

What is a Sustainable Water Future for Us?

Themes from Public Comments to the City / County Water & Wastewater Study Oversight Committee

Reported by Margot Garcia and Dale Keyes

Draft

Preface

As part of its public outreach for the City / County Water and Wastewater Study, the Oversight Committee invited members of the public to present their thoughts on water sustainability in the Tucson Region¹. Two public meetings were held (October 22 and 29, 2008) to collect comments and written statements were invited until November 7. We, the authors, recorded the oral comments at the two meetings and reviewed the written statements, and have organized the commentary into key themes. Note that comments within themes are not always consistent, and sometimes are diametrically opposing.

The themes are presented in four categories – Overarching Principles, Planning and Decision Making Principles, Policy Recommendations and Observations. The "Overarching Principles" group encompasses definitions of sustainability and broad judgments and philosophical beliefs that were proposed to guide the development of water plans and policies in the Region. The "Planning and Decision Making" category focuses on who should be involved in developing plans and policies and how they should be developed. "Policy Recommendations" are suggestions about specific policies that should be adopted. "Observations" include other comments that did not fit comfortably in one of the other categories.

We use the presenters' actual words or paraphrase them for brevity. Quotation marks are used only to call attention to individual words or phrases with special meanings or which we want to highlight. The number of duplicative or reinforcing comments roughly parallels the number of times that they were offered by the various commentators. This frequency reflects the number of similarly minded spokespersons as well as the length of their presentations and statements.

Following is a list of persons who formally provided input together with their affiliations. Most provided a five-minute oral presentation and several also submitted written comments; a few provided written statements alone. The sole exception was the presentation by Michael McNulty, who was afforded a 15-minute presentation as he represented the Tucson Regional Water Coalition, an organization of 11 business groups.

¹ The Committee broadly cast the invitation for public comment via e-mail to its standing list of interested persons, publication in local newspapers, and direct solicitation of relevant organizations. More information on the Water Study and on the public outreach program can be found at:
<http://www.tucsonpimawaterstudy.com>.

<u>Presenter</u>	<u>Affiliation</u>
Ron Proctor	Sustainable Tucson
Madeline Kiser	Sustainable Tucson
Tres English	Sustainable Tucson
Linda Ellinor	Sustainable Tucson
Colette Altaffer	Neighborhood Infill Coalition
Tracy Williams	Neighborhood Infill Coalition
Dorothy Obrien	Town of Marana
Randy Serraglio	Center for Biological Diversity
Jenny Neeley	Sierra Club – Rincon Group
Trevor Hare	Sky Island Alliance
Kendall Kroesen	Tucson Audubon Society
Donna Branch-Gilby	Milagro Co-Housing
Nancy Freeman	Groundwater Awareness League
Amy McCoy	Sonoran Institute
Michael McNulty	Tucson Regional Water Coalition
Christine Cotton	Malcolm-Pirnie Engineering
Christopher Brooks	Self
Sharon Megdal	Self
Alice Roe	Self
Carol West	Self
Charles Cole	Self
Beryl Baker	Self

Overarching Principles

These constitute the framework that presenters suggested should guide the Committee in its work on developing a plan and set of policies for water use in the future.

Definitions and use of "sustainability"

The starting point for a discussion of sustainability is logically defining what we mean by the term. One of the simplest and most widely accepted definitions is the first in the list below, and all of the comments speak to various aspects of using our limited resources in a manner that meets our needs today while providing equal opportunities for an acceptable quality of life for those who follow. Several comments also address the challenge of including environmental systems [the environment] in our notion of "needs."

- Sustainability is meeting the needs of the present without compromising the ability of the future generations to meet their own needs.
- Sustainability is the ability to sustain.
- Sustainability means living within our means (like using income rather than the invested capital).
- Sustainability means living with our means and preserving for future generations.
- Sustainability means living with our local resources limits, thinking of others, thinking of the future....thinking!
- Don't take out more than nature puts in.

- Achieving sustainability involves tradeoffs.
- Strive for healthy landscapes and sustainable communities.
- Sustainability should not just focus on the environment.
- Environmental concerns must be included.
- Sustainable pumping takes into account environmental needs.
- Sustainability should include quality of life – clean, healthy potable water.
- Sustainability means functioning without non-renewable resources.
- Sustainability means not robbing the future to maintain the present.
- We are all fellow travelers.
- Safe yield is not the same as water sustainability.

Consider the problem at various scales

Although the Committee's mission is to address water use in the Tucson Region, it is urged to understand how water use here is affected by and in turn may affect water issues at larger and smaller scales.

