

Workshop on Water and Growth: Future Water Supplies for Central Arizona

*Sponsored by the ASU Global Institute of Sustainability and the Sustainability Partnership
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Issues raised during the 2006 WRRC Conference & Workshop

This includes issues raised by presentations and audience comments both on June 20 and June 21 as well as comments received on comment cards. This list does not include any additional issues that may have been raised at the 16 separate discussion tables during the June 21 workshop. Workshop comments will be compiled and summarized in a separate document.

**Day 1 Sponsored by University of Arizona Water Resources Research Center
Day 2 Workshop Sponsored by Arizona State University**

(Comments in italic were new issues raised through comment cards on either day)

- **New Supplies - “wet water”**
 - Growth will continue – should we be concerned?
 - *Concern over equity – why does water cost more in rural areas with less ability to pay*
 - *Water is for everyone, it should not be treated as a simple commodity*
 - *A commodity value should be attached to water*
 - *Energy costs may be the limiting factor...not water*
- Colorado River, including CAP (Central Arizona Project), Supplies
 - Colorado River water supplies are controlled/limited by contracts
 - What mechanisms will be used to re-allocate the already overallocated Co River water?
 - Yuma’s goal is to protect their supplies and convert their Ag use to M & I (Municipal & Industrial) in Yuma area. For right price some water might be available?
 - Statewide vision needed for the fate of mainstem Colorado River
- Effluent
 - ACC (Arizona Corporation Commission) to regulate private water providers
 - *Need to enhance reclaimed water use*
 - *Effluent could be used in closed systems for potable use*
- Groundwater
 - Groundwater use within AMAs (Active Management Areas) limited by GMA (groundwater management act)

- Importation of groundwater limited by statute
- Desalination
 - In some areas of CA and Las Vegas could be cheaper than other alternative supplies
 - Need to understand the energy equation to this alternative
 - *Increasing energy costs will have an impact*
 - *Are there environmental impacts on ocean ecosystems*
- Conservation
 - Demand increases during dry periods when supplies low
 - Conservation education can reduce demand both short and long term
 - Education on conservation provides way to teach about water
 - Public perception is important
 - Incentives needed for conservation
 - Would Yuma conserve water if they knew the savings would go to central AZ users?
 - Estimate water savings from specific conservation measures
 - Conservation can be achieved through market methods
 - Don't go too far with conservation
 - Are we willing to trade golf courses for waterless toilets?
 - There are environment benefits from inefficiencies and return flows to the environment
 - *Conservation programs in valley (Phoenix area) are weak*
 - *Need statewide conservation restrictions*
 - *GPCD (gallons per capita per day) varies within state and there are differences across AMAs*
 - *Water harvesting and capturing stormwater runoff*
 - *Need to distinguish water "needs" from water "wants"*
- **Infrastructure – “canals, pipes & treatment plants”**
 - for Importing New Supplies
 - Additional capacity exists in CAP
 - Upgrading pumps at Lake Havasu could bring an extra 500,000 AF (acre-feet) through CAP
 - Better to pursue lots of individual projects or large collaborative projects
 - *Build more pipes*
 - for Treating & Delivering Water
 - difficult to plan with uncertainty over where growth will occur
 - certain water providers (e.g. Tucson) lack defined boundaries
 - we don't need to treat all water to the highest standard

- Costs & Financing
 - Price of water is too low
 - Need to get over the paranoia of expensive water
 - How can we finance the next bucket of water, it may require cooperative efforts
 - ACC (Arizona Corporation Commission) limits private water companies investments in future supplies and conservation
 - If we plan for future water supplies today – who pays?
 - Federal, State, developer, consumer roles
 - Need public awareness of the need in order to get support for purchasing / financing future water supplies
 - CAGR (Central Arizona Groundwater Replenishment District) – with large membership base can be a significant help in financing infrastructure
 - New growth should pay for itself but not necessarily subsidize other water uses
 - Will costs of new water supplies t affect the affordability of housing?
 - Cost sharing will be important

- **Methods of Acquiring Water - “paper water”**
 - First come, first served.
 - Water is not located where it is needed most – how to move it?
 - Need the ability to transfer water
 - Role of Yuma’s water for Arizona’s growth
 - Is Yuma a “water bank for state”?

- Water rights leases & sales and water transfer issues
 - Yuma will keep its water supplies for growth in Yuma
 - For next generation of water we need to buy or lease and transfer supplies
 - 3rd party impacts (economic, social or environmental impacts on a community from which water supply is transferred away) must be addressed,
 - how much are we willing to pay, willing to sacrifice?
 - *Verde valley communities should be able to buy water rights from SRP*
 - *A priority system needed for groundwater*
 - *Support for Bob Johnson’s example of CA water deals between cities and irrigation districts where only a small percentage of the water moves...this keeps folks in agriculture*

- Water Markets
 - No markets in Arizona today
 - Legislation needed to facilitate creation of markets
 - If willing buyers and willing sellers markets should develop
 - How should excess CAP capacity be allocated – command or market?
 - 90,000 AF NIA CAP (non-Indian agricultural CAP supply) to be allocated by ADWR (Arizona Department of Water Resources)
 - Water transfers – should they occur by regulations or by the market?

