

# EFFECTS OF HOUSEHOLD TRAITS AND MICRO-FINANCING PROGRAMS ON COMMUNITY FISHERY MANAGEMENT IN RURAL CAMBODIA

Aimee Christina Mori, GPSS — GLI, ID 47-146824

Advisor: Associate Professor Nobuyuki Yagi

Co-Advisor: Project Assistant Professor Toshinori Tanaka

## ABSTRACT

Of the estimated 38 million fishers in the world 90% are thought of to be small-scale fishermen from developing countries (Hori *et al.*, 2011). Small-scale fisheries are essential sources of protein and livelihood development, especially for small rural communities. The invaluable nature of these small-scale fisheries, combined with lack of data on these small-scale systems and the difficulty of management due to the nature of common pool resources, calls for more research on small-scale fisheries.

Management of small-scale fisheries has recognized the importance of cooperation of local fishermen and communities for sustainable practices, and this recognition has led to a shift away from centralized top down management to a degree of co-management. The switch to co-management brings with it debate regarding the ability of local informal institutions, rather than governmental control, to handle common pool resource management, a long-standing issue in the discussion of the tragedy of the commons. Looking into community based fishery management also initiates discussions surrounding the relationship between community management, poverty, and empowerment, along with different ways of

framing human-nature relations and dependencies. To better understand the challenges and future perspectives future management strategies facing community fishery management, the case of rural fishing communities along the Tonle Sap system in Cambodia was chosen.

The Tonle Sap Lake is the fourth most productive captive fishery in the world and has an annual catch between 289,000 and 431,000 tons of fish (Bonheur *et al.*, 2012). Situated in Cambodia, the Tonle Sap provides livelihoods to over a million people who rely on the lake's fisheries (Bonheur *et al.*, 2012). The replacement of an old fishing lot system with community fisheries now puts the management of these fisheries into community hands. However, community fisheries are not provided with resources from the government to manage fishing grounds, resulting in many issues, such as illegal fishing activities, the inability to patrol due to lack of funding and resources, and the lack of authority.

This research aims to identify factors that contribute to the opinions that rural subsistence community villagers have toward community fishery management topics and how the presence of micro-financing programs affect these opinions. Micro financing is included, because micro-financing schemes, especially those of NGOs, can help alleviate stresses due to lack of funding, a basic barrier that community fisheries face. The sub-research questions to fulfill this overall research objective are as follows:

1. To identify the main issues facing Cambodian inland fisheries

2. To determine how household and community traits influence household views on community fishery management
3. To see how a community under a micro-financing program holds differing opinions toward community fishery management.

Two Cambodian communities (Piem PoPech and Phlong Community) located along a tributary of the Tonle Sap River in Kampong Chhnang Province were selected as target communities. Both communities are rural subsistence agro-fishery communities, and while Piem PoPech is part of a micro-financing NGO program, Phlong is not. Semi-structured interviews and focus group discussions were conducted with a variety of stakeholder groups, and a household questionnaire was undertaken both in Piem PoPech and Phlong. Series of factor analysis, cluster analyses, and regressions were conducted to analyze the relationship between different variables and the opinions toward community fishery management topics.

Study results found that problems facing inland Cambodian community fisheries include regional factors, such as increase in population and agricultural activities along with resulting changes in fish prices, and biophysical factors. Biophysical factors include changes in hydrological cycle of the lake system caused by both upstream development and hydropower projects and irrigation practices. Illegal fishing is also arising as an issue, with illegal gear being used and fishing taking place in restricted conservation areas.

Dependence on fishery resources, education level, perception of the health of the fishery resources, and a respondent's age were found to be important factors in determining the opinions of respondents toward the proposed community fishery management strategy. The theory of relational value of resources was used to help explain why those of different dependencies on the resource hold different management values. This study makes recommendations to unify differing opinions held by those who fell under different categories based on measured variables.

The main recommendations proposed by this research turn toward the theory of cross-scale linkages. The strengthening of both vertical linkages between different scales of social, judicial, or spatial levels along with horizontal linkages between members of individual communities, communities as wholes, and government entities are recommended. The effect of NGOs on outlook on community fishery management was rather small, although the potential is high for a micro-financing NGO to aid community fishery management. This can be done through a variety of vertical linkages, along with forming tighter connection between loan distribution and management participation or contribution.

*Keywords:* Co-management, Community Fishery Management