



When the state's urban dwellers think of rural water resources – if they think of them at all – they most likely think of recreational opportunities, like fishing, boating and camping. (See above.) Residents of rural areas of the state, however, are confronting a wide range of water issues, with ensuring sufficient supplies the most critical. Whatever rural water management strategy is adopted must reflect the physical, social and cultural characteristics unique to the non-urban regions of Arizona. Photo by George Andrejko, Arizona Game and Fish Dept.

Arizona Rural Water Issues Attracting Attention

by Joe Gelt

What is best plan for managing non-Active Management Areas?

In its journey from its source to the tap, water undergoes various processes — pumping, piping, storing, treatment and delivery to water users. Also water is managed, an important albeit an easily overlooked process, at least to the water layperson. Managing water, unlike pumping, piping, storing, etc, may appear somewhat remote and abstract, the result of various de-

isions made by government officials, lawmakers and water professionals.

Water management, however, is a basic and necessary process, its basic principles and their application having a significant affect on all water users. More than a hydrological process, managing water has to do with community values and priorities.

Managing water in Arizona is an

ongoing quest, as it should be, with strategies devised, applied, evaluated, reworked and revised, in response to present and changing conditions in urban and rural areas of the state. In Arizona, urban water affairs have been an official priority, and some observers believe rural water issues are now due, if not overdue for some attention.

WRRC Conference Scheduled

Rural Water Issues on Agenda

The Water Resources Research Center will be conducting a conference May 1 and 2, 2003, in Prescott, Arizona. The intent of the conference is to address various state water issues including rural water concerns. More information will be forthcoming as further arrangements are made.

Urban/Rural Water Management

Speak of water management in Arizona, and most people will think of Active Management Areas. The term is self-explanatory: an AMA is an area where water is actively managed. Established by the state's Groundwater Management Act (GMA), AMAs are areas of official concern and have attracted varied support, both financial and technical. Their goal is to manage water resources to decrease groundwater depletion. AMAs contain the bulk of Arizona's population, with over 80 percent of its residents residing within such areas. Arizona's major urban centers are within AMAs.

There are, however, other parts of the state to consider. With AMAs the most visible and active water management unit within the state, these other, mostly rural areas, are often defined in reference to them, as non-AMA regions. Non-AMA parts of the state cover a greater expanse than AMAs, with 87 percent of Arizona's land outside AMAs. What is most distinctive about non-AMA regions, when compared to AMAs, is that the former are subject to limited regulatory oversight in managing their water affairs.

(It should be advised at the outset to be wary of too closely identifying non-AMA with rural locales and AMA with urban areas. Understanding "rural" as referring to life-in-the-country, with relatively sparse population and various natural amenities complicates any such

tidy alignment. AMAs may in fact include the populous areas of the state, but they also include areas that would generally be understood as rural. This is especially true of the Santa Cruz, Prescott and Pinal AMAs. On the other hand, if areas not included within AMAs are viewed as rural, what is to be made of Flagstaff and Yuma, both fairly good sized cities not located within AMAs?)

Growing Need for Rural Water Management

Various recent developments provide cause for paying increased attention to non-AMA water affairs. Prime among them is the growing population in many Arizona rural communities. Many people are drawn to rural areas in search of a change of life amidst an attractive natural setting. Some relocated urban dwellers willingly accept the burden of a long commute as a fair price to pay for rural amenities.

Technology also might play a role in increasing population in rural areas. Amongst its touted benefits, technology claims the potential of freeing people of the need to work in a centralized workplace. More workers might then relocate to Arizona rural areas, their business conducted via fax and email. Also, many retired folks are back country bound, to live at least part of the year in an Arizona paradise of their choice.

Many rural residents hope and expect economic development will come

knocking as part of this pattern of growth. Rural communities that are hurting economically likely would be pleased to attract outside development. Development made the news this past year when power plants were proposed for various rural areas of the state. This became a contentious issue, with the availability of water supplies central to the debate.

For example, the Arizona Corporation Commission voted unanimously last fall to reject the proposed Big Sandy electric generating plant. ACC Chairman Bill Mundell said, "There were too many unknowns and unanswered questions on the impact the power plant would have on the water in the area." Water supplies also will likely be an important consideration as other, possibly more attractive economic opportunities arise.

Further prompting rural communities to take on water management planning is the Growing Smarter Legislation. Growing Smarter requires that some rural communities add water elements to their general plans.

The above would seem to indicate that rural water management represents an expanding field of interest in the state. In preparing for the future, rural communities are confronting various water resource questions: Are available water supplies adequate to support growth and development? How can water be used more effectively? Is importing water into an area a possibility? Is growth management an option for working out the means of allowing new expansion without compromising rural amenities and values and threatening water supplies? How should groundwater be managed to ensure future supplies and the preservation of riparian areas? What criteria should be used to determine if a proposed activity, such as a power plant, be approved in areas of limited water supplies?

Rural Life and Water Management

Whatever water management plans are devised, whether for non-AMAs or other defined areas, must reflect the social and cultural characteristics of these areas as well their geological and hydrologic conditions. Effective water management generally discounts one-size-fits-all solutions, in favor of a more tailored fit that measures the unique conditions of an area. What are the distinctive features of rural areas of the state and their residents that might influence water management strategies?