- Allocations
 - Legislation is needed
 - Balance market demand with public policy

- Regional entities / authorities
 - Need to take basin wide efforts
 - Mojave County water authority took several years to create
 - Statewide planning and statewide solutions are needed
 - State should play a role in helping counties and towns help themselves

- **Supply Reliability – Security of Contracts – Balanced Portfolios**
 - Portfolio issues
 - Diversification is a key
 - Tucson & Pinal County – with less diverse supplies for portfolio need to fully utilize supplies they have
 - Phoenix – old areas have a diverse portfolio, new areas do not

 - Conjunctive Management
 - Lakes Powell & Mead should be managed conjunctively

 - Drought/climate issues
 - Droughts of record 20 to 30 years long and can coincide on Co River and Salt/Verde system
 - What will be the impacts if we rely on groundwater pumping for extended drought periods?
 - Future likely to have greater variability – so how do we operate to maximize the potential of our systems
 - Need decision making processes to handle uncertainty and to implement incremental decisions
 - Planning efforts need to recognize uncertainty
 - Continued growth will limit elasticity of supply during droughts

- *Discussions of future water supply tend to assume a constant supply*
- **Colorado River Management & Interstate/International Issues**
 - Long term management of Co River
 - Flow is lower than originally believed and river is overallocated
 - Need to protect / guarantee AZ allocation of Colorado River
 - Need augmentation of Colorado River
 - CAP reliability
 - Junior status
 - Shortage won't impact for next 20 yrs
 - Augmentation of Colorado river needed
 - Enhance existing supplies through
 1. Watershed vegetation management
 2. Identify and limit Non essential activities (fallowing)
 3. Cost is the issue
 - Shortage Sharing
 - Voluntary transfers can help deal with shortages
 - 3rd party impacts must be considered & mitigated
 - Shortage in next 20yrs will most likely only affect water banking and agricultural activities within CAP delivery areas.
 - If Co. River is augmented by 1 MAF, shortages will disappear
- **CAGR (Central Arizona Groundwater Replenishment District) Issues**
 - Consequences & Future of CAGR
 - Should the CAGR be expanded and strengthened or limited?
 - Was CAGR necessary for adoption of AWS rules?
 - Has CAGR lead to better planned growth vs. lot splits
 - CAGR has a high rate of enrollment
 - Is CAGR intended to be a bridge or a permanent supply for water providers?
 - Has CAGR allowed cities & developers to work independently, avoid conservation and avoid financing new water delivery and treatment infrastructure
 - Without CAGR would a larger portion of growth have occurred within developed cities? Would this have resulted in:
 - Securing long term renewable supplies for direct delivery
 - Conducting long term planning
 - Is the CAGR a bridge to somewhere we did not intend or don't want to go?

- Does CAGRDR become the water provider for most new growth in state?
 - CAGRDR has given AZ its dream to grow and has helped people to get what they want. For the general good of the State
 - New homes consumption below projected demand calculations
 - Issues of over reliance on groundwater
 - Build now – pay later mentality
 - Allows developers to use groundwater and not carry burden of water infrastructure
 - Need to incorporate adaptive management into the recharge/recovery/wet vs. paper water/future of the CAGRDR discussion
- Reliability / Security of supply
 - Sustainability – are we importing a problem?
 - Are the supplies secure enough?
 - Hydrologic issues – location of recharge & limits of pump and replenish strategy
 - Replenishment should occur near area of pumping
 - Restrictions on depth of groundwater pumping
 - Governance concerns
 - Cities concerned about competition for CAP wheeling capacity and Colorado River rights with CAGRDR that is entity of CAP
 - Over ½ of new growth will be CAGRDR members
 - Should CAGRDR have ability to directly deliver water to their members
 - Water right acquisition
 - Costs
 - competition with cities for future supplies
- **Aquifer Management**
 - Groundwater Pumping & Replenishment / Groundwater Storage & Recovery – Role of Strategy
 - GW recharge – where, how much?
 - Managing for drought- saving groundwater for emergency supply
 - Need to take basin wide management approach
 - Establish Basin Water Masters
 - Impacts on adjacent basins from pumping
 - Need to develop better understanding of basins and hydrology which will lead to better management decisions

- Mapping tools (USGS (US Geological Survey), ADWR)
 - Simulated capture of groundwater discharge maps
 - Remote sensing for identifying basin thickness
 - Rural water initiatives

- **Water Quality**
 - Salinity of Colorado River supplies
 - We need to run the Yuma desalter

