

# **Balancing Long Term Water Demand and Supply: The Arizona Case Study**

## **Objectives**

Long term water policy in Arizona employs a complex variety of strategies designed to optimize water for population growth, agricultural production, and ecologic and hydrologic systems, while respecting historical treaties and water rights. These strategies include aquifer recharge and water banking; mandatory supply security associated with development; and a growing market for water sales, leases, and exchanges. This paper presents an overview of Arizona's current and future water budget and briefly describes the institutional structure that enacts policy. The institutional analysis, population projections, and transaction data are analyzed in terms of the correlation between water use and value to forecast trends over the next 50 – 100 years.

## **Background**

Arizona's population is projected to increase by an astounding 114 percent over the next fifty years, surpassing thirteen million by 2055. While this population growth brings immense economic opportunities, it also presents the challenge of meeting an aggressively increasing demand schedule for water. Extrapolation from population projection data suggests that an additional 1.07 million acre-feet (AF) of water will be required for household use by 2055. More and more of Arizona's agricultural lands are being converted to housing developments which boosts the market for municipal water, as developers scramble to secure water stocks to comply with regulations requiring proof of a 100 – year guaranteed water supply before a building permit is issued.

## **Expected Results**

It is evident that in the next 30 - 50 years, Arizona's water market will be a "seller's market," but there is no guarantee that the value of an AF will appreciate enough to make immediate water storage for future lease/sale a profitable venture. However, given the cost of storage, the current market value of an AF, appreciation rates are calculated to reflect the baseline market conditions for profit, and can also be considered indicators of risk.

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