

ISSUE B THE 1980 GROUNDWATER MANAGEMENT ACT AND RURAL ARIZONAIntroduction

On June 12, 1980, the Arizona Legislature passed the Groundwater Management Act (GMA) of 1980, legislation at that time nationally acclaimed as the most comprehensive law to manage and regulate groundwater use in the country. The GMA quantified and regulated rights to withdraw groundwater in hydro-geographic areas of the state where the overdraft, or mining, of groundwater was most severe and/or where competition for rights to groundwater was so intense that litigation was the norm. These hydro-geographic areas are called Active Management Areas (AMAs). Within AMAs, the GMA identifies and places limits on rights to withdraw groundwater, regulates the drilling of new wells, and requires the metering of wells and reporting of water use to the Arizona Department of Water Resources (DWR). The GMA requires DWR to adopt a series of five Management Plans. Each Management Plan specifies conservation requirements for agricultural, municipal and industrial water users. Individual cities have not only adopted conservation requirements to comply with the requirements of the Management Plans, but have funded and implemented additional conservation programs designed to meet the unique water management challenges within their jurisdictions. New subdivisions for which there is not a 100-year Assured Water Supply (AWS) are prohibited within AMAs by the GMA.

With the establishment of AMAs that include most of Arizona's population and subjecting those areas to intensive water management requirements, the GMA effectively divided the state into AMA Arizona (or for lack of a better term "urban" Arizona) in which a precondition to further growth and development is the demonstration of the physical and legal availability of water, and non-AMA Arizona (or again for lack of a better term "rural" Arizona) in which there is no such precondition to growth and development.

Outside of AMAs, the 1980 GMA, required little regulation of groundwater use. With the exception of Irrigation Non-Expansion Areas (areas in which only acres of farmland that were historically irrigated may continue to be irrigated), outside of an AMA any person may withdraw groundwater for a reasonable and beneficial use. Unless there are water quality issues, there are no restrictions on drilling a new well and, no limitations on new uses of groundwater. Although recent legislation (Laws 2005, Chapter 223) requires community water systems to file a water supply plan, a drought plan and a water conservation plan, there are no enforceable penalties for a water system that files a deficient plan. State law still does not provide for any enforceable requirements to meter wells or conserve water.

Although the developer of a proposed subdivision must submit evidence to DWR showing the adequacy of the water supply for the subdivision, the developer may sell lots in the subdivision even if DWR has determined that the water supply was inadequate. The Arizona Legislature has taken initial steps toward improving water management in rural Arizona by allowing county boards of supervisors, and cities and towns to adopt water adequacy provisions for new subdivisions by a unanimous vote of the Board. However, current statutes fall short of providing a consistent, comprehensive approach to water management in rural Arizona. Even if a rural county adopts a water adequacy requirement, subdivisions may still be approved based on non-renewable groundwater supplies. What happens when these supplies are depleted?

The decision to subject only urban Arizona to intensive water management was based in part on the assumptions that rural Arizona did not have any serious water supply problems and would not experience any significant growth pressures. These assumptions have proven invalid, causing many to be concerned that a long-term water supply may not be available to meet the needs of the existing population and to provide for future growth in rural Arizona.

In the past decade, many rural areas have become popular places to establish residences, businesses and communities. In some areas, the growth rates in Arizona's rural counties have been among the highest in the nation. However, the development of water supplies to support current and projected growth has lagged behind. In many rural areas, shallow aquifers are being drained, wells are going dry and water is being hauled. These conditions are not solely related to drought. In many instances, they result from water supplies that are not sufficient to support the area's growth. Many in the state, rural as well as urban interests, are concerned that if a long-term water supply is not developed to meet the needs of the existing population and provide for future growth in rural Arizona, the health and welfare of the entire state will be at risk.

The impacts of the GMA mandatory conservation programs and the assured water supply requirements in the Phoenix AMA have been significant. The success of these programs as water management tools, coupled with the goal of safe-yield, have potential application to the water management efforts in rural Arizona.

Conservation in the Phoenix AMA

The GMA requires DWR to adopt a series of management plans for each AMA that includes a continuing mandatory conservation program for all persons withdrawing groundwater in the AMA. Are these conservation requirements working in the Phoenix AMA? Industrial users must use the latest commercially available conservation technology, consistent with reasonable economic return. While more conservation can be achieved, the trend lines are in the right direction. The agricultural, municipal and industrial sectors are becoming more efficient. A "culture of conservation" has developed.

In the Phoenix AMA, from 1980 to 2000, in excess of \$35 million has been expended by municipal water providers on their water conservation programs. Since 2000, even more funding has been committed to enhancing programs. With the exceptions of the Town of Payson and the City of Flagstaff, water conservation efforts and programs have not been a high priority in rural Arizona. However, due to the drought and rapid development in rural areas, water conservation has become an issue for policy makers. Not only is conservation the most important way to extend existing water supplies, it can be the most cost effective.

