Water Accounting in Western US, Australia, and Spain: Comparative Analysis

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Abstract

Water accounting—the measurement, processing, and communication of information on water availability and use—is essential for effective and sustainable water resource management. Such information becomes especially important during droughts. It facilitates transparent, flexible, and efficient water allocations that benefit the economy and environment, and reduces conflicts among users. This is especially crucial in dry regions such as the western United States, where water demands often exceed available supplies. A web-based review of water accounting practices, supplemented by interviews with more than 50 experts, informed a comparative analysis of how 12 western states and two other countries—Australia and Spain—gather, process, and share information to manage water. These regions were selected because of their similarities in water management challenges, but also because they have comparable levels of economic development and institutional capabilities. We focus on how water availability is assessed; how varying institutional and legal frameworks define water claims; how water use is quantified; how water allocation decisions are made based on regulatory and physical constraints and available information; and finally how the information is shared to improve decision making. We found a huge variety of accounting practices to support different water accounting frameworks in developed regions. This variability is a legacy of the

historical evolution of water management practices and challenges, and is usually driven by cultural practices, institutions, and legal frameworks. Drawing on the comparative review, we select management practices that strengthen water accounting. Although these lessons are based on places that share resource-management challenges of advanced economies in dry regions, they can be useful for developing regions to reduce common conflicts in managing groundwater sustainability, dedicating adequate water to support the natural environment, or allocating surface water during times of scarcity.