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1.See: http://ec.europa.eu/environment/water/water-framework/index_en.html

European Commission

Science for Environment Policy

Pricing policies for efficient water management

Researchers have developed a new method to investigate the effects of different water pricing policies at the river basin scale. The system is intended to be used when water has to be allocated to different users under conditions of water scarcity.

In many parts of the world, demand for water is outstripping the availability of water. Water is increasingly seen as a scarce resource that has an economic value, and thus needs to be managed carefully to ensure that it is used efficiently. This needs to be achieved whilst managing competing demands for water from different water users, such as households, industry and agriculture, as well as ensuring the environment has enough water to sustain ecosystems.

Setting the price of water is a key tool used to support water management decisions; water that is underpriced may lead to its unsustainable use. In the EU, Member States implementing the Water Framework Directive[1] (WFD) are required, among other measures, to recover the cost of water services as a means of promoting sustainable and efficient water use. Recovery of the cost implies recovering both the cost of managing water, and the cost of (non-market) impacts on the environment.

This study presents the use of hydro-economic modelling to evaluate the design of different water pricing policies under conditions of water scarcity. Sustainable water management relies on mathematical models to represent the complex interactions between the effects of decisions on water resources and water use.

The system integrates economic management principles with more conventional methods of managing water. Using this method, the value of water can be calculated for specific locations and times, under varying conditions of water scarcity and water demands, based on various details, such as how water is managed in a basin over time, taking into account all surface and groundwater resources, infrastructures, allocation rules and priorities.

This method can be used to inform decisions about the costs and benefits of different allocation and pricing policies under conditions of water scarcity. It allows benefits of different pricing policies to be compared, in order to identify the most efficient policy.

Water pricing policies that can be tested include those based on managing competing demands from different water users on the fluctuating levels of water in reservoirs, and those that account for the effects of drought on water availability.

While water pricing policies can guide management decisions on efficient water use, the researchers point out that water prices are also decided within social and national policies, to help ensure that they are fair for all sections of society (e.g. ensuring that poorer populations do not suffer under higher pricing policies) as well as environmentally sustainable.