That various areas of the state are collectively designated as rural indicates they share some characteristics, mostly having to do with population density. Rural regions are areas of relatively sparse population, at least compared to urban areas. This gives them a special status in a state such as Arizona with a rapidly expanding population. People with roots in rural regions may feel protective of their home territories, as newcomers to the state move into their areas to become full-time or seasonal residences.

Along with an interpretation of demographic information, other urban-rural differences must be considered as part of a rural profile. Although a risky area for generalization, a case might be made that rural folks share certain social, cultural and political values that are somewhat distinct from those prevailing in urban areas. For example, in the political sphere, rural residents tend to be more conservative than citizens in large urban centers.

Further, the distrust of government shared by many rural residents colors their perceptions not just of federal policy but also state actions. Government officials often must tread lightly when operating in rural areas. They must first prove themselves, usually by carefully involving local residents when

considering due courses of action.

A distrust of government is sufficiently ingrained in some rural residents to cause them to be protective about their water resources, to stave off any possible government interference. In water affairs, the Arizona Department of Water Resources (DWR) is often viewed as the government intruder, its activities watched with wary eye lest the agency try to impose AMA rules in non-AMA regions or, worse, attempt to create new AMAs to gain a regulatory foothold. This controversy is being played out along the upper San Pedro River between local interests and DWR, as the Upper San Pedro Partnership, a particularly active local organization, and the state agency consider ways to manage water in the area and preserve the flow of the San Pedro River.

Whatever commonalities exist among rural areas geography, geology and climate are not among them. Arizona is a state of contrasts, and rural areas, scattered throughout the state, reflect the prevailing geological and climatic differences of their locations. For example, precipitation varies among rural areas, with the rim country receiving more than southern desert areas. Temperatures also range greatly. Also surface water is found variably throughout the state, and the occurrence and accessibility of groundwater varies in different regions. The San Pedro and Safford Valley areas have available groundwater supplies while Payson, Pine, Strawberry and other rim communities lack groundwater resources. Williams and Flagstaff must drill deeply to reach groundwater. All this matters when water management plans are made.

Rural Areas Lack Management Resources

Managing water is a complex task, and rural residents, although protective about ensuring local input and

control, at the same time realize they cannot completely rely on their own resources to do the job. To solve complicated water problems, assistance is needed, both information and expertise, yet rural communities often come up short in both categories.

DWR maintains offices within each AMA that gathers information, with staff trained to interpret data for water management decisions. Rural areas are without this resource and often rely on fragmentary or incomplete information when making their water decisions. This situation seriously handicaps water management planning.

Rural areas come up short compared to urban locations in other respects as well. Urban areas often are served by large municipal water companies staffed by highly trained water professionals. This represents another source of expertise for water officials in urban areas. Rural communities are not usually so fortunate, often served by small water companies without a

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cadre of water professionals. Indeed, not only are many of the small utilities serving rural areas unable to provide water expertise to the community but such utilities are often in need of technical assistance themselves. Some of the larger rural communities, however, have the high-level support of professionals.

Usually operated as private enterprises, small water companies serving rural areas generally do not have the political responsibilities of public agencies. For example, they do not necessarily have to release information to public officials for planning purposes, although such companies are usually very cooperative.

A variety of state and federal agencies assist rural communities by providing water information and expertise. The U.S. Geological Survey, long in the business of gathering water information, is a prime resource for water supply and sustainability information. The Arizona Department of Environmental Quality (DEQ) assists rural communities with various programs including the Monitoring Assistance Program, Source Water Assessment Program and Capacity Development Program. DEQ's Drinking Water Section conducts workshops throughout the state addressing compliance needs with present and future regulations. Also DWR has taken a supportive role in encouraging rural areas to work out water management plans. (DWR's activities in this regard are more fully discussed later.)

Some rural water support needs are thus met yet often in a patchwork fashion, with various informational gaps remaining. Water management decisions therefore are sometimes made with incomplete information. Even such basic data as pertaining to aquifer depletion may not be available to rural communities. In regards to formulating rules to manage water in rural areas, State Representative Tom O'Halleran says, "Consider for example a simple issue like

well impact rules. We don't know enough about the geology under most of these areas to be able to implement such rules."

The lack of a rural tax base further complicates the situation, with rural budgets already often strained without the added expense of water resource studies. This leaves rural officials without the means to contract needed expertise and services to support water management efforts.

History of Arizona Rural Water Management

Efforts have been made at various times to manage water in rural areas of Arizona. The issue got some attention as early as the 1940s and later in the 1950s, when groundwater pumping was beginning to be recognized as a state concern. What was accomplished at that time at best was a rudimentary water planning effort, with limited application. A more ambitious undertaking that included rural areas occurred in 1970 when the Arizona Water Commission developed a state water plan, considered the first comprehensive effort at water management in the state.

Rural water issues got some later attention during the late 1980s and early 1990s, during the water transfer era. At that time, urban centers looked longingly at rural areas as possible sources of water supplies for their growing populations. Rural areas felt threatened, fearful that urban areas were exploiting their water supplies, to their environmental and economic disadvantage. Legislation resulted that limited interbasin transfers of water into AMAs.

Soil Conservation Districts, later called Natural Resource Conservation Districts, engaged in rural water planning, although their efforts tended to be piecemeal, with a focus often on limited geographic areas. Critics claim that al-

though some valuable information was gathered, the work often was marred by a reluctance to take on controversial issues in fear of offending local interests.