- **Other Sectors / Water Users**
 - Agriculture
 - Need the discussion about future of agriculture
 - Agriculture can help to mitigate sprawl and heat island
 - Shortage sharing with agriculture will allow for flexible water management
 - Can we afford to lose agriculture in AZ?
 - Facilitate transition of agriculture to urban water use which protect agricultural economy and associated values
 - Look at CA experience with 3rd party impacts...lawsuits still challenging the deal made
 - How do we calculate 3rd party impacts
 - Native American
 - GRIC settlement & water rights, aboriginal rights, Federal protection
 - Municipal Growth outside central Arizona
 - Competing for supplies
 - Need resources for communities to manage the growth
 - Yuma – local level is nailing down supplies & converting from Agriculture to M & I
 - Need to get effluent from new treatment plant to river for return flow credits

- **Environmental Issues**
 - Environmental impact of water resources development – constraints
 - How to protect the natural resources
 - Education – understanding what we have and how to preserve it
 - Finding the balance
 - Incorporate environmental / riparian protection into the water policy discussion
 - *Protect riparian ecosystems and maintain integrity of watersheds*

- Ecosystem water needs – endangered species, etc.
 - Human needs taking water from ecosystems
 - Need protected water rights for ecosystems separate from water for human consumption
 - Endangered fish
 - Loss of natural flow
 - Ecosystem services of importance for human uses including: climate regulation, treatment of water as it moves through landscape, flood control/retention, *role of national forests*
 - Identifying carrying capacity
 - *Need to identify carrying capacity for desert environment*
 - Need to restore watersheds & rivers
 - Consider cumulative impacts of isolated jurisdictional decisions
 - Need to identify appropriate recharge sites for ecosystems and protect them

- **Water Management Legal Framework, Planning & Management Capacity**
 - Rules/Statutes/Etc
 - Need to determine future evolutions of various rules including - 4th Management Plan, Assured water supply rules, etc.
 - Need legislative changes to facilitate water markets
 - Planned depletion – is this an appropriate goal
 - Adequacy program a failure – close the loopholes
 - Lot splits, exempt wells
 - Call for local control and authority
 - *Require a hydrologic assessment for every new well*

 - Surface water adjudications
 - *Need to connect groundwater & surface water legal frameworks*

 - Long range planning needs & capacity
 - are we getting to safe-yield?
 - Future demand & supply projections –
 - can't accurately predict patterns of development
 - need to look over horizon, adjust plans as necessary
 - Regional planning and cooperation
 - Identifying growth patterns
 - State Lands?
 - Need to consider
 - Land use plans/ growth plans
 - Drought planning
 - Efficiency – conservation
 - Demand management

- Public perceptions
 - Reuse
 - Recognition that economy of Yuma & Central AZ connected
- Water managers need to participate in land use decisions.
- *Increase funding for data collection*
- Institutional capacity
 - AZ Corp Commission & ADWR conflicts should be addressed
 - Water quality & water quantity connection
 - Water providers & counties need to coordinate / cooperate
 - CAWCD planning process for future is important
 - Need for cooperation when securing future water supply. Mostly looking to the Co River, which is used and owned by others and not located near greatest demand
 - Funding and enforcement authority issues for ADWR
 - *Combine ADWR and ADEQ*
 - *Privatization of water and wastewater is an issue*
- Public Perceptions
 - Public not willing to pay for future supplies
 - Hard to get support to financing necessary infrastructure and water supplies
 - *Private property rights versus growth*
 - *More diversity needed amongst water experts/decision makers*
- Leadership
 - Need to look forward and solve problems that will occur over next 50 years
 - *Lack of legislative and agency action will lead to citizen initiatives*
- Growth Management
 - *Unrestricted growth*
 - *Linking growth and sustainable water use*
 - *People moving to rural areas*
 - *All the growth related issues need to be discussed together*
 - *Need economic studies on the true cost of growth*
- **Rural / Non-AMA Water Issues**
 - Management tools (Education, Regulation, Incentives)
 - Need for legislative changes to give tools to communities
 - Adequacy rules inadequate
 1. Wildcat development – adequacy revamp
 2. Subdivision splits

- 3. Unregulated wells
- 4. Need Rules with real meaning
 - Local governments need to be able to say no
 - New wells on lot splits in areas of inadequate supply take away supplies of communities and residents already there
- Drought scenario planning
- Water Resources Information & Planning
 - Need for accurate water use and water supply and available supplies data
 - Need studies, models
 - Need to understand groundwater/surface water interaction
 - AWI (Arizona Water Institute) & AHIS (Arizona Hydrologic Information System)
 - Need regional planning & cooperation
 - Need funding to do work
- SWAG (Statewide Water Advisory Group)
 - Let local watershed groups lead and decide
 - Statewide AMAs will not develop
- New Supplies
 - *Water supplies for public lands*
- Financing of water supplies needs to be equitable
- Need accounting surface rules (identifying along Co river whether using groundwater or Colorado River water which requires an allocation)
- Should State help provide infrastructure for rural area
- Regional growth is affecting statewide supplies (e.g. Mohave County)