

# Project Bulletin

## Bringing back the fish: new research on fish dependent livelihoods in Southeast Asia



Imagine this: You are a poor farmer living on the banks of the Mekong River in Laos. You grow rice on 0.2ha of land and fish every day in a wetland area to keep your family fed. According to your grandparents, there used to be plenty of fish in the wetland but since the irrigation weir was built to allow more paddy rice production, fish populations in the wetland have steadily declined. There are also more people in the area using more sophisticated nets and sometimes illegally use electricity to kill fish. They sell the fish in the local market to make



Fish being sold at the local market in Paksan

money. Some species of fish have become rare and command a higher price in the market, making them even more desirable. You can see what is happening, but you have to focus on each day at a time in order to eat and survive.

Then along come some odd-looking Australians. The work with local contractors to build a strange looking contraption

beside the weir- "to bring back the fish to the wetland" they say.... At first you think...this will be another one of those 'fly by night' projects that promises everything and delivers nothing. But before long, you are down at the fishway helping the research team to harvest fish, telling them the local names and seeing the fish jump up the fishway to the wetland. It works! Already your village is talking about regulating fishing at the weir and other places in the wetland to allow the fish to breed.

This story is happening right now as a result of research funded by ACIAR project to trial fishways in central and southern Laos. The NSW Dept of Industry and Investment has partnered with the Living Aquatic Resources Research Centre in Laos, Fisheries QLD, the National University of Laos and Charles Sturt University over the next 4 years. Dr Joanne Millar from CSU in Albury is leading the socio-economic study of impacts on people's livelihoods before and after the fishway is built at Pak Peung wetland in central Laos. A survey was conducted in 2011 by fisheries students at the National University



Fisheries students from the National University of Lao conducting farmer interviews.

in 6 villages involving 60 people. The students were trained by Dr Millar in how to do the survey which had both qualitative and quantitative components. Data analysis was completed by Wayne Robinson at CSU Albury.

Results showed that fishing was a close second to rice production in livelihood importance compared to livestock, cash crops and off farm income. Fishermen spent from 10 to 35 hours per week fishing in the wetland, more so in the dry season, and mostly nearby their villages. Gill and cast nets were the most common fishing methods used.



Fishing boat on the Mekong River

About 30 different species were caught at different locations. Of these, 20 species were consumed directly or processed or sold or given away. Amount sold varied from 5 to 40kg of fish per week, mostly direct to market. Farmers showed when different species migrated in and out of the wetland. Over 95% of villagers said fish populations had decreased in the last 10-20 years. These indicators will be measured each year to determine any livelihood and production changes from the fishway construction.

Further south on the Indonesian islands of South Sulawesi and Sumatra, farmers have evolved a system of aquaculture ponds, producing milkfish and shrimp for local and export markets. All was going well in the 1980s until the white spot virus spread throughout Indonesia, significantly reducing shrimp yields. Farmers responded by stocking at higher densities, throwing in more feed, more pesticides and more fungicides. Soon the ponds became full of toxic algae, salvaged only by complete drying out or with flooding events (leading to contamination of waterways). Some farmers have gone back to polyculture (milkfish and shrimp together), others are trialling alternatives such as catfish, grouper and tilapia. An ACIAR project managed by the University of Sydney is trialling tilapia, swimming crabs and grouper with farmers and researchers from two aquaculture development centres (Takalar in South Sulawesi, and Ujung Batee in Aceh).

Charles Sturt University social researcher, Dr Joanne Millar was invited to assist with research on the socio-economic drivers and constraints to pond diversification, and to evaluate the extension approaches being used. Dr Millar works with social scientists at Hasanuddin University (Makassar, South Sulawesi) and Gadjah Mada University (Yogyakarta, Java) to conduct this research. To date they have found that tilapia is easy for farmers to manage, has shorter crop periods than milkfish and provides comparable profit to shrimp. However, in Aceh the market is less predictable (consumers have yet to develop a taste for tilapia). Nevertheless, the extension approach in Aceh is stimulating more farmers to trial tilapia by providing young fingerlings and good technical advice at the village level. Swimming crabs are also proving viable as an alternative to shrimp farming in South Sulawesi. In addition, two training courses were held in February 2012 for aquaculture researcher and development officers to improve farmer participation in their research and learn how to do social impact evaluation. A comprehensive survey of farmers and researchers will be carried out in 2012 involving some of the participants from the training courses.



Aquaculture research and development officer interviewing farmer in Aceh



Dr Mardiana Fachry from Hasanuddin University facilitating workshop activities with aquaculture researchers from South Sulawesi



Dr Joanne Millar with farmers and researchers in South Sulawesi



Tilapia for brackish water pond diversification



Grouper nurseries in Aceh

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