In 1980, the Groundwater Management Act (GMA) was passed creating the Arizona Department of Water Resources. The law in effect heightened state interest in water planning and management by establishing water resource priorities and a legal framework for enforcement. The law, however, only applied to specific areas of the state designated as Active Management Areas. These were areas where groundwater overdraft was a concern.



Although the GMA focus was limited to newly created AMAs, its passage might have indirectly benefitted rural areas. By placing water planning and management on the public policy agenda, the GMA broached a topic with implications beyond its designated AMAs. The act in a sense also established non-AMA regions. A question thus raised, albeit indirectly was: What about water management in non-AMA regions? Although focusing its administrative attention on AMAs, DWR also was empowered to work with non-AMA regions on water management goals.

Meanwhile the need to manage rural water was variously acknowledged. The 71st Arizona Town Hall took on the issue in October 1997. In addressing the theme "Ensuring Arizona Water Quantity and Quality into the 21st Century," the Town Hall report advocated a statewide water planning effort, with representatives from various rural communities meeting together to plan water management strategies. Further, the report emphasized that local control was

an essential ingredient of any rural water management effort, with stakeholders devising strategies appropriate for their areas.

A later and much different kind of deliberative body, the Governor's Water Management Commission, noted that water resource planning has not been a coordinated effort in Arizona. Its Summary of Recommendations, issued last September, states, "The focus of planning within the state has been on those water providers who are located in AMAs. ... Water providers outside of AMAs are generally left to their own resources for future planning." The GWMC called for establishing a forum to address statewide water planning. The GWMC also supported rural water planning efforts by urging the Governor and the Legislature to increase financial support for the Rural Watershed Initiative, a state funding source that supports the work of rural watershed groups in identifying and addressing water resource issues.

DWR's Rural Water Management Role

With the establishment of the Arizona Department of Water Resources, a state agency was created with the potential to encourage and support water management throughout the state. Initially the agency was mainly occupied with the affairs of the AMAs as they worked out their management plans. This seemed as it should be, since DWR was created by the 1980 Arizona Groundwater Management Act, and the AMAs' job was to develop and apply GMA-mandated water management plans.

Rural, non-AMA regions were later found also to have water management needs, and DWR needed to shift gears to work with these areas to assist them in managing their water resources. Its concentration on AMAs, however,

committed DWR to a particular plan of action in specific geographic areas. Whatever justifications existed for applying the AMA model to identified urban regions did not apply to rural areas of the state. Such areas are too varied, too diverse, to be managed by AMA strategies. What hitherto defined water management in the state needed to be rethought, to better identify a strategy tailored to effectively address the water concerns of rural areas of the state.

This was the situation about three years ago when DWR began to take a more active role in rural, non-AMA water affairs. In its search to identify a management strategy workable in rural areas of the state, DWR considered various efforts before finding a program to its liking. Developed by the Napa Natural Resources Conservation District in California, the program took a stewardship approach. Instead of top-down, an approach increasingly in disfavor in the natural resources field, the stewardship plan relies on local input and focuses on relatively small geographic areas. The program also urges certain perceptual adjustments, with problems and solutions to be viewed in a more positive light as concerns and options.

DWR set to work by encouraging rural, non-AMA regions of the state to form regional watershed groups or organizations, to function as management units outside the AMA mold. Whereas AMAs were established to fulfill GMA mandates, the watershed groups were formed to develop their own management plans suitable for their own watershed areas. Input from local citizens and involved parties or stakeholders is considered critical to ensuring that a suitable strategy emerges, in response to the unique circumstances and conditions of rural areas. Decentralization is a key term.

For its part, DWR provides technical assistance, with agency staff assigned

to work in the field and help organize rural watershed groups. Initially seven watershed groups were involved in the program, including the Prescott and Santa Cruz AMAs. Subsequent changes to program rules excluded the participation of AMAs. The number of watershed groups now participating is 17. (See map on page 6.)

DWR also administers the Rural Watershed Initiative, a funding source for watershed groups to conduct water resource studies. Governor Jane Hull created the RWI in 1999, with the Legislature appropriating \$1.2 million in FY 2000, \$500,000 in FY 2001 and \$500,000 in FY 2002. RWI funding has enabled watershed groups to attract further support from local, county and federal agencies. Organizing a watershed group is a prerequisite for a rural region to receive RWI funds.

The watershed groups are defined by various criteria, with groundwater basins, surface water basins, surface water drainage basins and designated geographic areas used as defining characteristics. They go by various designations including alliance (Northern Gila County Water Plan Alliance), council (Northwestern Arizona Watershed Council), partnership (Upper Little Colorado River Partnership), water study (Coconino Plateau Regional Water Study), management (Little Colorado River Multi-Objective Management), geographic location (Arizona Strip) or river segment (Middle San Pedro).

Most of the state, except for areas along the Colorado River, is included within this 17-unit watershed network. Some of the groups had originally organized to meet certain DEQ requirements and evolved to serve this new function, of developing a water management plan for a watershed. Communities along the Colorado River face unique conditions due to legal intricacies of Colorado River management. (See sidebar on page 9.)

