Water Education Foundation - CAP and the Arizona Water Management Framework

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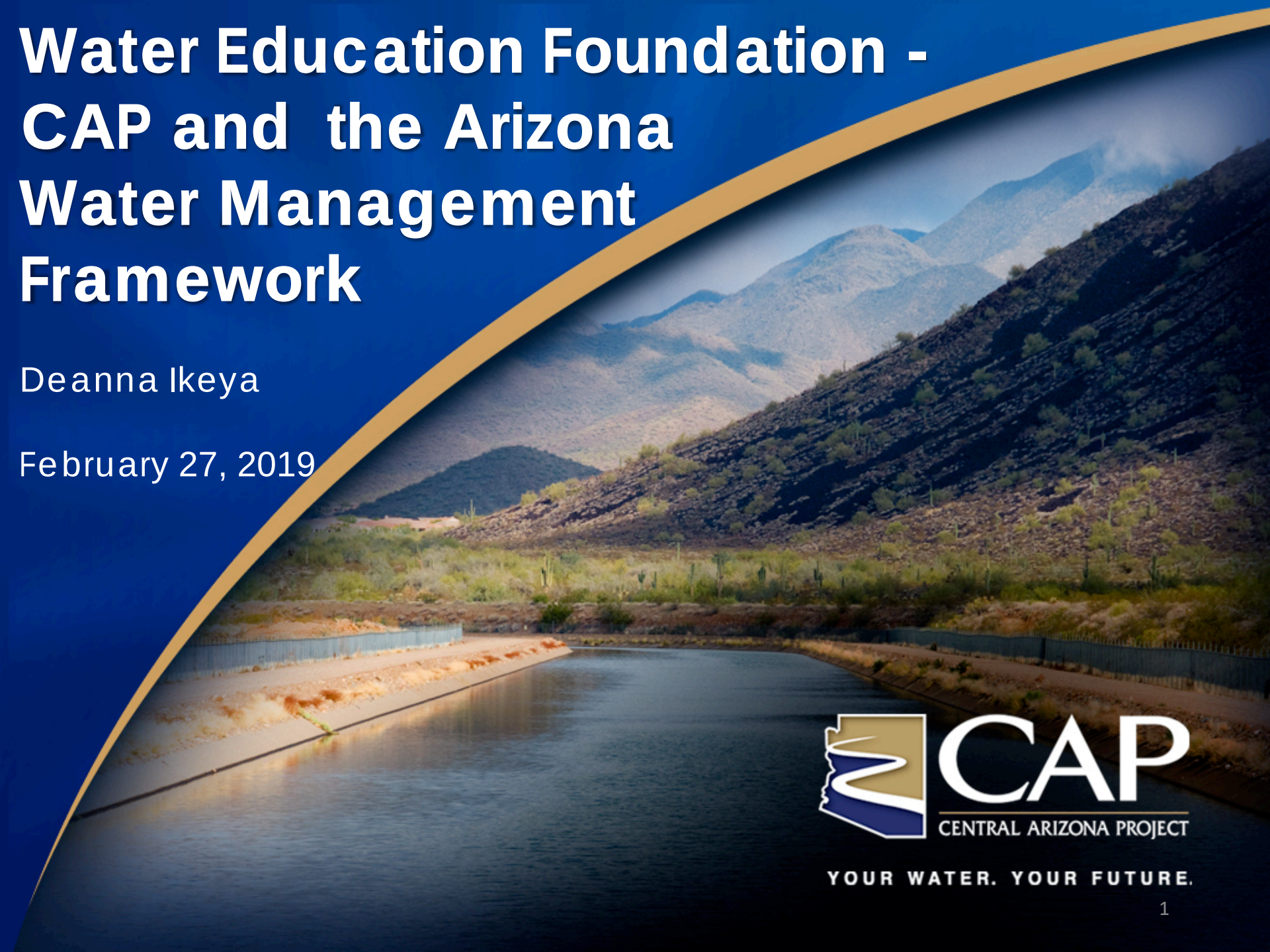

