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The Economy and Environment Program for Southeast Asia (EEPSEA) was established in May 1993 to support training and research in environmental and resource economics across its 10 member countries: Cambodia, China, Indonesia, Laos, Malaysia, Papua New Guinea, the Philippines, Sri Lanka, Thailand, and Viet Nam. Its goal is to strengthen local capacity for the economic analysis of environmental problems so that researchers can provide sound advice to policymakers.

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Will People Pay To Protect Watersheds? A Case Study From The Philippines

EEPSEA POLICY BRIEF • No. 2005-PB2

Water supply is an on-going challenge for many countries across Southeast Asia. One of the key issues relating to this challenge is the protection of watersheds. Many of these vital areas are heavily deforested with a large area converted to agriculture and other land uses. Their capacity to provide a sustainable supply of water is therefore often severely compromised. ➔

A summary of EEPSEA Research Report 2005-RR2, *A Water User Fee for Households in Metro Manila, Philippines* by Margaret M. Calderon, Leni D. Camacho, Myrna G. Carandang, Josefina T. Dizon, Lucrecio L. Rebugio and Noel L. Tolentino, College of Forestry and Natural Resources, University of the Philippines Los Banos (Contact : bargecal@yahoo.com).

"A majority of residents

➤ The Philippines is not immune to these problems. In particular, there are grave concerns about the protection of the four main watersheds that supply water to the residents of Metro Manila.

In response to this problem, a new study has looked into how to properly finance the sustainable management of the metropolis' water catchment areas. It has found that a 'water user fee' could help pay for a large percentage of this vital protection and conservation work.

There are a number of significant moves being made in the Philippines to use such fees and other similar economic instruments to support conservation efforts. The report is therefore optimistic that this approach offers a timely solution to an already pressing crisis.

No Money for Watershed Conservation

Metropolitan Manila, with a population of more than 11 million, has experienced many problems in recent years supplying water to its

residents and industries. These problems are especially pronounced during the dry season, when water rationing becomes common in many areas of the metropolis.

The domestic water supply of Metro Manila comes from the Angat, Ipo, Umiray and La Mesa Watersheds. These watersheds cover tens of thousands of hectares of land to the north of the city and together supply over 30 cubic metres of water per second to its residents.

All four watersheds are experiencing development pressures which are causing a range of environmental impacts such as forest loss and soil erosion. For example, the La Mesa Watershed is facing tremendous population pressure, the Angat area is under threat from timber poaching and in Ipo slash-and-burn farming is a major challenge.

These problems are compounded by the fact that the budget for watershed management in these areas is far from sufficient to police, conserve and restore them properly.

One of the reasons for this lack of money is the fact that there is no economic connection between water consumption and watershed conservation. For example, 97% of the raw water distributed by the city's two water concessionaires comes from the Angat Dam, but neither of these companies pay anything to use this resource. They also contribute nothing towards watershed conservation in the dam catchment. The charges that Metro Manila water users pay are therefore not for the services provided by the watersheds, but mainly for the treatment and conveyance of water to their houses or businesses.

Linking Consumption and Conservation

Given this situation, it is obvious that something has to be done to provide more money for watershed management. This was the challenge taken up by the group of researchers from the University of the Philippines Los Banos who undertook this study. Led by Margaret Calderon, they started by focusing in on a likely revenue source.

As mentioned, there are a number of important moves being made in the Philippines to drive conservation by the use of economic instruments. The application has been mostly limited to user charges for nature-based recreation in protected areas and effluent fee system for water pollution in one big lake in the

WATERSHED	AREA (ha)	COST	
		P/ha/year	P/year
Angat	62,000	17,600	1,091,200,000
Ipo	6,600	17,600	116,160,000
Umiray	53,800	5,000	269,000,000
La Mesa	2,700	17,600	47,520,000
		Total	1,523,880,000

Watershed Management Costs and Potential Revenue

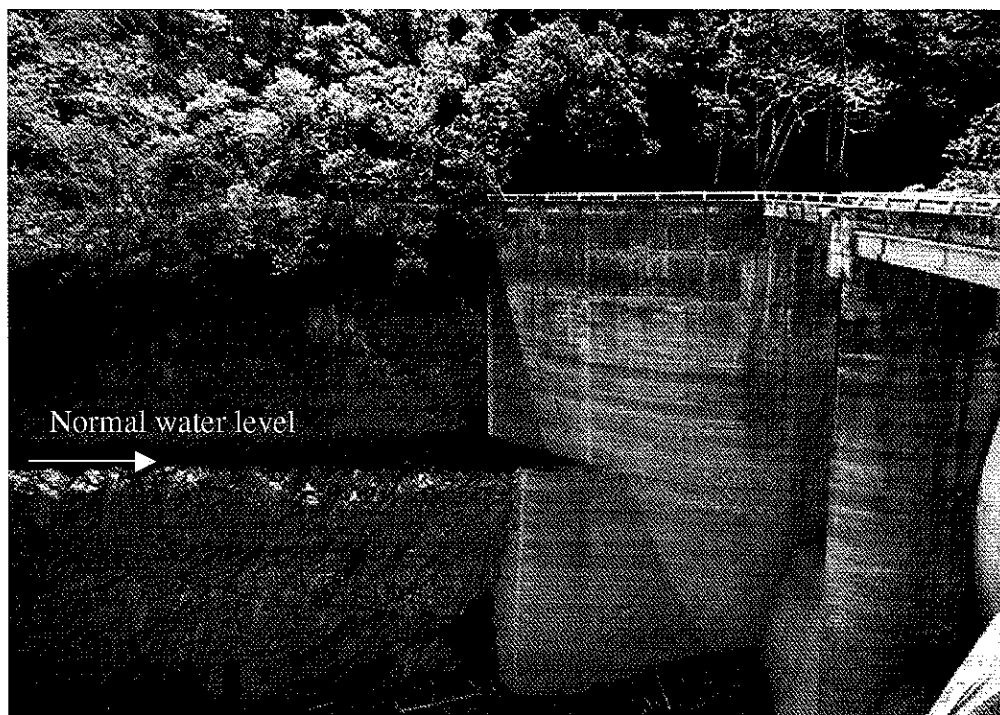
would be willing to pay such a fee."