Membership of the groups consists of stakeholders representing various interests in the area, with folks who live or own property in the area making up the grassroots of the organization. Also, representatives of local and county governments have a role in the organization. Stakeholders also include agencies and organizations with an interest in the area but with roots stretching beyond local soils. The latter include state agencies such as the Arizona Department of Environmental Quality and Arizona State Land Department and various federal agencies such as the U.S. Forest Service, the U.S. Bureau of Reclamation, and the U.S. Fish and Wildlife Service. Non-governmental entities such as The Nature Conservancy and the Grand Canyon Trust are involved in some of the groups.

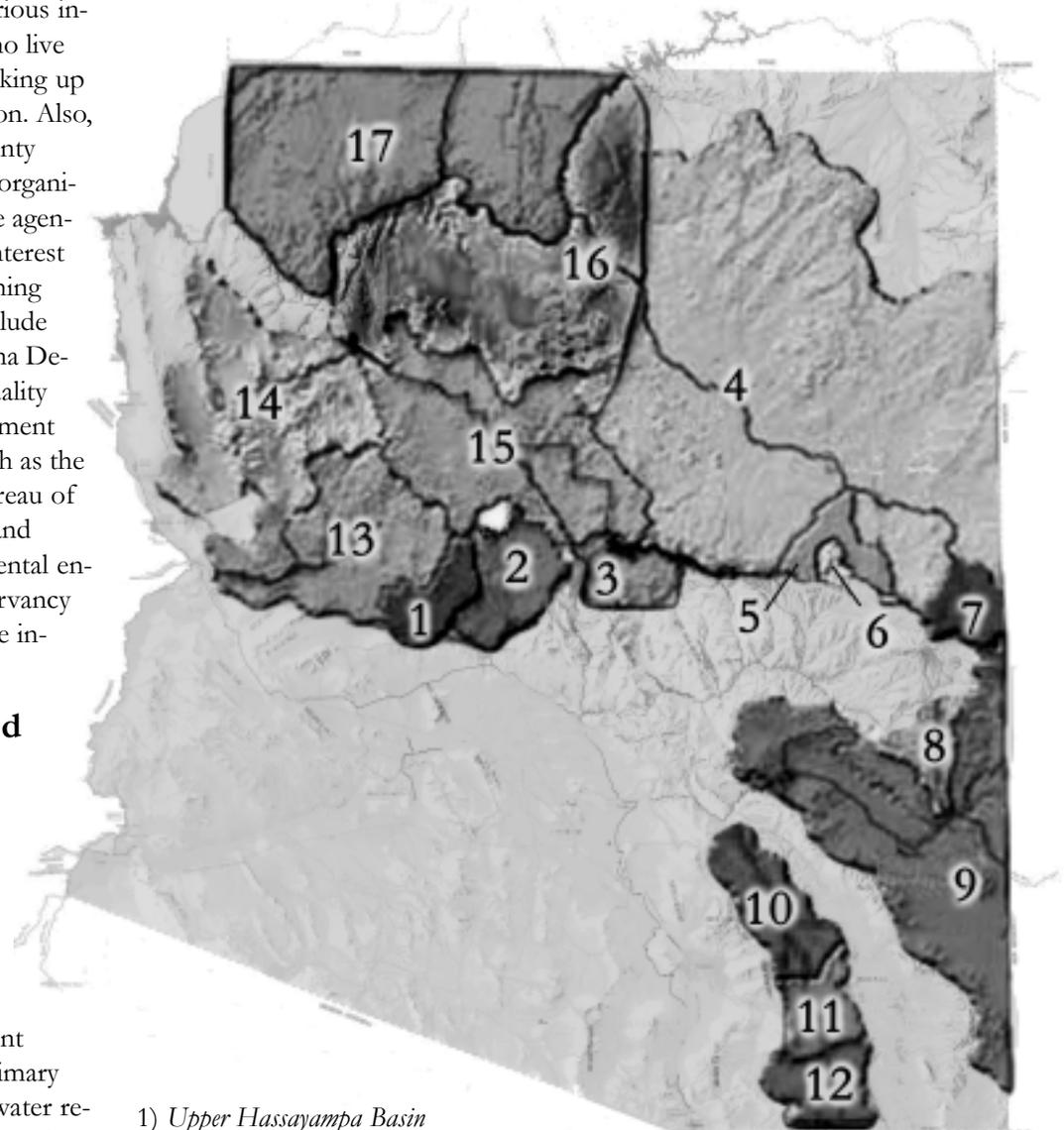
Workings of Watershed Groups

This in brief is the organizational framework in place, or in the process of being put in place, to address the water management needs of rural, non-AMA regions of the state. In working out their management plans, the watershed groups' primary task is to determine if present water resources are sufficient for future needs. If not, plans must then be adopted to deal with the situation, with different strategies applied to accomplish different ends. Theirs is not an easy task.

Is this present game plan as devised and developed to this point capable of fulfilling water management expectations? Do they have access to the necessary resources, including the technical assistance and financial wherewithal, to do the job? Do the watershed groups have the necessary leadership and organizational strengths for the task?

