

ASR & the State Water Plan

ASR for Texas Seminar!

May 4, 2017

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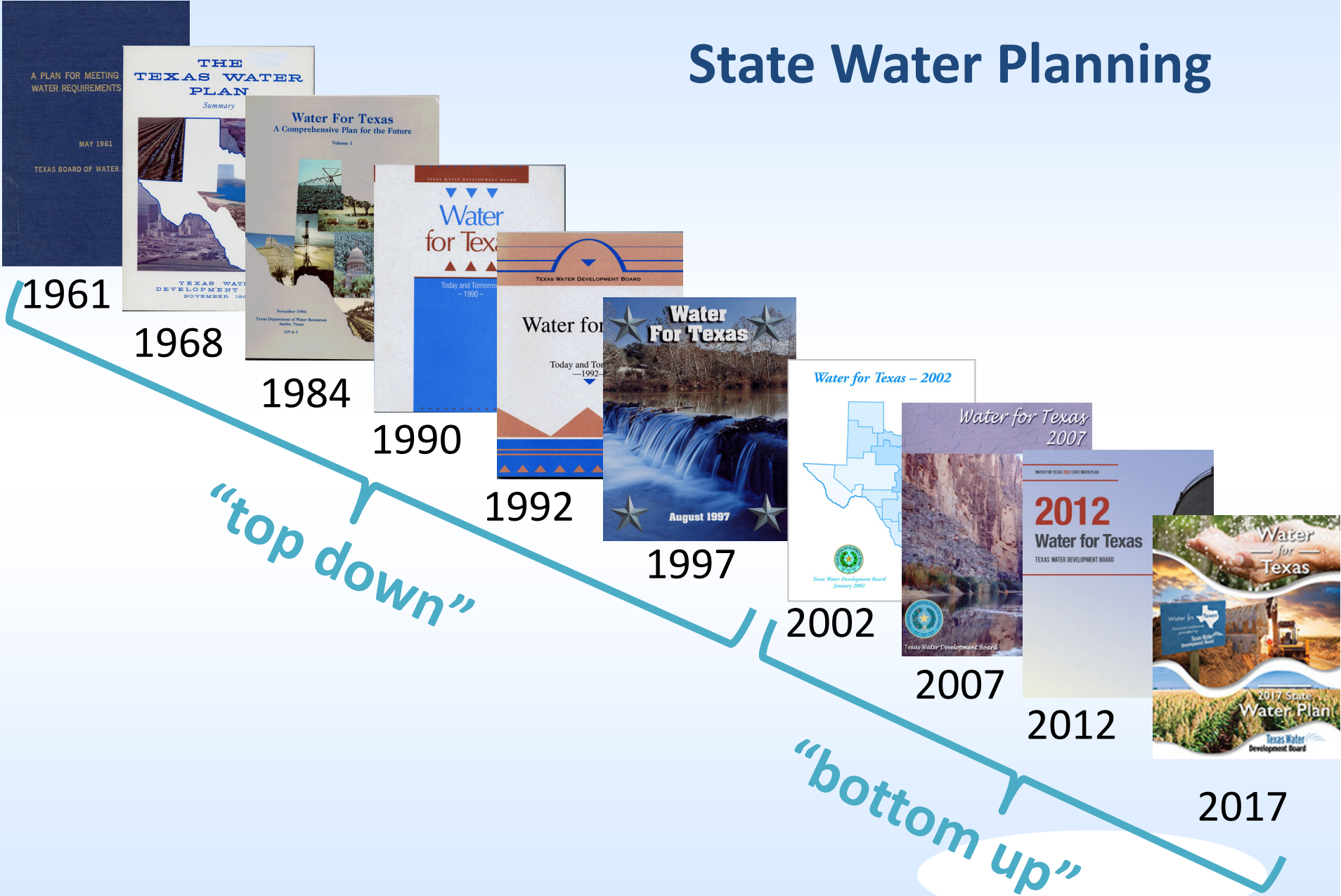
Texas Water 
Development Board

The logo for the Texas Water Development Board features the text "Texas Water" in a blue serif font and "Development Board" in a black sans-serif font. To the right of the text is a stylized graphic of three curved, overlapping lines representing water or waves.

