value of rice fields as a source for utilized aquatic animals has apparently increased, and the connectivity to other aquatic habitats as well as a healthy rice ecosystem are likely to be key determinants in this process. Furthermore, amphibian catches are very high; whilst fish amount to approximately half of the total household catch coming from all aquatic ecosystems, amphibians make up another third. This study established that ninety percent of the frogs consumed come from rice fields! The finding is of particular nutritional relevance since fish are often mentioned as the key source of protein for the Lao population, whereas the importance of other aquatic animals is much less acknowledged. Finally, rice fields are also important for a wide range of crab and snail species, also important to the Lao diet, and, to a lesser extent, aquatic insects. These results point to the incredible importance of rice fields and their associated habitats, not just as a source of rice, but as a source of animal protein, fatty acids, and essential minerals and vitamins.

VALUING NATURAL RESOURCES - IMPACTS ON AGRICULTURE, FISHERIES, NUTRITION AND ENVIRONMENT

No other study has revealed in such depth the importance of rice-based ecosystems as a fishery resource, and the potential impacts are numerous. Most immediate, its results are currently being fed into the process of reviewing the

fishery legislation in Lao PDR, and are expected to ensure that the importance of rice-based ecosystems as part of the overall fishery is adequately reflected in a new fisheries bill and related policies. Secondly, to date no systematic data collection on catch and consumption of fish and other utilized aquatic organisms from rice-based ecosystems exists. Current official production figures are rough estimates. Inaccurate figures however can become problematic and misleading when they are used as the basis for policy decisions. With new tools at hand, the Government is currently considering ways and means to address this shortcoming by considering how to make this newly developed methodology, which is inherently efficient and relatively cheap, part of regular official quality data collection.

Ultimately, it is expected that the systematic collection of reliable data on fish catch and consumption will allow an accurate valuation of natural resources, which in turn will have implications for policy decisions in the agriculture, fishery, nutrition and environment sectors. Particularly, the study is expected to inform and guide policy makers when decisions on the further development of rice production are to be made. The results show that the contribution of rice-based ecosystems to the nutrition of the Lao people is by no means limited to rice alone, and policy decisions on future development should take this into account.



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With the support of FAO and the FAO/Netherlands Partnership Programme