With their unequal strengths and abilities, the watershed groups could be

Arizona Watershed Alliances



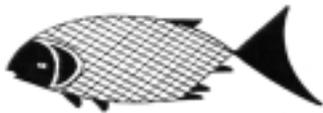
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|--|---|
| 1) <i>Upper Hassayampa Basin</i> | 10) <i>Lower San Pedro</i> |
| 2) <i>Upper Agua Fria</i> | 11) <i>Middle San Pedro</i> |
| 3) <i>Northern Gila County Water Plan Alliance</i> | 12) <i>Upper San Pedro Partnership</i> |
| 4) <i>Little Colorado River Multi-Objective Management</i> | 13) <i>Upper Bill Williams</i> |
| 5) <i>Silver Creek</i> | 14) <i>Northwest Arizona Watershed Council</i> |
| 6) <i>Show Low Creek</i> | 15) <i>Upper Middle Verde River Study</i> |
| 7) <i>Upper Little Colorado River Partnership</i> | 16) <i>Coconin Plateau Regional Water Study</i> |
| 8) <i>Eagle Creek</i> | 17) <i>Arizona Strip</i> |
| 9) <i>Upper Gila</i> | |

variously ranked, from the highly knowledgeable and sophisticated to the essentially ad hoc. The Upper San Pedro Partnership and the Upper and Middle Verde Studies are generally considered among the former. Among the earliest established, these groups, representing large communities, have the advantage of their longer

tenure. They have attracted support and wide participation and have an established track record to show for their efforts.

Other groups are relatively new to the game, some with membership mostly consisting of concerned citizens or cattlemen's association members. The Upper Hassayampa, now in its organizational stages, is the most recent effort. The Nature Conservancy, a leader in organizing the group, is currently attempting to involve the city of Wickenburg. The Upper Bill Williams also is newcomer, formed in response to the possibility of Prescott developing a pipeline from the Bill Williams River to their basin.

Not all the groups therefore are equal to the task. Some have yet to take the first serious step of bringing all stakeholders to the table to map out a course of action, while still others have sufficiently progressed to operate with subcommittees to focus attention on specialized issues. Some of the smaller groups lack a clear understanding of what makes up a water management plan while a few of the more advanced organizations have hired consultants to work with them in developing their plans. Clearly technical assistance and coordination among watershed groups are in order.



With DWR the obvious source of such assistance, the question naturally arises: Is DWR's commitment to encouraging rural water management backed by its ability to provide the assistance needed to accomplish the task? DWR staff devoted to working with rural communities is limited in number, with three members assigned to work in the field. In providing varied expertise over a vast area, DWR staff is cov-

ering a lot of ground, in both expertise and geography. Current DWR staff may be stretched rather thin considering the job that needs to be done.

Funding also may be problematic. DWR administers the Rural Watershed Initiative that provides funds to watershed groups for projects devoted to rural water planning and management. But as with DWR staff commitment, funding is limited. The Legislature appropriated \$1.2 million in FY 2000 and \$500,000 in FY 2001 and FY 2002. Another \$500,000 is hoped for FY 2003. Many question whether this level of funding is adequate. As previously noted, the Governor's Water Management Commission recognized a need for increased RWI funding to help rural watershed groups identify and address their water resource issues.

Increased funding however may only be part of the solution. With limited available technical assistance, some watershed groups may not be able to even accurately identify suitable research priorities. Funds therefore might not always be used effectively to ensure that work is done directly relevant to water management needs. This concern has attracted critics who claim that, although RWI funds support needed and relevant studies, monies may potentially be spent on projects with a limited and narrow focus. They say studies are sometimes done when a watershed group has no overall plan or framework in place to ensure application of results. The shelf-life of such a study may therefore expire before its findings or recommendations can be acted upon.

Meanwhile the different watershed groups themselves have organized to better promote their common interests. Established three years ago, the Arizona Watershed Alliance is an effort to seat rural water interest from different areas of the state at the same table to pursue matters of mutual concern. Quarterly

meetings are scheduled in various areas of the state.

The alliance is recognized as having potential to benefit its members. It's an effort at self-help, with representatives of the various watershed groups identifying common problems while sharing solutions. Alliance plans include participating in identifying studies for RWI funding. DWR is currently working with the alliance to develop a web site, to serve as a tool for sharing information. The site will include information about the organizational makeup of the watershed groups, their completed and in-progress studies and plans for further work. The site also will include the management plans of watershed groups as they are completed. Information about funding possibilities and legislative activities also will be included. The web site will be a joint DWR and alliance project. (The web site, still under construction, is located at water.az.gov/watershed)

More Work Needs to be Done

How then are efforts made thus far at managing rural water in the state to be characterized? Various pieces are in place, with DWR now on the job providing support to watershed groups, both technical and financial assistance. Seventeen watershed groups have organized within the state to various degrees. Yet when what needs to be done is considered, these developments might be viewed as preliminary activities. Due to state budgetary constraints limiting the number of DWR staff dedicated to the rural watershed effort, the level of support DWR has thus far provided falls short of the needs of the rural watershed groups. In this sense, the movement thus far might be characterized as a work in progress, with some accomplishments to date but much more remaining to be done.

One of jobs to be done is to deal with a dilemma inherent within the rural water management movement. In recognition of the general distrust many rural residents feel toward government authority and intervention, watershed groups themselves are responsible for developing their own water resource plans. This is premised on the belief that stakeholders at the local level, rather than distant government bureaucrats, know best what works in their areas. In its role of encouraging all participants to commit to a management plan, however, the watershed groups themselves become an authority figure, possibly to be resented in turn by some disgruntled stakeholders.