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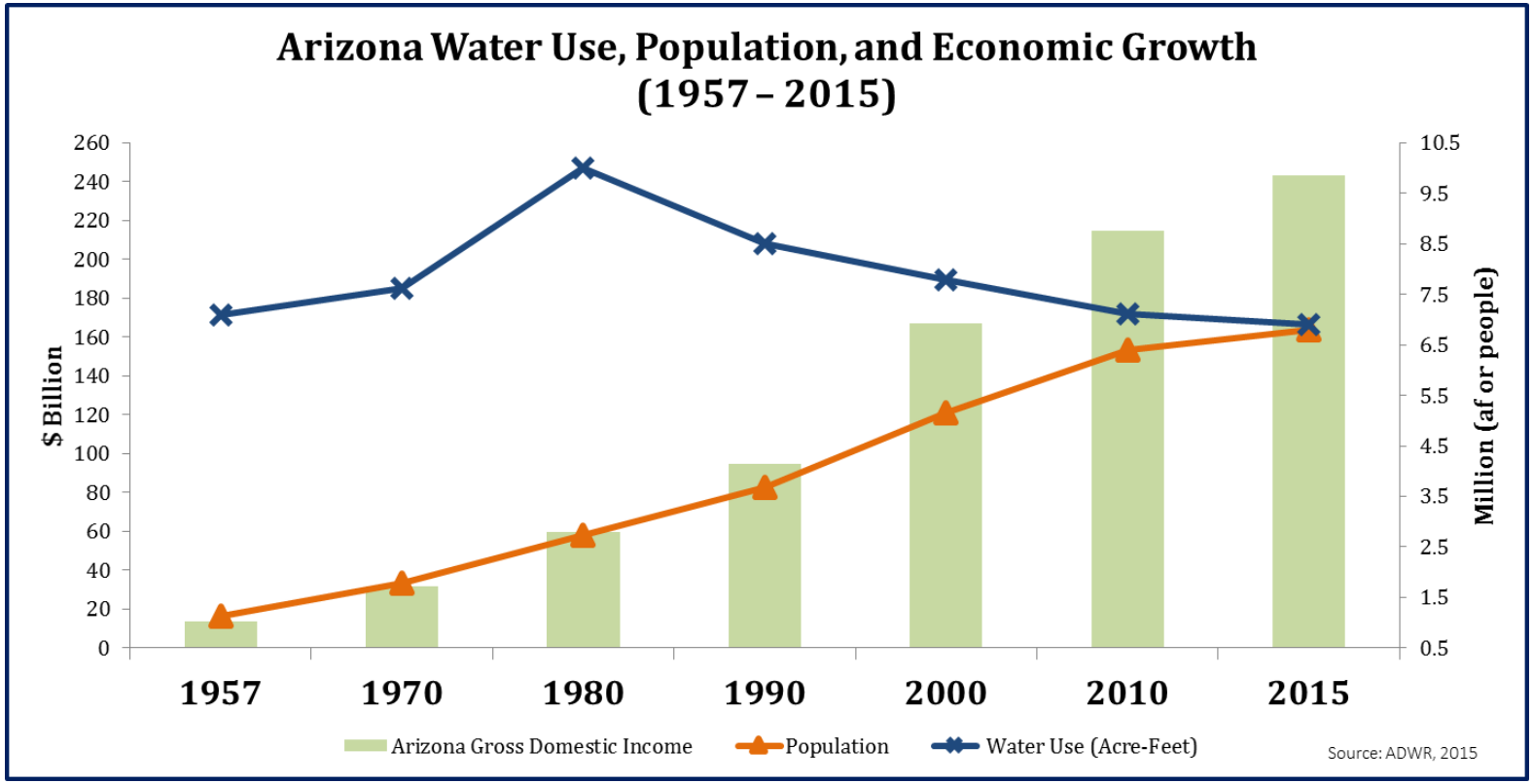
Arizona's Historical Water Use



Source: Arizona Department of Water Resources

Sources of Arizona Water

- Groundwater – 40%
- Surface Water – 16%
- Colorado River Water – 41%
  - Main Stem – 19%
  - Central Arizona Project – 22%
- Reclaimed Water – 3%