- Be cognizant of climate change.
- Water policies should help solve our global climate change problem, e.g., minimize energy consumption and greenhouse gas emissions.
- Develop policies that address personal responsibility.
- Think about regional, basin (Tucson AMA) and national scales.

Maintain a long-term vision

Keep in mind that decisions made now will have long-term effects.

- Human habitation of earth is exceedingly short
- Move away from "pay-as-you-go" approach; develop a budget and implementation plan.
- Plan for long-term future as well as for the next few decades.

Focus on our region and understand its inherent constraints

Tucson has several unique characteristics that should be acknowledged in developing a water plan.

- We live in a water-challenged desert environment.
- Strive for local and regional balance since we have cheaper and more sensible sources.
- Regional supplies should satisfy regional needs.
- Don't draw supplies from one ecosystem to satisfy needs in another.
- Focus on watersheds, not jurisdictions.
- Preserve our natural beauty.
- Don't exceed our population carrying capacity.
- Keep in mind the diverse pattern of Tucson neighborhoods with their individual infrastructure needs.

Follow the "precautionary principle"

Err on the conservative side when considering risk and reliability.

- The future is uncertain.
- Don't "paint yourself into a corner."

Consider needs of human and non-human inhabitants

The needs of man and the environment are sometimes seen as conflicting, and meeting them as requiring difficult tradeoffs. These comments reflect a range of perspectives.

- Water is a life & death issue.
- There's a human right to water.
- Balance needs of humans and wildlife
- Factor in services provided by riparian areas.
- Protect remaining riparian areas and ensure conserved groundwater is used to restore damaged riparian ecosystems.
- No negative environmental impacts.

Address issues of growth

Perhaps no single issue is more divisive in the Tucson community than growth. Some see it as the central cause of our water dilemma, others as a necessary burden, and still others as vital to a robust community.

- Avoid growth / no growth debates.
- Look for less destructive ways to grow.
- Don't damage the environment to support growth.
- Sustainability does not mean supporting unfettered growth.
- Don't ask current residents to subsidize growth.
- The problem with growth is the way it is (or is not) managed.
- Growth is important for a vibrant community and for providing opportunities for the next generation.

Consider both the value and cost of providing water

Water is seen as being undervalued by most but too costly to provide by some.

- Water is scarce and has great value.
- But water is also cheap for users.
- When the well runs dry, we'll know the true value of water.
- Water should be affordable – no risk of bankruptcy.
- But obtaining reliable supplies can be very costly.
- Water should be provided cost-efficiently for life.
- Consider the replacement cost of water that is removed or no longer available.

Important questions to ask

Finally, presenters offered up several thought-provoking questions that the Committee should attempt to answer as part of its deliberations about the Region's water future.

- What should we use water for?
- Do we have our water rights and priorities properly arranged? (Reorder our priorities and think through who has a right to water.)
- Should new development have priority over "been-heres"?
- Should the turf industry have a priority over citizens when it comes to getting water?
- Should water used for decorative purposes cost the same as water for food gardens?
- Is the current state-wide regulatory system consistent with regional goals; what may need changing?
- What would it mean to us if the Secretary of the Interior declared an emergency on the Colorado River in the next couple of years? (Our cut would be a fraction of what we are now using, not our total allocation.)

Planning and decision-making principles

Since sustainability includes the notion of the future as well as balancing the needs of today, it is necessary to plan how to strike the right balance. Planning is usually understood to involve several steps. The first step is to define the problem, the second to develop alternatives that need to be analyzed, usually according to some agreed upon criteria. And the last step is to decide which alternative to chose.

Analysis criteria

Presenters suggested criteria that should be used to analyze the different alternatives regarding water use and supply.

- Look at water supply limits, efficiency of use, and conservation.
- Consider the full range of supply options.
- Apply adaptive management principles.
- Use a flexible management approach.
- Be conscious of the triple bottom line: environment, economic, social aspects of the problem.
- Use triple bottom line to evaluate plans and efforts - including water quality.
- Use concept of economic values; include idea of water as an economic good.
- Evaluate the effect of policies before they are implemented.
- Research various methods of balancing water and supply.
- Need to borrow the experience of other countries.

Cost and economic analysis

Two particularly important analysis criteria are costs and benefits. The challenge is to know how to measure and fairly compare costs and benefits, because some policy options have values that are market-driven and others do not. Some presenters suggested other ways to measure things like the social value of water. Risk analysis, the probability that a particular outcome will happen, can augment cost-benefit analysis.