Yet at some point, for a management plan to succeed, general agreement among stakeholders is necessary. In the best of circumstances, a shared sense of purpose would prompt such agreement. In the absence of this, some kind of entity might be needed, possibly along the lines of a regional water authority or an irrigation district. Such an entity would be a resource for all member agencies, and it would have the authority to enforce general compliance with a management plan among all stakeholders. The present watershed organizations may serve as effective working groups. Yet between the development of a plan and its actual implementation is a grey area, where some degree of enforcement may be needed.

(AMAs do not confront such a problem in implementing components of their water management plans since they have the authority of the GMA behind them.)

Some rural officials say that at some point the Legislature might consider authorizing some kind of regional

entity to oversee the planning and management of water resources within a watershed. A regional entity could help boost broad based planning efforts such as watershed-wide conservation or effluent use programs. A regional authority would especially be an advantage to watersheds contending with several cities and towns within their boundaries. For such a watershed-wide entity to be effective, it would possibly need some kind of taxing authority to support its operations. This would likely spark lively controversy among rural interests.

According to State Representative O'Halleran legislative action on rural water issues would be premature at this point. He says, "We need to bring the parties together first to identify the issues and a vision for the future of rural Arizona. For the Legislature to act without the necessary information — which it doesn't have right now — would be counterproductive."

Water Resource Options

Communities, whether urban or rural, manage their water resources to ensure a sustainable supply. This calls for careful planning or what in effect could be termed hydrological book-keeping, with available supplies listed on one side of the ledger and future water needs on the other. In a semi-arid state with a growing population like Arizona, the columns won't always balance, with future water needs often expected to outpace current supplies. What is rural Arizona to do?

A popular course of action is to seek additional water supplies. This is premised on the perception that a deficient water supply is like a partially filled vessel, in need of a siphon to transfer water from one source to another to replenish the supply. What additional water resources then might a rural community tap?

Once a controversial topic, water transfers are again attracting attention as a possible source of water supplies, this time among rural water interests. Water transfers first served as a tool for urban water interests to pump water from rural locales for use in urban areas. Water thus transferred from rural to urban areas. Rural residents eventually objected, claiming their water was being exploited, to the disadvantage of their lands and communities. Laws were passed to control the practice.

Some rural officials now regard water transfers more positively, as a possible strategy to acquire additional water supplies for their communities. Transferring water from one rural basin to another could provide the needed water resources for a community to grow and develop. For example, the development of a well-field in the Douglas basin for the Upper San Pedro Watershed has been discussed. A few rural water officials even speak of importing water from out of state, despite formidable legal obstacles.

In attempting to adopt water transfer tactics rural officials, however, may confront legal obstacles originally once put in place to protect their interests from urban encroachment. What once served to protect rural interests might now prove a disadvantage. The irony of the situation is not lost on some urban officials. A SRP manager reminisces that he once advised rural interests to be cautious of what water transfer restrictions they advocated until "they decide what they want to be when they grow up." Interbasin water transfers, however, are not a promising source of water for rural communities since few basins have the surplus supplies to provide another basin.

In what would be a very ambitious water transfer undertaking, plans are being considered to bring Colorado River water to Northern Arizona. With shades of CAP, this venture involves

constructing a pipeline to transport Colorado River water from Lake Powell to various Northern Arizona cities and towns, including Flagstaff, Williams, Kingman, Pine Springs, Ash Fork, Grand Canyon Village and to the Navajo and Hopis. Unallocated Colorado River water would be purchased for the project. This project is a major topic for discussion on the Coconino Group

water management agenda.

Several studies already have been done relating to the project. The U.S. Bureau of Reclamation issued several reports with cost estimates. Arizona State University's Morrison Institute studied the economic impacts the pipeline might be expected to have on the Flagstaff area. By all accounts it would be a very expensive project, still very

much in the future.

With limited available surface water sources, can increased groundwater pumping provide water needed by rural communities? Rural areas located outside AMAs can pump groundwater without having to contend with GMA regulations. This may seem an advantage, yet natural restrictions can be as formidable as legal restrictions. The

Yuma's Water Issues Don't Fit Usual Urban/Rural Categories

If a valuable perspective is gained by viewing state water issues within either an urban or a rural context, what is the Yuma context? Urban, rural or perhaps neither?

In many ways, Yuma is an anomaly, off in the corner of the state both literally and figuratively. It is located in the southwest corner of Arizona, away from the state's central populated region. Yet Yuma is a rapidly growing metropolitan area. Residents of Yuma are quick to point out that most Arizona citizens are unaware that Yuma is the third largest metropolitan area in the state and the third fastest growing metropolitan area in the country.

Unlike Arizona's other large metropolitan areas, however, Yuma is not within an Active Management Area. With most of the state's largest urban areas located within AMAs, these areas are generally viewed as the testing and/or proving grounds for Arizona urban water policy. Yet AMA water policy is of doubtful value to Yuma. A telling difference distinguishes Yuma from other urban centers. Whereas other metropolitan areas of the state struggle to establish sustainable water supplies, Yuma has an ample supply of water.

The Colorado River is central to Yuma water affairs. In 1947, the U.S. Bureau of Reclamation granted the

city a 50,000-acre-foot Colorado River allocation. Yuma also is involved in efforts to convert agricultural Colorado River rights to municipal and industrial uses. In managing Colorado River water supplies, Yuma must contend with the Law of the River. The Law of the River is a composite of state and federal laws and regulations, court decisions and international treaties made over time for the purpose of managing the Colorado River.