Texas Water Development Board

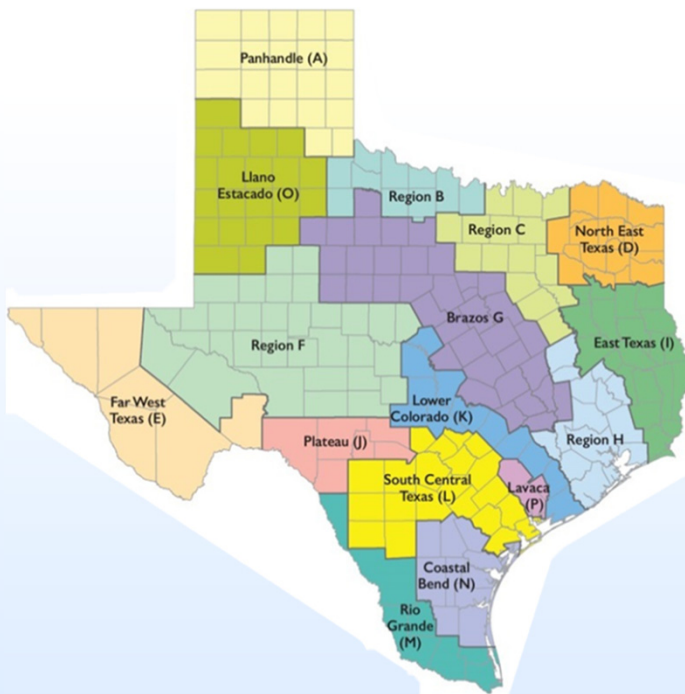
The following presentation is based upon professional research and analysis within the scope of the Texas Water Development Board's statutory responsibilities and priorities but, unless specifically noted, does not necessarily reflect official Board positions or decisions.

State Water Planning



16 Regional Water Planning Areas

- Regional plans revised every five years
 - Forecasts in decadal increments over 50-year horizon
- Compiled by TWDB into the State Water Plan
 - 2017 plan published in 2016



Statutory interests:

- Public
- Counties
- Municipalities
- Industries
- Agriculture
- Environment
- Small businesses
- Electric-generating utilities
- River authorities
- Water districts
- Water utilities
- Groundwater management areas (varies by region)

