Groundwater Success Stories
Webinar #3
Case 2
USA: Mega Schemes for Interstate Water Transfer and Managed Aquifer Recharge in Southwestern USA

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Central Arizona is not particularly vulnerable to natural disasters
   No earthquakes, tornados, hurricanes, volcanos, few floods, no blizzards
   **But it is very hot and always dry**
Mega-droughts occur in our watersheds that literally decimate civilizations

**Desert communities know the value of water**
Water certainty is necessary for investment and industry
Therefore, Central Arizona is built to withstand drought
~half of Arizona’s Colorado River water is used for agriculture in Western Arizona
~half of Arizona’s Colorado River water is imported into Central Arizona

1M AF = 1,233,481,837 cubic meters
The Arizona Water Banking Authority

1986 – The Arizona legislature established the Underground Water Storage and Recovery Program to allow entities to store surface water underground and recover (pump) it at a later time. Aquifer recharge creates a groundwater pump right called a long-term storage credit that can be used (pumped), sold, or exchanged.

1996 – The Arizona legislature established the Arizona Water Banking Authority. A primary objective is to store Colorado River water underground in Central Arizona and make that water available to municipal, industrial, and tribal enterprises during future times of surface water shortage.
Water Transfer & Managed Aquifer Recharge in Central Arizona

Arizona Water Bank

$430M collected

4.4M Acre-feet of water stored underground (5.4B m³)

Stabilization or improvement of the water table in large areas of Central Arizona

https://azwaterblueprint.asu.edu/
Sharing a river that is in decline

The Southwest’s most important river is drying up.

By Steve Krohn, Randy Ruplen and Daniel White, Ohio Published August 21, 2001
The Hardest Working River in the West

Total Colorado River Use—7 states & Mexico

Arizona Water Banking Authority Created

California Colorado River Water Use
Reservoir levels dropping

Source: CNN.com, Drew Kann
Water Transfer & Managed Aquifer Recharge in Central Arizona

Colorado River Water Scheduled In Central Arizona, 2021

- Agriculture: 50%
- Aquifer Replenishment: 22%
- Direct Use for Municipal & Industrial Needs: 28%
What have we learned here?

Water transfers will continue as population, industrial, and agricultural centers change and evolve—humans have been moving water for thousands of years and we are pretty good at it.

Storing surface water underground in a place to which it would not otherwise have flowed provides local benefits but also interrupts the hydrologic cycle—sometimes with regional consequences.

Water transfer combined with managed aquifer recharge has benefitted Arizona, but has also exacerbated regional challenges on the Colorado River.

Source: Burn After Reading, copyright Coen Brothers
Arizona must continue to recharge its fossil aquifers or opportunities for future generations will be foreclosed. Colorado River flows will be scarcer and less available for this purpose. Remaining tools include demand management, agricultural-to-urban transactions (transfers, fallowing programs, etc), reclaimed water, brackish water desalination, watershed restoration, and regional collaboration (leases, exchanges, shared infrastructure, etc).