- Measure true cost of high tech options.
- Quantify costs and benefits.
- Use risk analysis.
- Use risk assessment when considering climate change.
- Find a way to reallocate water to its best use, taking into account economic, social, and environmental concerns.
- Promote community-wide conservation; doing the hard math and looking carefully at what water we can get from \$1,000 spent on conservation vs. \$1,000 spent on water importation.
- Look at conservation options on a dollar-per-gallon saved basis.
- Reflect the cost of replacing local sources of water.
- Analyze all options neutrally.
- Analyze carefully and fully all costs of pumping water long distances.
- Weigh the cost of private vs. public ownership and management of water - rights, infrastructure, and delivery.

Decision factors

The last step in the planning process is making the decision. Usually this is stated as picking the best alternative. However, the issue is "best" for whom.

- Decisions on how we manage our effluent are looming.
- Growth should reflect available supplies and need to address current deficiencies/damage.
- Set a new course with sustainable, equitable problem solving.
- Our drought plans need to reflect our projected sources and supplies.
- Determine the minimum effluent-dominated flow in the Santa Cruz that will support wildlife.
- Link water & wastewater services with job growth and retention as economic goals.

Process characteristics

Because planning is both an art and a science, many assumptions must be made during the process. Presenters mentioned their hopes and concerns about how the planning process will be undertaken, especially who will be involved.

- Full transparency.
- Open and balanced process.
- Bring outside and local experts together and peer review all options.
- Make decision collaboratively.
- Need to have cooperative planning.
- Stop bickering and work together within the region.
- Simply acquiescing to the demands for a seat at the table can lead to unbalance and distorted outcomes.
- The process is not just about conserving water, but using all resources (people and water) wisely and efficiently.
- All stakeholders must be represented in water planning decision-making.
- All hands on deck in a democracy (involve all of the community).
- Include all jurisdictions, not just Tucson and Pima County.

- Base process on a participatory approach that balances technical expert advice and community values.
- Hear special interests, but don't ignore citizens and their local knowledge.
- The town of Marana is looking forward to working with this group.
- A person from SAWUA (Southern Arizona Water Users Association) is willing to help in the process.

Importance of time

And finally, in planning we can never have all the information we want and think we need in order to make a decision. The amount of time that one has (or the amount of money) will determine how long the process takes. At some point, a decision needs to be made.

- Don't study the problem to death - time is running out.
- Fast action is needed.

Policy Recommendations

Most presenters had specific recommendations covering a broad range of water policies.

Conservation

Using water more efficiently is the focus here, although some comments also address water supplies.

- Look at alternative conservation methods such as using gray water.
- Consider using composting toilets as a policy option for conservation.
- Provide extensive public information on how to capture and reuse water.
- Focus public education efforts on rainwater harvesting and conservation
- Use potable water only where needed.
- Implement now Pima County's drought plan, e.g. restrict misters and watering outdoors.
- Price water so consumers are encouraged to use it efficiently.

Alternative sources of water

Expanding and better utilizing alternative water sources are urged.

- Resist the impulse to import water.
- Reuse sewer effluent.
- Catch rainwater and use it for fire suppression and flushing toilets, etc.
- Focus on rainwater harvesting; keep local water in the Region.
- Water harvesting is critical (City initiatives are encouraging but more can be done).
- Capture storm water to be used in the valley, including recharge of aquifers.
- Consider retiring agricultural land to increase supplies
- Increase the use of reclaimed water.

Environmental and cultural senses of place

Several presenters urged the Committee to protect critical resources, both natural and cultural.

- Create no pump zones.
- Protect aquatic and riparian habitats.
- Stop aquifer pumping.
- Protect high groundwater tables.
- Maintain a sense of history and be sure older parts of Tucson are not disadvantaged in terms of water and wastewater infrastructure.
- Think about how we "sell Tucson" – what sets us apart from other places – and preserve it.
- Maintain the principles of the Sonoran Desert Conservation Plan.

Land and Water

Although many commentators take different positions on growth, most would like to see land and water planning and policy development integrated.

- Integrate land and water planning and link relevant policies.
- Reinforce laws that link development and water management.
- Stop growth as unbridled growth has plundered the landscape.
- Encourage new development UP not OUT (i.e., more dense and compact development).
- Base land use decisions on the amount of water we currently have without causing further damage to the environment.
- Encourage growth where in locations and forms that permit protection of our natural resources.
- Make new development bear the infrastructure costs of growth.

CAP allocation

Some believe that we should not use CAP water, but most believe we should accept and protect our full allocation.

