The Real Cost of Water

The full cost of water includes not only the costs of supply that we discussed in the last article (i.e., the operation & maintenance *plus* capital costs), but also other important economic, environmental and even social costs.

Economic costs include, in the parlance of economists, both opportunity costs and economic externalities. When one user consumes water, then that user is depriving another user of that same water. If that other user was willing to pay more for that same water, then this represents a foregone opportunity or "cost". The opportunity cost of water is zero only when there are no alternative uses (i.e., no shortages) and that is almost never the case. Economic externalities are the positive or negative side-effects associated with the consumption or use of a particular resource. Examples of negative externalities include water pollution or over-extraction of groundwater supplies.

In addition to the supply costs and economic costs, the full cost of water includes environmental and social costs. In general, economic externalities are defined by positive or negative changes in production or consumption costs, whereas environmental externalities are those that tend to be associated with public health and ecosystem maintenance (e.g., loss of water flows to downstream wetlands). In practice, however, it is often difficult to separate one from the other (e.g., water pollution that affects both public health and downstream fisheries). In either case, negative externalities should result in additional charges to the users responsible for these externalities, either in the form of direct charges, taxes or tradable permits (for pollution or extraction of groundwater, for example).

The full cost of water, then, is equal to the sum of all these costs: that is, the full supply costs (O&M + capital costs incurred by water companies), plus the full economic costs (opportunity costs + economic externalities), plus environmental and social externalities.

The flip side of cost is value. For our purposes, the value of water is essentially what people are willing to pay for it, which can be measured through direct observation of markets or other economic techniques. Interestingly, even low-income families (who spend a larger percentage of their income on water than more well to do families) are consistently willing to pay for access to clean, safe

drinking water. Clear evidence of this is found in the fact that poor families commonly buy bottled water which costs (on a unit basis) hundreds of times the rate that EMPAGUA (the local water company) charges! A recent study by Miguel Martínez Tuna (*Valoración económica del agua en la ciudad de Guatemala*, FLACSO, 2002) demonstrates that a majority of residents of Guatemala City (about 68%) are even willing to pay for conservation measures such as protecting upland forests which would provide longer term protection of water supplies.

In order that water be used sustainably, its full cost must equal its full value, what economists call economic equilibrium. Unfortunately, this rarely happens and the value of water is generally higher than its cost (as is the case with water companies who cannot recover their costs or consumers who are willing to pay hundreds of times the going rate for water).

The consequences of this disequilibrium are serious and much more than a mere academic trifle: ignoring opportunity costs and negative externalities results in wasted water and financial resources, lost opportunities for investments, diminished economic productivity, widespread pollution, increased public health costs, and diminished ecological services.

The price of water has a clear and profound impact on how well water resources are managed. Along with improved policies to provide regulatory and economic incentives that address environmental and other externalities, better valuation and pricing are key to improving the management of water resources.

Despite the tremendous challenges we face to improve the management of water resources, viable solutions to these problems do exist. In the next and final article of this series, we shall explore some of these.