With its water affairs setting it apart from other urban areas in the state, does Yuma have much to gain by cooperating with rural water interests? Yuma is in fact affiliated with rural water users, with Yuma Assistant Director of Public Works Roger Gingrich vice-president of the Arizona Rural Water Association. The city's association with ARWA dates to the late 1980s when Maricopa County began buying rural lands for their water rights. Yuma feared it also might be targeted by urban interests as a source of water and became a charter member of ARWA to protect its water supplies.

Yet Yuma and other cities and communities along the Colorado River have not joined the Arizona Department of Water Resources in its effort to involve rural water interests in promoting more efficient water management. The state map on page 6

showing the locations of rural watershed organizations throughout Arizona indicates a noticeable absence of such groups along the Colorado River. Water concerns of Colorado River communities are sufficiently unique that seeking common cause with other rural water interests in the state is not a priority.

For example, groundwater pumpers along the Colorado River encounter different legal conditions than pumpers along rivers within Arizona. Well owners along the Verde, Salt and San Pedro rivers anxiously await a court decision that could significantly affect their pumping. The Arizona courts are laboring to define at what point their wells are actually drawing surface water. At stake are pumpers' water rights.

This issue also arises along the Colorado River, but with a difference. Groundwater pumpers deal with federal not state law. Unlike state law, federal law recognizes the connection between groundwater and surface water. Pumpers within a certain distance of the Colorado River are considered to be pumping river water and therefore must have a river allocation. What is lacking, however, is enforcement. BuRec claims it lacks authority to enforce the law. Meanwhile illegal diverters are pumping groundwater all along the Colorado River.

great depth to groundwater in some rural areas limits access to this resource. This is the situation in much of the Plateau area of the state as well as the town of Williams which must sink a well a kilometer before reaching groundwater.

Even in some areas with more accessible groundwater supplies, pumping may be problematic in the future. A major, controversial and ongoing issue in state water affairs is defining the groundwater-surface water connection. Depending on the outcome of the controversy, some groundwater pumpers may find themselves in an awkward situation. What hitherto had been defined as groundwater might turn out to be surface water and subject to adjudication.

For communities along the Salt and Verde rivers this is a critical issue. The Salt River Project has claims to surface water from the Salt and Verde rivers and their tributaries including their subflow that is legally surface water since the 1931 Southwest Cotton case, long before the vast majority of wells on the watersheds were drilled. Communities along those rivers could encounter legal difficulties if it were demonstrated that their groundwater pumping reduced the rivers' surface flow.

That most of the remaining riparian areas in the state are located in rural regions further raises concern about groundwater pumping in those locations. Pumping could adversely affect streamflow. Sierra Vista is up against this issue, with its pumping monitored to note its effects on the flow of the San Pedro River through the National San Pedro Riparian Area.

In their efforts to gain additional water supplies, some rural officials argue a position that goes very much against the grain of established western water law. They note that rural regions often are the areas of origin for much of the water that ends up serving urban

areas. For example, rural watersheds feed the Verde River, although the SRP, which owns much of the water rights to the river, delivers the water to users in the Phoenix AMA.

Some rural officials say it is not right that this "home grown" water leaves its region of origin for use in other areas and argue that such water should be used to meet the needs of areas closer to its source. Most authorities of western water law would agree that the legal and political implications of rearranging water rights along these lines are awesome.

With new water sources not readily available — or, in fact, unavailable — a sensible strategy would be to make present supplies go further. Rural communities have recourse to the established, tried-and-true methods of conservation and augmentation, strategies that are central to the AMAs' quest for more efficient use of water. Rain water harvesting, runoff detention, effluent use and enhanced recharge are strategies various rural communities are considering for making their water supplies go further.

For example, Fort Huachuca is negotiating with Huachuca City to pump its sewage to the fort's new effluent recharge facilities. This sewage will then be treated for recharge into the aquifer to lessen Fort Huachuca's impact on the water resources of the area. Flagstaff has been encouraging water conservation and relies on reclaimed water to augment its water supplies. The city presently uses about 25 percent of its reclaimed water and looks to increasing this percentage. As part of the effort to increase reclaimed water use, Northern Arizona University in Flagstaff is considering installing more reclaimed water lines on campus.

Ultimately rural areas face the same basic water resource dilemma that confronts urban areas, with more or less the same few promising options to re-

solve it. A prominent goal of managing water in the state, whether in urban or rural areas, is finding ways of coping with growing water demands in the face of limited supplies. Water resource strategies are called for. Whereas AMAs can rely on the force of law to encourage water users to adopt such strategies, watershed groups outside AMAs are presently without this enforcing power.

Rural Water Issues in AMAs and Non-AMAs

Water issues are not always conveniently divided into those that are rural, non-AMA issues and those that are AMA issues. Discussed below are several issues that affect both AMAs and non-AMAs. Examining these issues in the context of their occurrence within and outside AMAs will help define water management variances between the two regions. It might also point to rural water and other water-related issues in need of further regulatory attention.

Assured and Adequate Water Supplies

Legal requirements ensure that a proposed development has sufficient water supplies for its residents. To meet this requirement developers outside AMAs must demonstrate an adequate water supply while within AMAs an assured water supply must be proven. Both are standards of water availability. What are the differences between them?