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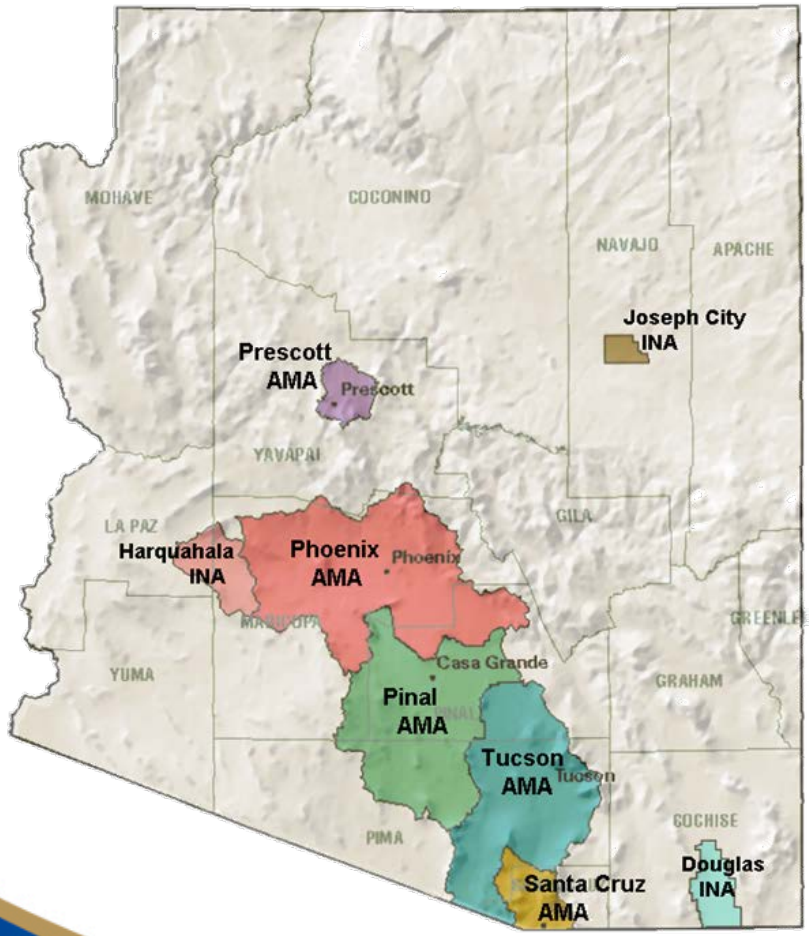
Groundwater Management



Active Management Areas (AMAs)

- Phoenix
- Pinal
- Tucson
- Prescott
- Santa Cruz

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AMA Requirements

- Highest degree of regulation in State
- Management Goals & Planning - Mandatory conservation requirements for most users (municipal, agricultural and industrial)
- Water rights established
- Wells pumping over 35 gallons per minute:
  - Need groundwater withdrawal authority
  - Groundwater pumpage must be measured, reported, withdrawal fee
  - New non-exempt wells may require hydrologic impact study

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Assured Water Supply

- Developers within AMAs must show a 100-year assured water supply prior to seeking plat approval or selling lots
- Two ways to show assured supply: certificate for a subdivision or commitment of service from a municipal provider designated as having an assured water supply
- Groundwater use must be consistent with the management plan and management goal of the AMA

Underground Storage and Recovery

- Recharge
  - Storing excess water supplies for future use
- Types of Storage
  - Annual Storage & Recovery
  - Long Term Storage
- Sources of Stored Water
  - Reclaimed
  - Central Arizona Project
  - Surface Water

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AWBA and CAGRD

- Arizona Water Banking Authority (AWBA)
  - Water stored underground in aquifers and accrues a long-term storage credit, to be use in future
  - Store unused CAP water to fully utilize AZ allocation
  - Provide supplies during times of shortage

- Central Arizona Groundwater Replenishment District
  - Members enroll
  - Can pump groundwater
  - Groundwater is replenished by CAGRD to meet Assured Water Supply requirements

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CAGRD's Role in Water Management

Arizona requires new development in major metropolitan areas to have a 100-year assured water supply

- Entities that lack access to renewable water supplies, but have access to groundwater, may join CAGRD
- CAGRD members pay CAGRD to replenish the groundwater they use
- CAGRD membership makes groundwater use consistent with Arizona water management goals

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Central Arizona Project

Authorized in 1968 by the Colorado River Basin Project Act

The Central Arizona Water Conservation District (CAWCD) created to provide a means for Arizona to be able to repay the federal government

The canal system runs 336 miles

Water is lifted over 2,900 feet

Central Arizona Project

CAP is the 336-mile aqueduct that stretches across the state from Lake Havasu to Tucson.

CAP delivers approx. 520 billion gallons, or 1.6 million acre-feet, of Colorado River water each year and is the largest supplier of renewable water in the State.

CAP provides water to 80% of the State's population - approximately 5.4 million people - in the service area of Maricopa, Pinal and Pima counties.