- We need more infrastructure in order to fully use our CAP allocation.
- Don't allow any of our CAP allocation to be sold or used outside the Tucson AMA.
- Store any unused CAP allocation through recharge.
- Don't import water from the Colorado River; it is over-allocated and unreliable.

High Tech Solutions

Those presenters who addressed "high tech" water options urge the Committee to proceed with great caution. In particular, desalination is discouraged.

- Look beyond high-tech solutions that can have negative environmental, energy, and cost effects. For instance the Yuma desalination plant doesn't have a good track record regarding cost and production.
- A desalination plant is not needed.
- Desalination creates huge amounts of waste brine.

- Avoid high tech solutions.

Other recommendations

Here are a few additional policy recommendations.

- Make industrial and commercial enterprises responsible for their own water supplies.
- Water and wastewater infrastructure should be constructed so it can be shared; wheeling agreements should be possible
- Keep the water in "the commons" - in public ownership.
- Make sure provision of water and wastewater services are shared responsibilities among all jurisdictions.
- Continue putting wastewater effluent in the Santa Cruz River where it is essential for wildlife.
- Reduce the "wonkiness" when setting policy.

Observations

The presenters had a number of observations they made in the course of their presentations. Some of the observations had to do with the assumption on which they were basing their comments. Others were information they wanted to share from their own experiences.

Legal situation

The laws governing water management in Arizona play an important role in structuring the issue of sustainable water use in the Tucson region.

- The Groundwater Management Act (GMA) grandfathered in huge amounts of water for use by agriculture.
- The GMA gave away water, then required cities to have a plan for sustainable use.
- The GMA model is to import renewable water, making local sustainability impossible.
- Groundwater replenishment districts provide for "paper" replenishment, not necessarily within the same aquifer.
- The GMA has safe yield as a management goal, not water sustainability.
- Marana is moving to become a designated agency, be in charge of potable supplies, and wants to be able to recharge its effluent.

Things change

Presenters spoke extensively of the change that has happened in the last fifty years and the changes that are anticipated in the future. Keeping in mind we live in a dynamic world is important in making decisions about the future.

- Resources use is increasing dramatically on a global scale.
- The trend is toward diminished rainfall and groundwater recharge regionally.
- The Nation is running out of clean fresh water.
- The state is still oriented toward agriculture - especially cotton.
- CAP was originally meant for agriculture, but in reality it is for municipal use.
- Things change; Yuma was once a seaport.

- Effluent is the water of the future.
- There's a growing trend toward buying, selling and trading bulk water.
- Our ability to afford water projects may be seriously limited in the future.

Environment

Some of the presenters wanted their concerns about the impact of water management decisions on natural systems brought to the fore.

- An abundance of animals (70% of threatened and endangered species) are supported by riparian areas.
- Riparian areas are supplied by groundwater systems, especially shallow groundwater, which in turn, is threatened by pumping.
- Washes are like highways, providing connectivity for daily and seasonable movements. For instance, a mountain lion lives in and uses a range of 200 square miles.
- Importation of water allows us to export environmental problems.
- The environmental crisis is like the credit crisis.

Examples of success in water conservation

Water conservation has been shown to work and can be counted on as a "source of new water."

- Milagro co-housing development uses gray water, captures all the rain that falls in its development. The gray and black water (1700 gallons a day) in Milagro goes to subsurface wetlands where it is purified. They capture roof water (50,000 gallons) and use it for outdoor watering. Their goal is to reduce water use to a sustainable level, which they decided is 50 gallons per capita per day (gpcd). They started out at 135 gpcd and now are at 75 gpcd.
- Brisbane, Australia uses 53 gpcd.

Sustainability is a hot topic

This Committee is not the only group thinking about sustainability of water management practices.

- The Seattle Public Utility uses a triple bottom line analysis for any project greater than \$250 million.
- The Southern Arizona Leadership Council mission statement is "promote policies which promote economic vitality and quality of life." They have been meeting and working through the ideas of IRWM (integrated resource water management). Eighty percent of what they have heard, they agree with.
- Marana and PAG are looking at sustainability with regards to water.

Miscellaneous

Presenters had ideas and warnings for the Committee as they ponder recommendations for sustainable management of our water resources.

- Growth for growth's sake is a cancer cell.

- Residents have different ideas about how we should grow; some like higher density but others prefer low density development at the urban fringes.
- It is not good to balkanize the utility infrastructure.
- Special interests often dominate decision-making; we can't afford this happening here.
- Bringing water from remote areas to the Tucson basin has led to complacency.
- Being at the end of the CAP pipeline makes us more vulnerable to the actions of those higher up the pipeline.