The adequate water supply statutes were passed as a consumer protection measure in response to developers selling lots without access to water. Those who then purchased the land were left high and very dry. The adequacy statute requires that a physical supply of water be available at the site for 100 years. Neither declining water tables nor water quality is a consideration in the statute.

If a seller is unable to demonstrate an adequate water supply, options are available to enable the development to

be built. At this point, however, some counties would not allow the subdivision, although they face potential lawsuits if they take such action. Other counties permit the project but require the sale of the land to include a disclaimer indicating the lack of an adequate water supply, although subsequent or later buyers need not be informed.

The scenario differs within AMAs where builders must demonstrate an assured water supply. Like an adequate water supply, this requires a builder to demonstrate a 100-year water supply. More is involved, however, when establishing an assured water supply than when demonstrating an adequate water supply.

For example, an assured water supply designation or certificate requires that a major portion of the groundwater pumping must be offset by renewable water supplies, with the cost of meeting that obligation included within the landowner's tax or water bill. The assured water supply designation also requires consistency with the AMA management plan, including establishing conservation measures to meet water use targets.

Assurances that a proposed development has sufficient water supplies for its residents is obviously more vigorously enforced within AMAs than outside AMAs. Non-AMAs have regulations in place but the adequate water supply statute allows for various exceptions. The AMA's assured water supply rules more effectively protect the state's groundwater resources.

Exempt Wells It may at first seem that both AMAs and non-AMAs are on an equal footing when dealing with exempt wells. (Pumping at an exempt well is limited to no more than 35 gallons per minute. A seemingly insignificant amount, the 35-gallon limit, however, could add up to as much as 56 acre-feet of groundwater use per year.) In

both areas exempt wells generally go unregulated, exempt from GMA regulatory provisions within AMAs and free of regulation in the generally laissez faire climate of non-AMA regions.

A difference exists however. AMAs are in the water management business, and exceptions to their regulatory rules stand out for attention. In effect, exempt wells within AMAs raise an equity issue not raised in non-AMAs. Exempt well users do not have to join AMA efforts to achieve management goals and are unaffected by GMA replenishment obligations, conservation requirements, withdrawal fees and requirements to measure and report withdrawals.

Within AMAs, exempt wells are an exception that goes against the grain of water management efforts in the area. In its review of AMA operations, the Governor's Water Management Commission studied the exempt well issue and came up with recommendations to bring them more in line with AMA water-saving goals. Exempt wells in non-AMA regions are not a regulatory anomaly, regulated neither more nor less than other types of wells in the area.



Wildcat Subdivisions In Arizona, since counties regulate subdivisions only if they contain six lots or more, many subdivisions fall through the cracks and go unregulated. For example, a 40-acre parcel might be split into five parcels and sold. Each of the new landowners might then split their parcels into five parcels for sale. None of the individual parcels would need to meet any county subdivision requirements or regulations. The net result is a subdivision of individual properties, most likely obtaining

water from exempt wells with wastewater draining to septic tanks.

These are called wildcat subdivisions or lot split areas, and they occur in unincorporated areas, not within city boundaries where regulations apply. They occur mainly in rural or semi-rural areas of Arizona, both within AMAs and non-AMAs. Their reliance on septic tanks may result in increased nitrates in the drinking water. Also the exempt wells providing water for the subdivision can raise concerns about groundwater supplies in an area, especially during dry years. In AMAs, DWR might have regulatory authority over some underlining issues involving wildcat subdivisions, but such developments outside AMAs generally go unregulated.

Efforts have been made to address the problem, thus far with little or no success. County planners issued a report in 1977 that discussed the proliferation of these areas with their substandard infrastructures, including septic tanks and the potential problems they pose to drinking water wells. In response, legislation was introduced in 1978 but failed.

Since then numerous bills have been introduced, with none successful. Some claim the Legislature lacks the political will to take on the issue, viewing it as a private property rights concern. Perceiving wildcat subdivisions as a private property rights issue complicates efforts to regulate them, whether occurring within or outside AMAs. Private property rights is a highly charged political issue in Arizona.

Conclusion

That Eskimos have many different words for snow serves a purpose since snow is an overwhelming presence in their lives. Snow is a constant condition that is closely observed, its characteristics interpreted to determine life-and-death matters. The ingenuity re-

quired to survive such conditions include a vocabulary capable of finely honed distinctions about snow and its characteristics.

Consider now the desert Southwest. Although we are far removed from Eskimos and their snowy lands, we share with them the linguistic versatility to create words for coping with the extraordinary conditions of our desert environment. We have lots of words for “water” — groundwater, surface water, effluent, paper water, wet water, streamflow, assured water, irrigation water and what concerns us here, rural and urban water.

Distinctions serve an important purpose, especially in law and public policy. Yet in making necessary distinctions — e.g. between urban and rural water policy — the larger issue should not be lost sight of. Beyond rural and urban water affairs is the broader concern of statewide water planning and

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management, to ensure protection of all Arizona’s water resources.

In this light, efforts at managing urban and rural water affairs are not specialized or opposing activities but complementary commitments. In re-

solving urban and rural water problems, different management approaches might be taken, but a common goal remains — to preserve the state’s water resources for ourselves and future generations.