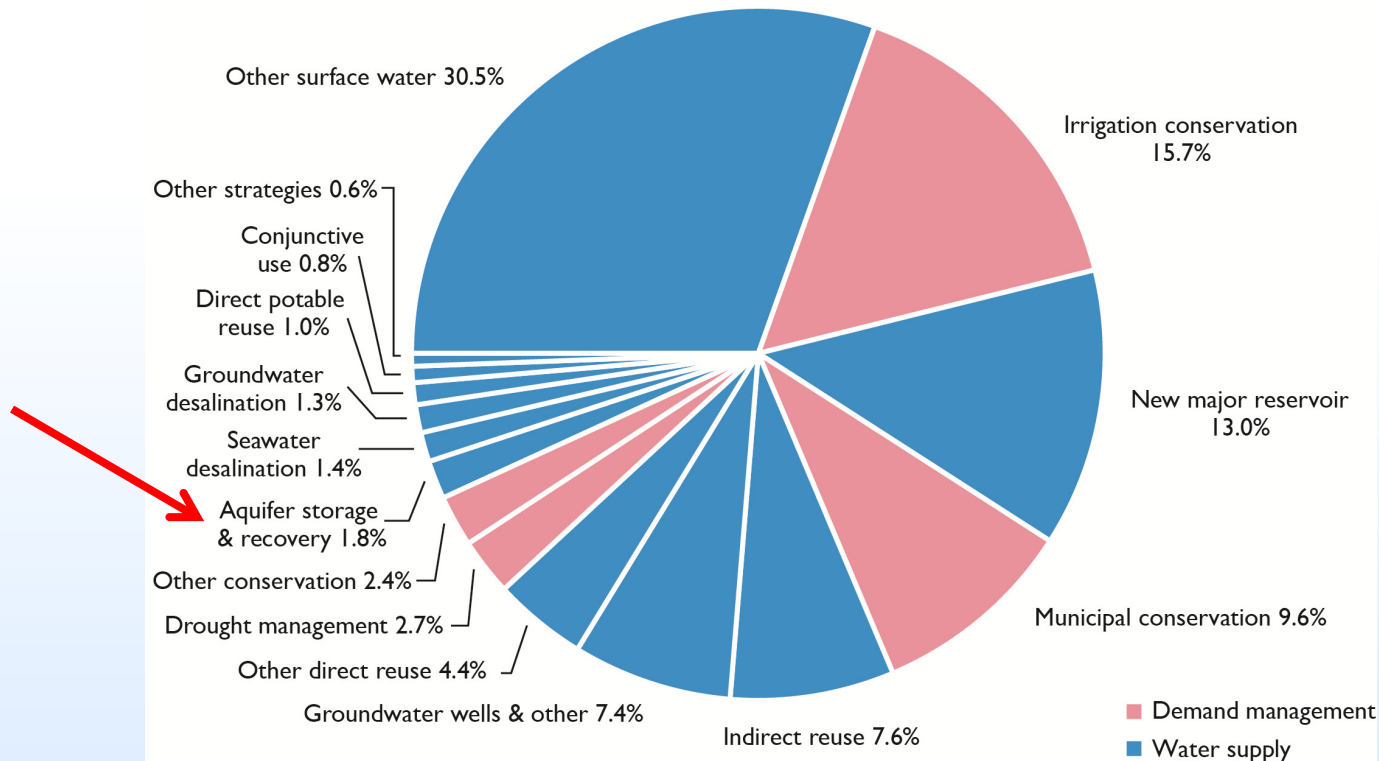
Key Planning Metrics

- Existing Supply
 - Maximum amount of water that is physically and legally accessible for immediate use under a repeat of DOR conditions
- Demand
 - Volume of water required to carry out the anticipated domestic, public, and/or economic activities during drought conditions
- Need
 - Potential water supply shortage, based on the difference between water demands and existing water supplies
- Water Management Strategy (WMS)
 - Plan to meet a need for additional water by a discrete WUG*, through increasing total water supplies or maximizing existing supplies
 - Can be recommended or alternative