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CAP Service Area

3 counties

23,790 square miles

< 8” annual rainfall

5 million people
(approx. 80% of Arizona’s population)

350,000 acres of irrigated agriculture

11 Native American tribes

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Who Gets CAP Water?

Municipal & Industrial 33%

Agriculture 26%

Native American Communities 35%

Recharge 6%

CAP Governance

CAP is governed by a 15-member Board of Directors.

Each member is popularly elected from CAP's three-county service area and serves a staggered, unpaid six-year term:

- 10 from Maricopa County
- 4 from Pima County
- 1 from Pinal County

The Board meets at least monthly to establish policies, set water rates, approve budgets, set tax rates, and address a variety of other critical issues affecting CAP, its water users, and employees.

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CAP's Water Delivery Contract

(Section 5 Contract)

- Section 5 of the 1928 Boulder Canyon Project Act authorized the Secretary of the Interior to deliver mainstem Colorado River through water delivery contracts.
- CAP's Section 5 Contract is unique. It is an unquantified contract that allows CAP to take delivery of all of Arizona's 2.8 MAF after satisfaction of other more senior priority rights.
- CAP's long-term contract obligations total 1.415 MAF but CAP has routinely delivered 1.6 MAF or more.
- The creation of the Arizona Water Banking Authority and CAGRD were facilitated by CAP's unique "sponge" contract.

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CAP Water Service Contracts

- Authorized to subcontract with non-Indian water users for delivery of each user's share of CAP water supplies.

- M&I subcontractors include the cities of Phoenix, Tucson, Scottsdale, Mesa, Peoria, Glendale, Tempe and Chandler, which collectively represent nearly 60 percent of CAP M&I water supplies.

- The Bureau of Reclamation has entered into contracts for the delivery of CAP water to Indian entities. CAWCD is not a party to Reclamation's contracts but is required to deliver CAP water pursuant to such contracts.

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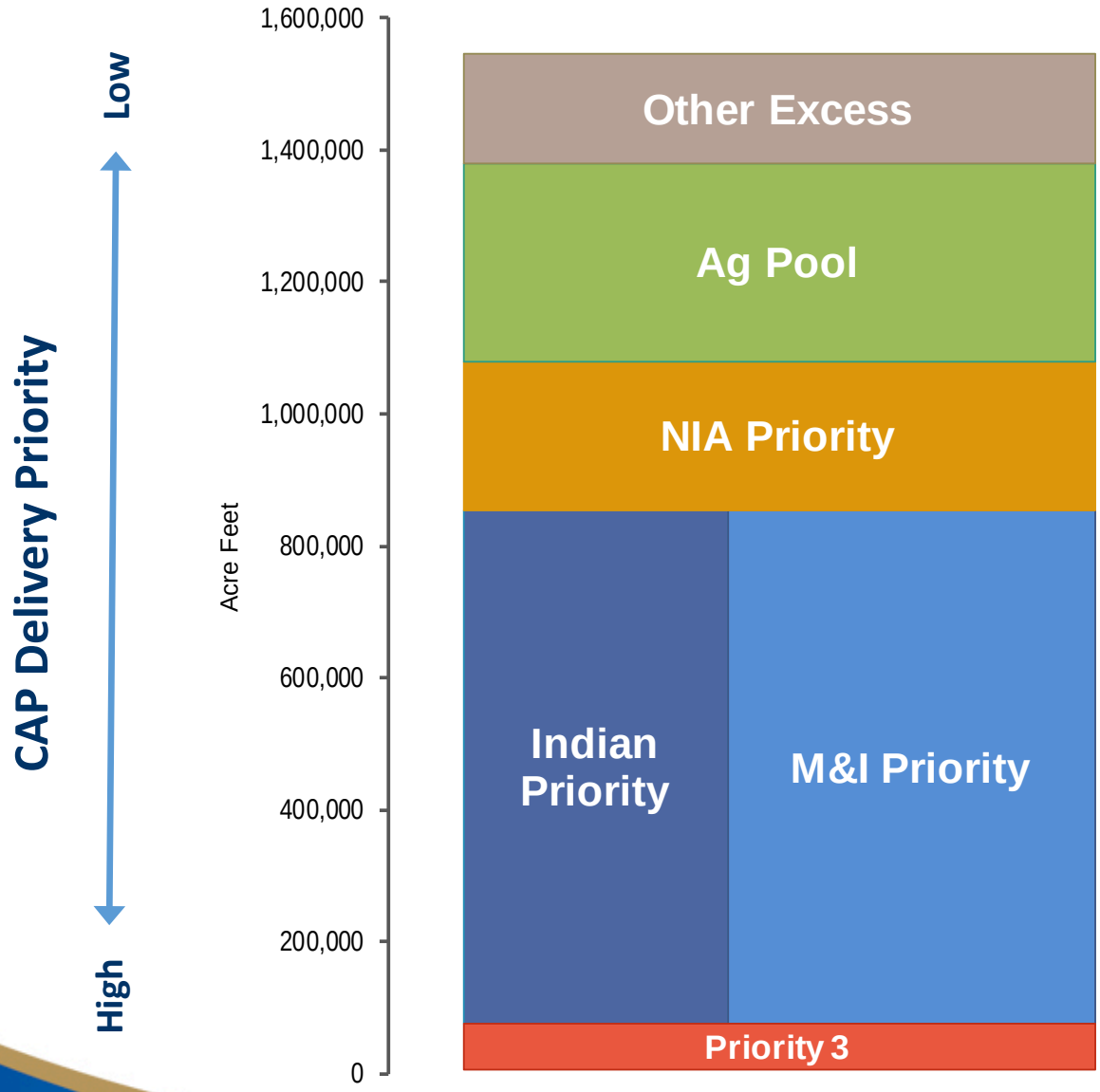
CAP Priority Pools



