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Lessons from Cambodia... Exploring the potential of inland fisheries and aquatic resources in the Philippines

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hectares of swamplands, 200,000 hectares of lakes, 31,000 hectares of rivers, and 19,000 hectares of reservoir. In particular, the country boasts of the Laguna Lake, the second largest lake in Southeast Asia and an important source of freshwater fish production.

Traditionally, the inland fisheries subsector of the Philippines has been a modest contributor to overall fisheries production. For the period 2001-2003, inland fisheries only shared an average of 13.3 percent of aggregate catch coming from marine and inland fisheries (BAS 2005). Furthermore, inland fisheries production has significantly fallen over time, from 229,973 tons in 1992 to 136,347 tons in 2001. For its part, overall fisheries also had a small contribution to the national economy, sharing less than 3 percent of the gross domestic product (GDP) in 2003.

Notwithstanding such modest and even declining economic contribution, the potential of inland fisheries to contribute to overall fisheries development in the Philippines remains great. The country abounds in numerous freshwater bodies and resources, with 246,000

In contrast to the Philippines, the inland fisheries subsector of Cambodia has traditionally been a major contributor to its fisheries production and national economy. For the 1993 to 2001 period, overall fisheries generated an annual average output amounting to 34 percent of the total production of the agriculture, fisheries, and forestry sector. This in turn contributed to 45 percent of the country's GDP (Israel et al. 2005b). Of this annual total fisheries output, inland fisheries contributed a highly significant 73 percent on average.

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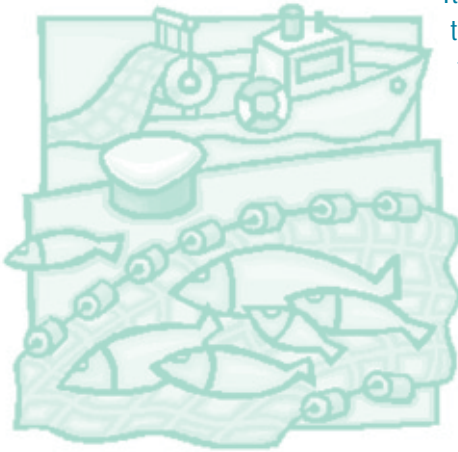
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The dominance of inland fisheries in Cambodia is understandable because it has the Mekong River, the longest river in Southeast Asia, and the Tonle Sap Lake, the largest lake in the region. In addition, the country has several floodplains, rivers, lakes, canals, channels, streams, and other waterways that produce substantial amounts of freshwater fish and other economically important aquatic resources for the population.

Although the inland fisheries of the Philippines and Cambodia vary significantly in terms of overall fisheries and national economic contribution, they have, however, some important things in common.

First, this subsector is an economic and food base for the rural people in the inland areas, a majority of whom live in absolute poverty. Because of this, the subsector is an important arena in the fight against poverty in both countries. Second, while the subsector is crucial in terms of poverty alleviation in both countries,

its full economic importance way beyond just fisheries is not well understood nor well researched at present. Third, active policies designed to exploit the full potential of inland fisheries and aquatic resources are practically lacking in the case of the Philippines and inadequate in the case of



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Cambodia. Thus, they need to be developed or refined in both countries.

This *Policy Notes* presents a brief of a recently concluded research project that looks into the economic value of inland fisheries in Cambodia. The aim of the *Notes* is to generate some lessons for the Philippines from Cambodia, particularly those related to poverty alleviation. The *Notes* also proposes initial courses of action that can be taken for poverty alleviation and sustainable development in the inland fisheries subsector of the Philippines.

What the Cambodia project was about

Cambodia is located in mainland Southeast Asia. It is bordered in the west and northwest by Thailand, in the east and southeast by Vietnam, in the northeast by Lao PDR (People's Democratic Republic), and in the southwest by the Gulf of Thailand. It has 24 provinces, 183 districts, 1,609 communes, and 13,406 villages (NIS-Cambodia 1999). About 90 percent of the general population is Khmer, 5 percent is Vietnamese, 1 percent, Chinese, and 4 percent, other ethnic groups. Approximately 95 percent of the people are Theravada Buddhists. A vast majority of the population are poor, particularly those residing in the rural areas.

The project conducted was the Aquatic Resources Valuation and Policies for Poverty Elimination in the Lower Mekong Basin Project. It ran from January 2003 to March 2005 and was implemented by the WorldFish Center, an international research organization, in partnership with the Department of Fisheries (DOF) of Cambodia. The overall goal of the project was to help reduce poverty and improve livelihoods of the poor people dependent on aquatic resources in Cambodia by conducting an action research that will look into the value of aquatic resources to the poor.

The project had three provincial sites in Cambodia: Siem Reap in the west near the Thailand border, Stung Treng in the north beside the Lao PDR border, and Takeo in the south bordering Vietnam (Figure 1). A full report of the project was presented in Israel et al. (2005a, 2005b).