country. However, little has been done to apply this kind of thinking in the world of water supply.

A water user fee has, however, been suggested by a number of experts as a way of both financing the conservation of watersheds and of making a direct link between this conservation and people's water use. The researchers therefore decided that the time was right to investigate this approach.

Will People Pay?

To find out if people would be willing to pay such a fee, the researchers first developed a Contingent Valuation (CV) scenario wherein Metro Manila residents were asked if they would support water supply improvements that will result from better management of the Angat, Ipo, Umiray and La Mesa watersheds if this will cost them PhPXX amount of money. The amount of money was varied with each respondent presented only one randomly assigned amount. Pre-survey works included focus group discussions and pre-testing of survey instrument. The survey covered 2,232 respondents who lived in 13 municipalities and cities in Metro Manila. About two thirds of the respondents were connected to either of the two main water distributors.



Angat's critical water level

One of the reasons a water charge has not been imposed yet is because politicians have felt that any increase in water prices could become a contentious issue. Water is often thought of as a 'right' and it is felt that water prices should be kept low to protect the poor. In Metro Manila it has been generally thought that residents will resist any increases in the water tariff regardless of the reason for those increases.

In contrast to this assumption, the researchers found that about 60% of the respondents said that they would be willing to pay for improved watershed management. The main reasons given were that they wanted a reliable water supply for both present and future generations, and also because they wanted the watersheds to

continue providing a range of environmental services.

The mean willingness to pay, estimated through a logit model, was found to be PhP29/month per household. The researchers found that people's willingness to pay was affected by factors such as the water distributor they used, any additional water expenses they had, age, house ownership and, not surprisingly, income.

Ensuring a Workable Solution

In order to find out how best to implement a possible water user fee, the researchers asked people how they would prefer to pay. The respondents said that they would prefer a water user fee to be added to their monthly

water bills, with the proviso that this should be used solely for the management of the four watersheds supplying water to Metro Manila. This was felt to be the most convenient payment method.

The main equity issue facing the charge proposed in this study is: should households consuming less water pay the same amount as those consuming more water? To address this concern, the researchers recommended that an increasing block tariff scheme (IBT) should be used. Under an IBT structure, a water user is charged a relatively low per unit price up to a specified amount that defines the end of first block. Users then pay a higher per unit price for additional consumption until the end of the second block is reached. Consumption within subsequent blocks is charged at progressively higher rates. This system means that those who use less water pay less.

There are a number of other schemes currently operating in the Philippines in which money is collected for conservation. One example is the Integrated Protected Area Fund. However, in this and a number of other cases, the money is paid to a central government-

managed fund. This mechanism causes significant administrative problems.

In light of this, the survey found that most people questioned would be happiest if any money collected through the water user fee was channelled into a fund earmarked for watershed conservation - not merely absorbed by central government, which is considered by many to be corrupt and inefficient.

Will It Be Enough?

The potential revenue from a water user fee was based on the mean WTP, multiplied by the total number of households in Metro Manila (about 2.1 million). This amounted to about PhP730 million/year.

To see how the water user charge would help fund conservation efforts, the researchers estimated the cost of watershed management and protection. Using estimates from industry sources, they found that management costs ran at approximately PhP1.5 billion/year.

This means that revenue from a water user fee could potentially cover about half of the estimated yearly management costs of the four watersheds. Aside from a possible

subsidy from the government, the outstanding management costs could be borne by other sectors like agriculture, power generation and industrial production.

A Sustainable Water Bill

Given this positive conclusion, the research team recommended that a water user fee should be implemented. They also recommended that the management of the fee should be as straightforward as possible and channelled through a special fund, managed by a multisectoral Council.

Given the current political support for the use of economic instruments to fund conservation, it is hoped that the results of this study will persuade decision makers to take the political gamble necessary to put such a mechanism in place in the water supply sector. The information in the survey should provide a solid foundation on which to build any such scheme. If one is put into place, the research team is confident that it will go a long way towards both solving Metro Manila's watershed management problem and ensuring a sustainable supply of water to the metropolis.

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