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Description

There is an emerging consensus that effective water resources management includes the management of water as an economic resource. The Dublin Statement of the International Conference on Water and the Environment, for example, states that "water has an economic value in all its competing uses and should be recognized as an economic good". But there is little agreement on what this actually means, either in theory or in practice. This paper provides a simple framework for unbundling the different components of water as an economic resource, provides some data on critical variables, and discusses the policy implications.

The interaction of three critical factors (the value of water, the use cost of water, and the opportunity cost of the resource) is explored for the cases of urban water supply and irrigation. A review of data on the value of water shows that the value of water used for irrigating food grains is very low, typically orders of magnitude less than the value for urban water supply, for environmental purposes and for the irrigation of high-value crops.

The assessment of the relative magnitudes of "use costs" and "opportunity costs" shows that the implications of treating water as an economic resource vary quite widely depending on the sector.

Urban water supply, for example, is a low-volume, high-value use. The "use costs" (incurred in financing and operating the abstraction, transmission, treatment and distribution systems) are relatively high, while the "opportunity costs" (imposed on others as a result of use of the water) are often quite low. Accordingly, the priority issue for the economic management of urban water supplies is usually the commercial operation of the utility.

The situation is quite different for irrigation, which is a high-volume, low-value user of water. The "use cost" of irrigation water is often modest, but when there is competition with urban uses, the opportunity cost is high. While financial sustainability of irrigation systems is important for operation and maintenance reasons, from the point of view of management of water as an economic resource, the key challenge is to ensure that users take the opportunity cost of water into account.

The paper examines data from Spain and the Western United States on the effect of different irrigation management regimes on efficiency and equity within an irrigation district, and shows that it matters a lot how water is managed -- market-like allocation mechanisms are much more efficient and equitable than the more commonly-used alternatives (such as rotation and turn irrigation procedures).

The paper concludes with an examination of how the idea of water as an economic good is incorporated into two well-functioning water resource management models: the Ruhr/French river basin management systems, and the Chilean water market system.

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