



ECONOMY AND ENVIRONMENT PROGRAM FOR SOUTHEAST ASIA

POLICY BRIEF

CLEANING UP THE KING'S RIVER - A 'WILLINGNESS TO PAY' STUDY FROM THAILAND

Take a boat along Bangkok's famous Chao Phraya River and it doesn't take an expert to realize that it is seriously polluted with sewage and practically biologically dead. As part of a general drive to do something about this problem, a recent study has found that the residents are willing to pay for water quality improvements. The study raises the hope that residents' willingness to pay could make Bangkok's soon-to-be-operational sewage treatment system a financially viable solution to the pollution problem.

The study was carried out by Churai Tapvong a staff member of the School of Economics, Sukhothai Thammathirat Open University and her colleague Jittapatr Kruavan of the Faculty of Economics, Chulalongkorn University. According to the researchers, the 'King's River', as it is known, is the most contaminated of all Thailand's rivers. Recently, the government's Pollution Control Department reported that levels of dissolved oxygen in the lower reaches of the river have been close to zero since 1990 and that, by the year 2000, the river may no longer be able to support any life.

The river isn't the city's only water pollution problem. There are approximately 1,145 canals in Bangkok, most of them in critical condition. Currently, the water in most canals is dark, foul smelling and suitable only for transportation. Uncontrolled urban sewage discharge is the main cause of the problem. However, Tapvong and Kruavan note that underlying the crisis is a 'market failure': water has been regarded as a 'free good' and has therefore not been priced. This means that there has been little economic incentive to maintain water quality - hence the current problems.

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Tapvong and Kruavan's study was undertaken in light of current moves to do something about Bangkok's water pollution problem. For more than 30 years, attempts have been made to develop a waste water collection, treatment and disposal system for the city. Until recently, such developments have been hampered by a lack of resources and 'red tape'. Now, however, a complex of six central waste water treatment plants is nearing completion - some of the facilities are already functioning, the rest are due to come online in 2000. The treatment system consists of two parts: sewers and waste water treatment plants. Upon completion, the water treatment plants will serve a catchment area of over 190 sq. km. and should be able to treat over 990,000 cu. m/day of waste water. The financing of the operation of this system is, of course, key and Tapvong and Kruavan therefore set out to find whether Bangkok residents are willing to pay for its operation - so improving water quality in the city's canals and eventually the Chao Phraya River itself.

The research project covered the areas of Bangkok that are or will be supplied with water treatment services. In April and May 1998, 1,100 household interviews were conducted in 20 of the city's districts. The researchers' questionnaire was designed in consultation with relevant agencies such as the Bangkok Metropolitan Authority (BMA) and through focus group discussions. In order to find out how much people would be willing to pay for water quality improvements, those interviewed - who were household heads aged 20-60 years of age - were given a number of charge options to choose from. If respondents said that they would be willing to pay a certain amount (or 'referendum' figure), then they were given another, higher, figure to consider. This line of questioning continued until a maximum charge was reached. Respondents were asked to consider two different scenarios - improvement of water quality from boatable to fishable and from fishable to swimmable.

The financial structure and sources of funding are crucial to implementing central waste water treatment facilities and to guide policy decisions for a tariff system. Therefore, among the questions the researchers asked, were some relating to how waste water fees should be collected. The survey found that over 60% of people interviewed thought that water quality was very poor, with over 20% rating it as poor. Tapvong and Kruavan also found that most respondents would like water quality to be high enough for them to be able to swim. Crucially, more than two-thirds of the respondents made it clear that they were willing to pay for water treatment services should it be available. The mean value of the fee that people would be willing to pay for improving water quality from boatable to fishable was 100 baht/month. The figure for improving water quality from fishable to swimmable was 115 baht/month. The researchers found that the fees respondents were willing to pay depended on income, education, quality of existing water, the referendum fee considered and whether the respondent lived near a river or canal.

For those unwilling to pay for the service, it was found that a majority were either protesting the bid or were too poor to pay. From this, the researchers concluded that public education on the importance of water clean-up is vital - since if those who were unwilling to pay were more aware of the project's importance, they might then support it and even be willing to pay the necessary fee to keep it operational. On the question of how to collect the waste water treatment fee, half of the respondents said that it should be separately billed. A quarter wanted any charges to be included with their tap water bill. The researchers concluded that, in terms of equity, efficiency and practicality, a waste water surcharge on metered water consumption would represent the best option for billing and collection of waste water charges. This charge would be implemented through a joint billing arrangement in which water and waste water bills are combined.

Tapvong and Kruavan found that the most controversial issue was which organization should be responsible for collecting the waste water fee. The answer was overwhelmingly the Bangkok Metropolitan Administration (62%) followed by the Metropolitan Waterworks Authority (33%).

From Tapvong and Kruavan's research it is clear that Bangkok residents are acutely aware of the city's water pollution problem and are willing to pay for the implementation and operation of waste water treatment facilities. It is also clear that the central waste water treatment facilities being developed will have both environmental and economic benefits. They will lead to improved water quality of canals and the Chao Phraya River. In economic terms, the benefits may include increased income from improved community health, improved productivity in fishing and agriculture, improved efficiency in water transportation and reduced costs of industrial water.

The researchers' frequent consultations with the BMA during the study have paid off. In August 1999, the BMA announced that it would collect a household waste water treatment fee of 100 baht/household/month - precisely the mean willingness-to-pay revealed in Tapvong and Kruavan's survey. By financing waste water treatment, the fee may help return to the city its title of 'Venice of the East'.

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Note: 39 baht = 1 USD .

*The full text of this study is available as an EEPSEA Research Report:
Water Quality Improvements: A Contingent Valuation Study of the Chao Phraya
River - Churai Tapvong and Jittapatr Kruavan.*

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