

A Groundwater Strategy for Southern California



Abstract

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Compared to imported water, groundwater is an inexpensive source of supply, close to local users, less energy and carbon intensive. In addition, as climate change impacts take effect over time, groundwater supplies will be less subject to increasing evaporation due to temperature increases. Although the percentage varies across water districts, Southern California already relies on groundwater supplies for about 60% of its urban water usage, with the rest supplied by limited recycling operations and imported surface water sources, significantly threatened by climate change impacts. In Southern California there are 47 groundwater basins, managed by a complex network of local organizations, and since the State does not regulate groundwater, this precious resource still lacks frequent and uniform monitoring, is subject to overdraft, saltwater intrusion, and, in general, an inability to realize the benefits of inter- and intra-basin planning. Although the State Water Control Resources Board and the courts are increasing their awareness of the need for regulating groundwater sources leading to an emphasis on integrated water management efforts, there is still a lack of effective monitoring, planning and prioritization of projects from a regional perspective. This project, stemming from our research on water scarcity in Southern California, is aimed at developing a Southern California Groundwater Strategy. The project is crucial for ensuring a sustainable water supply for Southern California's future. Southern California will continue to rely on imported water sources for a fraction of its total water supply in the foreseeable future. The State itself is currently focused on its plans for securing imported water supplies, through the construction of twin tunnels that will by-pass the Delta and convey water to Southern California from the Sierra Nevada at a cost of \$24 billion over the next 20 years. At the same time, regional action is needed now to plan and manage the most sustainable supplies available to Southern California communities--its groundwater.

The project has two major objectives, to determine the capacity and sustainable future yield of Southern California's groundwater resources, and to develop through a stakeholder process institutional designs to plan and manage Southern California's groundwater resources. To accomplish the first objective, we propose to build an inventory of the existing data; the frequency of monitoring; the monitoring methods and the quality of the data; as well as current state efforts to improve monitoring. We will also identify the problems that prevent or reduce the use of groundwater in the different basins, such as salt water intrusion and toxic contamination, the plans to address these problems, their cost and timelines. In addition, the project will identify initiatives to increase groundwater supplies, such as water harvesting, replenishment, etc., and their potential. To accomplish the second objective, we will develop a stakeholder process to develop alternative institutional designs for ensuring long-range sustainable management of intra- and inter-basin supplies and interconnections. In addition to local groundwater stakeholders, we would include MWD and the relevant local, state and federal agencies. We envision that the institutional designs would preserve local powers while incorporating a regional framework for consistent and frequent monitoring, and a decision-making body for planning and prioritizing projects. We will also identify examples of successful regional groundwater systems in the U.S. and other OECD countries.