* Water User Group

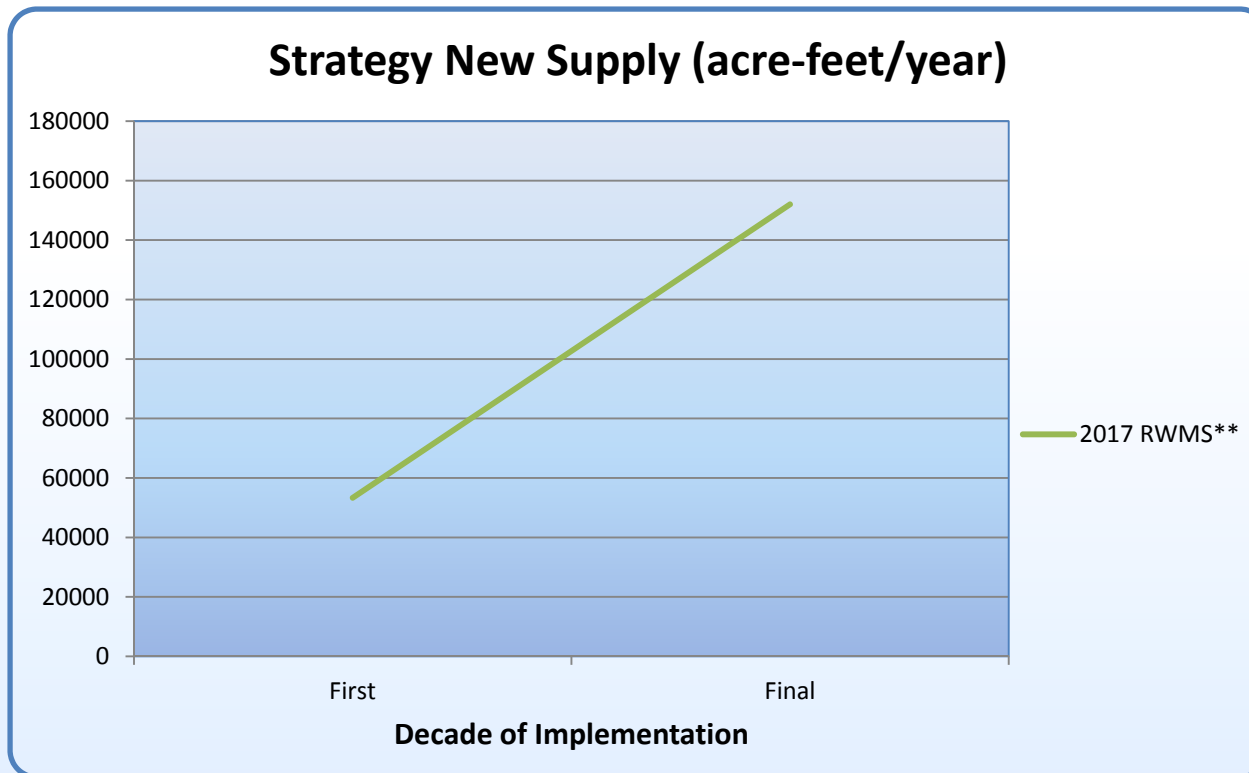
All Recommended Strategies

- 2017 State Water Plan – decade 2070
 - ASR is still relatively small at 1.8%
 - But double its 2012 contribution



Growth in Interest

- 2017 State Water Plan - seven regions as a RWMS
 - 53,341 ac-ft decade 2020; 152,000 ac-ft decade 2070



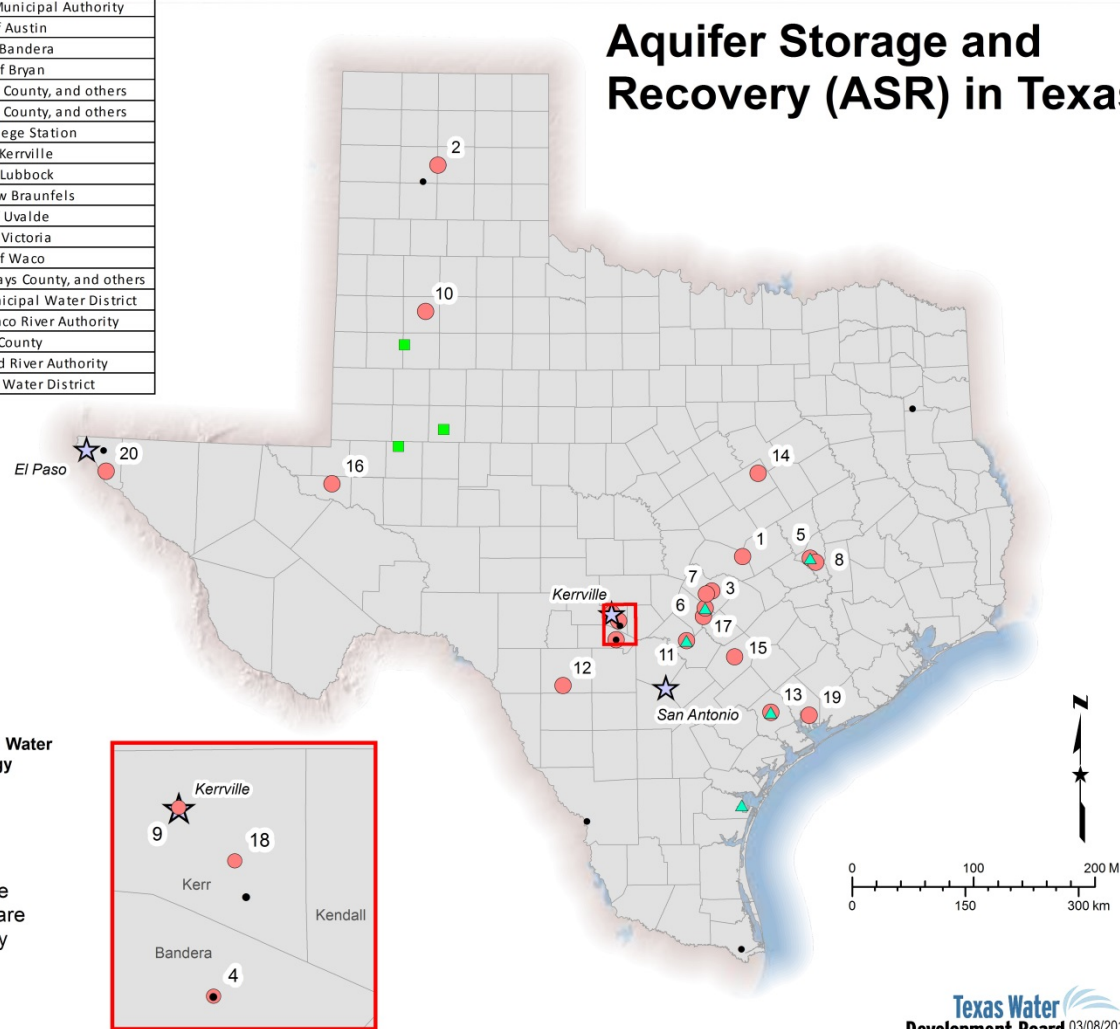
** Included only supply allocated to a water user group