Lower Basin Water Allocation

Lower Basin (AZ, CA, NV + Mex.)	9.6 MAF
Lake Mead evaporation losses	0.6 MAF
Average Inflow	9.0 MAF
Structural Deficit	**1.2 MAF**

Given basic apportionments in the Lower Basin, the allotment in Mexico, and an 8.23 MAF from Lake Powell, Lake Mead declines about 12 feet each year.

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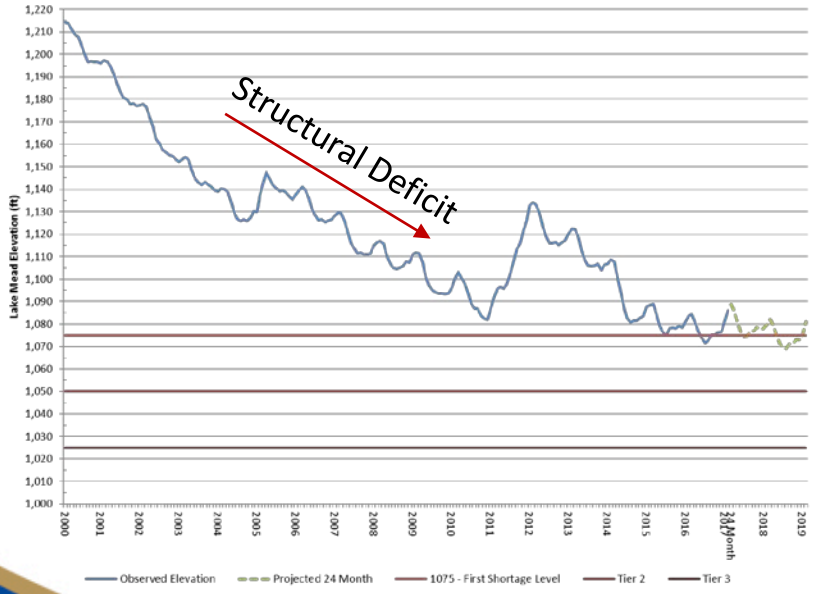
Impacts of the Structural Deficit

- Results in a decline of 12+ feet in Lake Mead every year when releases from Powell are “normal” (8.23 MAF)
- Results in a decline of 4 feet in Lake Mead every year when releases from Powell are “balancing” (9.0 MAF)



- Drives Lower Basin to shortage
- CAP forced to bear obligations of others
  - Evaporation and other system losses
  - Lower Basin’s half of Mexican Treaty obligation

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Current Adaptation Strategies

Storage and Recovery

- 3.4 MAF underground storage in partnership with AWBA

Augmentation

- Weather modification projects in the Upper Basin
- Local and binational desalination

Lower Basin Pilot Drought Response Actions MOU

- Interstate plan to leave 740 KAF in Mead through 2017
- CAP's share is 345 KAF – completed in 2016

Innovative Conservation ("Pilot System Conservation")

- Interstate funding to conserve about 150 KAF on the River
- Conservation research grant program

Lower Basin Drought Contingency Plan ("DCP")

- in process

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Lake Mead Protections