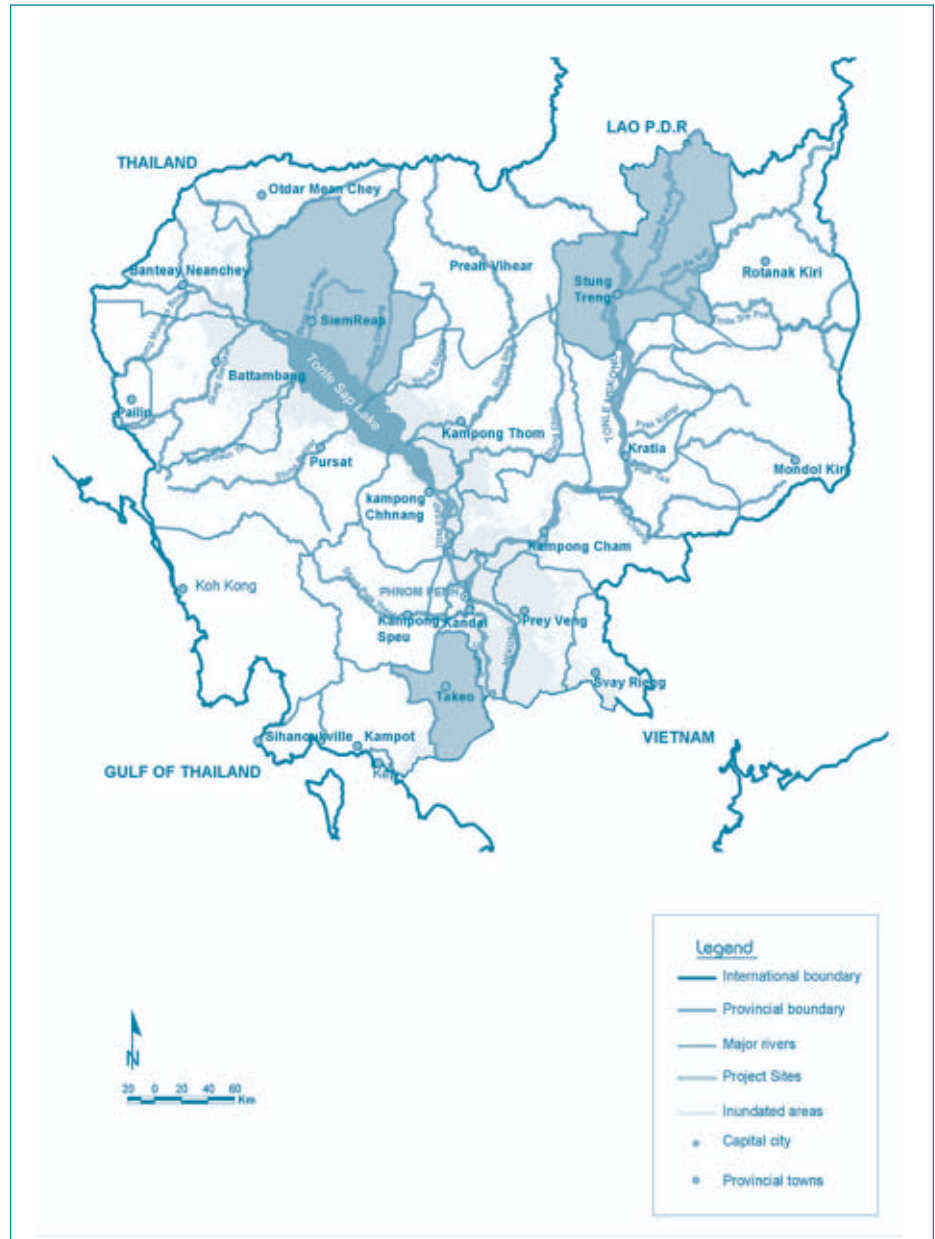
Some important findings

One of the significant highlights of the project was the determination of the direct economic values of inland aquatic resources to villages and households in the selected rural fishing areas of the provincial sites of the project. As gathered from Table 1, the following constitute the important findings:

- for an average inland fishing village in the selected areas of the provincial sites of the project, nonmotorized fishing, which was practiced mostly by the poor households, contributed significantly to net incomes;
- households in the fishing villages were not only dependent on fishing but also on numerous other aquatic resources-based livelihood activities. These included fish culture, fish processing, gathering of aquatic plants, gathering of animals, gathering of aquatic wood, irrigated rice farming, duck raising, and the provision of public water transportation;
- labor was an important component of production costs of livelihood activities indicating that fishing and other aquatic resources-dependent livelihoods by households were highly labor intensive;

- for many livelihoods, except for motorized fishing and the gathering of aquatic plants in a few areas, net incomes were positive even when labor was computed as part of the costs, implying that these livelihoods were not simply for subsistence but also for income generation; and
- livelihood activities which depended on water use and not necessarily on resource ex-

Figure 1. Map of Cambodia and the provincial sites of the project



traction such as irrigated rice farming, duck raising and the provision of public water transportation, also contributed significantly to household net incomes.