Aquifer Storage and Recovery (ASR) in Texas

| ID | Project Sponsor |
|----|--------------------------------------------|
| 1 | Brazos River Authority |
| 2 | Canadian River Municipal Authority |
| 3 | City of Austin |
| 4 | City of Bandera |
| 5 | City of Bryan |
| 6 | City of Buda, Hays County, and others |
| 7 | City of Buda, Hays County, and others |
| 8 | City of College Station |
| 9 | City of Kerrville |
| 10 | City of Lubbock |
| 11 | City of New Braunfels |
| 12 | City of Uvalde |
| 13 | City of Victoria |
| 14 | City of Waco |
| 15 | City of Wimberley, Hays County, and others |
| 16 | Colorado River Municipal Water District |
| 17 | Guadalupe-Blanco River Authority |
| 18 | Kerr County |
| 19 | Lavaca Navidad River Authority |
| 20 | Lower Valley Water District |

- ★ Operating Facilities
- Decommissioned Operations
- Completed Studies
- ▲ Ongoing Studies
- 2017 Recommended Water Management Strategy Projects
- Texas Counties

Ongoing studies are those funded by TWDB. There are other efforts not funded by TWDB.



- http://www.twdb.texas.gov/innovativewater/asr/img/ASR_phase_030817.pdf

Funding Background

- 84th Texas Legislature, House Bill 1, 2015, Rider 25
 - \$1,000,000 from General Revenue Fund
 - For innovative storage approaches, including but not exclusively ASR
 - One-for-one matching grant funds to GCD's
 - Competitive grant application process
 - Request for application notice – September 22, 2015
 - Application deadline – November 3, 2015
 - Grant approval – January 7, 2016

Application Summary

- Six applications received
 - Four ASR field studies
 - One ASR desktop/planning study
 - One enhanced recharge field study
- Three grants awarded

| Recipient | Funding | | |
|-------------------------------------------------------------------|-------------|-----------|-----------|
| | Total | Requested | Awarded |
| Edwards Aquifer Authority | \$563,000 | \$281,500 | \$281,500 |
| Victoria County Groundwater Conservation District | \$570,226 | \$285,112 | \$285,112 |
| Corpus Christi Aquifer Storage and Recovery Conservation District | \$1,000,000 | \$500,000 | \$433,388 |

Pending Legislation

- 85th Texas Legislature, House Bill 2005
 - Relating to duties of TWDB to conduct studies and submit reports on ASR; engrossed on April 12th
 - TWDB to conduct studies, investigations, and surveys of ASR projects
 - Appropriate interested persons (GCD's, RWPG's, potential sponsors)
 - Determine quantity, quality, and availability for ASR
 - Report results to RWPG and interested persons
 - No specific deliverable date noted
 - TWDB to conduct statewide survey
 - Of the most favorable areas for ASR
 - Prepare an overview of survey findings to legislative and executive branch
 - Submit report by December 15, 2018
 - Fiscal note prepared

Texas Water Development Board

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Application Summary

- Edward Aquifer Authority/New Braunfels Utilities
 - Exploration of storage potential in the saline Edwards Aquifer
 - Permit, design, and construct continuous wireline core hole and monitor well
 - Conduct geochemical analysis of the aquifer using samples from the core hole
 - Conduct geophysical logging and a short-duration pump test using the monitor well
- Victoria County GCD and City of Victoria
 - Permit, design, and retrofit an existing groundwater production well for ASR in the fresh Gulf Coast Aquifer
 - Test and assess the operational ASR well
 - Collect data to support development of full-scale system
- Corpus Christi ASRCD and City of Corpus Christi
 - Conduct an exploratory test drilling program in the slightly/moderate Gulf Coast Aquifer
 - Collect hydrogeological and geochemical data
 - Perform geochemical analysis on water sources
 - Develop a field-scale groundwater model to simulate ASR operations