How Scenario Planning Will Benefit
Scottsdale Water Resources’ Master Planning Process
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Introduction
Scottsdale Water Resources current method of creating a master plan is Classic Decision Planning method

- How best to use City of Tucson’s effluent in a manner that is accepted by its customers
- Potable use options
- Recharge options
- Treatment options

The scenario planning method will promote the understanding of uncertainties about the future and help the Scottsdale Water Resources to be better prepared for the future.

Methods
Conducted a comprehensive literature review on scenario planning
In-depth interviews with two experts on scenario planning

- Phoenix Water Master Plan (2011)
- Scottsdale Water Master Plan (2008)
- Water Utility Cleanse-Place: White Paper Report

Scenario Planning vs. Classical Decision Analysis

- Risk Decision Strategy
- Strategy Decision
- Strategic Decision

Key differences:
- Classical decision analytic: “Risk decision through the use of probabilities” (WNUA)
- For the future with the highest probability
- Probability is based on historical data which can be problematic because “the past is not a guide to the future” (Himm)

Tucson - 2004
One of the first in the water utility world to adopt scenario planning method

Central Question:
- How best to use City of Tucson’s effluent in a manner that is accepted by its customers

Critical uncertainties:
- Potable use options
- Recharge options
- Treatment options

Three Dimensions Matrix is formed to characterize each of the eight effluent reuse possible futures

Conclusions:
- No Effluent for Potable Use

Benefits:
- Strengthened communications within department
- Better prepared for uncertainty

Recommendations:
- It was time consuming educating the department about a new method

Phoenix - 2011

- Central Question:
  - What is the potential for water shortages and how would it impact Phoenix?
- Driving Forces:
  - Urban Hot Island Effect
  - Forecasted demand due to efficiency increases
  - Legal access
  - Dewater methods
  - 45 scenarios reviewed
  - Created a model to estimate future water supply and demand conditions
  - Examined external factors
  - Conclusion: Phoenix does not expect a supply deficit before 2030, however, extreme scenarios identify that substantial amounts of groundwater that exceed current supplies would be needed during times of surface water shortages
  - Implementation of expanding facilities is in progress

Benefits:
- Better prepared for uncertainty in the future
- Better prepared for extremes

Recommendations:
- Even though developing the model was time consuming, it produced results within seconds which could easily be analyzed

Scottsdale and Benefits
Scottsdale already has the information needed to conduct a scenario plan
- By using scenario planning, Scottsdale can analyze each driving force individually and for combined effect

- Future Master Plans
  - Concerned with population growth and how it affects water demand
  - Next master plan set to impact 25% of new homes
  - Consultant teams will be hired for 15 months
  - Planning meetings vary from every few weeks to every two months
  - Regular meetings can improve communication

Benefits of Scottsdale Water Resources’ Master Planning Process:
- Better prepared for uncertainty
- Better prepared for extremes

Conclusion
Scenario planning is the technique of the future for water utility departments. Though the scenario planning technique is more time consuming than the classic decision analysis technique, it produces a plan that prepares for multiple futures which ultimately helps the utility.

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