

Ground Water

Use and Availability



Key Message

why ground water use and availability matters...

Potable fresh water is fast becoming a highly sought-after commodity—it is being called “blue gold.” Yet the fact that *all the water we have right now is all the water we will ever have* is not reflected in our demand for and use of water. As a nation, we can no longer put off the job of answering the essential and definitive questions of supply and demand: Will we have enough water, and what will it cost?

Ground water is a renewable, yet finite, resource—and it is usually taken for granted. It is generally pumped from the subsurface in the absence of a sound understanding of how much of the resource remains available for sustainable use. Over-withdrawal of ground water supplies can lead to dried-up wells and springs, shrinking wetlands, reduced stream flows and lake levels, salt-water intrusion in coastal areas, and land subsidence. These impacts have serious economic ramifications, which are only worsened when coupled with drought conditions. Unless we employ more effective ways to manage the way we use ground water, current practices of withdrawing ground water at unsustainable rates will ultimately have significant social, economic, and ecological costs.

Our land-use decisions and water-use policies must consider the interrelationship between ground water and surface water supplies and the capacity of individual watersheds to sustain existing, as well as future, water uses. To ensure the long-term

availability of water and aquifer yields, we as a nation must use water more efficiently and better tailor our land- and water-use planning to effectively bridge the gap between water law and science.



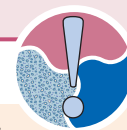
Left: Ground water pumping in the Arizona desert has caused the land to subside in some basins.

Right: The United States uses more than 83 billion gallons of fresh ground water each day for private and public water supplies, irrigation, livestock, manufacturing, mining, and other purposes. (USGS, 2004)

Photo: California Department of Water Resources

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Recommended Actions



To USEPA:

- Support state efforts to develop guiding principles that state and local water planning and use entities should take into consideration when conserving the integrity of watersheds and ensuring adequate water supplies.
- Require better integration between surface and ground water programs and ensure that the national water strategy addresses both quality and quantity issues, including interaction between surface and ground water.

To USGS and State Geological Surveys:

- Continue to conduct research and provide information—at a scale that is useful to states and local entities—about such matters as the safe, or sustainable, yield of aquifers (and methods for determining that yield); water-use data; and delineating boundaries and water budgets of three-dimensional watersheds, including scientifically based and cost-effective methods of quantifying interaction between ground water and surface water.

To Governors and State Legislatures:

- Authorize water supply planning at the state level and encourage water supply planning at regional and local levels to conserve the integrity of watersheds and ensure adequate water supplies.
- Consider adopting ground water protection and management laws that:
 - Recognize and manage the impact of ground water withdrawals on surface water.
 - Link development to sustainable availability of water and other water supply infrastructure.
 - Allow for and encourage techniques such as transfer-of-development rights for the purpose of ground water conservation and protection.
 - Ensure coordination among agencies responsible for water quality and water use in order to determine watershed water budgets and base water withdrawal and recharge policies.
 - Regulate the interbasin transfer of water in order to protect ecosystem integrity.

- Require water conservation practices for all new construction (e.g., agricultural, industrial, residential) by changing plumbing codes so that they require water conservation.

To State Agencies:

- Ensure coordination among water-quality and water-use agencies/programs and associated surface water and ground water policies/programs. Benefits of this strategy can include:
 - Integration of ground water resource characterization and monitoring into state water-monitoring strategies.
 - Development and implementation of water-reuse policies.
 - Development of tools and policies to match water sources of various quality with the most suitable use (e.g., domestic, agricultural, industrial).

To Local Governments:

- Conduct water resources planning for long-term resource sustainability, focusing on 5- to 50-year water availability projections and plans. Incorporate this information into local comprehensive and infrastructure plans, zoning, and other local ordinances, as well as incentive programs, including:
 - Ordinances that tie development to sustainable water availability.
 - Ordinances and best management practices (BMPs) that provide for sustainable ground water recharge and improved stormwater management practices.
 - Transfer-of-development rights and development of property tax incentive programs to encourage land owners and developers to maintain recharge areas as open spaces, helping to achieve ground water protection and conservation goals.
 - Ordinances and plumbing codes designed to conserve water through improved efficiency, water reuse, water rationing, and gray water-use requirements.

This summary sheet is taken from the "Use and Availability" chapter of the Ground Water Protection Council's (GWPC) *Ground Water Report to the Nation: A Call to Action*. Contact GWPC for the full report.