In addition to the computation of economic values, the project also looked into the issue of fishing lots or private fishing concessions in Tonle Sap Lake in Siem Reap province. The study found that poor households in fishing villages were significantly prevented from fully accessing the aquatic resources in the Tonle Sap Lake by the presence of fishing lots.

Table 1. Annual values of aquatic resources for an average aquatic resources-dependent village in the three provincial sites of the project, 2003 - 2004 (in million riels)

Economic Activity	Gross Value	Net Income (Costs include labor costs)	Net Income (Costs exclude labor costs)
Stung Treng province			
Motorized fishing	15.1	(7.0)	0.6
Nonmotorized fishing	127.7	32.5	100.4
Fish processing	24.1	4.1	5.4
Gathering of aquatic plants	4.0	(5.6)	2.8
Gathering of aquatic animals	15.1	0.4	13.6
Total value of aquatic resources (million riels)	186	24.4	122.8
Total value of aquatic resources (thousand \$)	46.5	6.1	30.7
Takeo province			
Motorized fishing	35.4	18.5	22.9
Nonmotorized fishing	275.6	139.5	253.2
Fish processing	18.8	2.6	4.1
Gathering of aquatic plants	67.3	32.9	58.4
Gathering of aquatic animals	316.8	72.5	281.7
Gathering of aquatic wood	184.7	134.5	174.2
Irrigated rice farming	514.5	158.4	320.1
Duck raising	47.6	20.8	26.4
Water transportation	17.3	7.1	11.4
Total value of aquatic resources (million riels)	1,478	586.8	1,152.4
Total value of aquatic resources (thousand \$)	369.5	146.7	288.1
Siem Reap province			
Motorized fishing	886.7	595.8	759.9
Nonmotorized fishing	1,482.8	1,053.0	1,381.1
Fish culture	103.2	18.3	37.9
Fish processing	44.7	3.4	8.4
Gathering of aquatic plants	77.3	63.9	75.2
Gathering of aquatic animals	136.8	11.9	124.6
Gathering of aquatic wood	41.4	19.3	34.6
Water transportation	26.0	16.3	19.0
Total value of aquatic resources (million riels)	2,798.9	1,781.9	2,440.7
Total value of aquatic resources (thousand \$)	699.7	445.5	610.2

Source: Israel et al. (2005b)

A few lessons

While a similar research project has yet to be conducted for the Philippines, the aforementioned findings for Cambodia provide some indication of the value and importance of inland fisheries and aquatic resources in the fishing households and villages in other similarly situated Southeast Asian countries. There are some important lessons to be learned from the Cambodian experience.

One, inland fisheries and aquatic resources have high economic values to the rural fishing households and villages, particularly among the poor. This importance of said resources also extends way beyond fishing to several other livelihood activities.

Two, because inland fisheries and aquatic resources matter at the micro level for poor households and villages in the rural areas, they should figure in government efforts to ease poverty in the rural areas. This is regardless of whether or not the inland fisheries sector at the macro level is modest such as in the Philippines at present, or large as in Cambodia.

And *three*, private concessions to exploit inland aquatic resources such as the fishing lots in Tonle Sap Lake, constrain the poor from practising their livelihood activities in Cambodia. The fishing lots have a closely similar cousin in the Philippines—the fish pens of Laguna Lake. As in the case of fishing lots, the fish pens hamper the livelihoods of the poor fishermen by limiting the areas where they could fish. It is high time that an effective solution to the access problem caused by fish pens in Laguna Lake is finally found.

Suggested actions

As initial steps, the following actions may be considered leading to the development of inland fisheries and aquatic resources for poverty alleviation in the Philippines:

- *Conduct of a comprehensive subsector study that will provide the baseline data and information on the current status and potential of inland fisheries and aquatic resource particularly related to poverty.* This work is necessary since the subsector has been a neglected area of research in the fisheries sector where the traditional concentration is in marine fisheries and aquaculture. The output of this research can be used in the planning and implementation of programs and projects for poverty alleviation in inland fisheries.
- *Conduct of scientific research on the economically and biologically optimal fish pen operations and sustainable development of Laguna Lake.* Among others, this kind of study will help improve the access to the fisheries and aquatic resources and help alleviate poverty among the small-scale fishermen in the Lake.
- *Promotion of an aggressive environmental protection program and sustainable development of the economically important inland water bodies of the country.* It has been reported that the fall in the productivity of inland water bodies may be due to pollution

(Juliano 1996). This and the other ill-effects of environmental neglect such as loss of habitat and biodiversity make environmental protection and sustainable development imperative.

- *Development of community-based aquatic resources management for inland fisheries.* The concept of community-based management which is now well applied in coastal fisheries and forestry may be developed and tried also for commonly exploited inland water bodies. 📄

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