Water conservation must be a key element in any water management effort, and central to any water conservation program is universal metering. Universal metering produces the critical data necessary for real planning and provides a basis for an efficient water conservation plan that recognizes the importance of rate structure. Since 1980, municipal water providers in the Phoenix AMA have required metering of all connections and have adopted water rate structures designed to encourage water conservation.

Assured Water Supply Requirements in the Safe-Yield Phoenix AMA

Simply put, an AWS means that sufficient water of adequate quality must be continuously and legally available to satisfy the proposed subdivision's water use for 100 years. The proposed water use must also be consistent with the achievement of the AMA's management goal. The safe-yield management goal, in an operational context, means that it is state water management policy within safe-yield AMAs to, over time, halt municipal groundwater mining that is, withdrawing and using groundwater in excess of the amount the safe-yield AMA's groundwater aquifers are being recharged or replenished. The AWS requirement means that cities and subdivisions cannot grow on mined groundwater. Originally included as a consumer protection measure to prevent the sale of land without water to uninformed homebuyers, the AWS requirements have become one of the GMA's most effective, if not the most effective, water management tools. Indeed, the consequences of the AWS requirements in safe-yield AMAs for municipal water providers have been more far-reaching than initially anticipated. Some of the most significant implications are:

Drought Insurance

Since mined groundwater withdrawn in a safe-yield AMA cannot be used to demonstrate an AWS, growth cannot occur on mined groundwater. Groundwater not depleted today will be there for use tomorrow. The AWS program is a drought insurance program. In essence, the GMA provides a basic drought plan for safe-yield AMAs.

Expanded Planning Horizons

The water resources planning horizon for the vast majority of municipal water providers in AMAs changed almost immediately from a short-term horizon of five to ten years to a

long-term horizon of 50 to 100 years to comply with the AWS requirements. The development of comprehensive municipal water resources plans are now the rule, rather than the exception, in urban Arizona.

Renewable Water Supply Utilization and Investments

The AWS requirements have measurably increased the utilization of renewable water supplies and decreased dependence on groundwater. Municipal water providers recognized that mined groundwater could not provide a water supply for the growing and expanding municipal sector in safe-yield AMAs. Municipal water providers in safe-yield AMAs planned and acted accordingly; they sought alternative, renewable water supplies.

Since 1980 in the Phoenix AMA, municipal water providers' capital expenditures for surface water treatment and delivery systems, renewable supply acquisitions, water reclamation systems, and recharge activities are at least \$1.5 billion. Funding committed to these projects is expected to grow at a more rapid rate as municipal providers cope not only with funding the cost of new infrastructure, but with funding the replacement costs of existing, aging infrastructure. Unfortunately, the use of Arizona's renewable water supplies may have reached sustainability limits. The purchase and transfer of surface water rights and Colorado River contracts may provide new sources of supply.

Increased Water Reuse

Approximately all of the wastewater currently treated by municipal water providers in the Phoenix AMA today is either exchanged for water that can be treated and used for potable water or reused somewhere in the Phoenix AMA. The Assured Water Supply Program has encouraged reuse of wastewater. Rural Arizona is well aware that reclaimed wastewater will be an important component of its current and future water resource portfolio.

Importation of Groundwater: Water Farms

Since new growth cannot occur on groundwater mined in a safe-yield AMA, a number of municipal water providers in the Phoenix AMA purchased "water farms" in rural Arizona and in the Pinal AMA, a non-safe-yield AMA. However, groundwater is generally, now, no longer transportable between groundwater basins. Rural Arizona and many safe-yield AMA residents believe that groundwater should be reserved only for use in the basin in which it is withdrawn. Rural Arizona may have to revisit this issue, sooner rather than later.

Water Resources Related Fees

Complying with the GMA, the AWS requirements and growth-related costs is expensive. Designated providers in the Phoenix AMA have paid the capital and operating costs for the programs and infrastructure required for compliance. No State funds have been expended to assure that State mandates are met. Since the passage of the GMA in 1980, customers of the largest municipal water providers in the Phoenix AMA have faced the imposition of, or large increases in, impact fees for water and wastewater development as well as, in some cases, special fees for water resource acquisitions. Water-related impact and/or acquisition fees levied in non-AMA Arizona are beginning to approach, and in some cases exceed, those levied in the AMAs. The water impact/acquisition fees levied by the Town of Payson and the Cities of Flagstaff and Williams are significant. However, most of non-AMA Arizona lags behind.

Direct Recharge Programs (Underground Storage Facilities)

Municipal water providers in the Phoenix AMA initiated and were the strongest supporters behind the mid-1980 legislative efforts to introduce and implement a direct recharge program using Colorado River or CAP water that would otherwise have remained in the River. In direct recharge, water is physically added to an aquifer, typically through spreading basins or injection wells. As of December 2006, the total amount of direct recharge in the Phoenix AMA that has been permitted by the Department of Water Resources is 718,000 acre-feet per year. Water stored underground can be used to firm up surface water supplies during droughts or to demonstrate an AWS. Rural municipal water providers appear well aware of the centrality of the direct recharge of effluent to their future.

In Lieu Recharge Programs (Groundwater Savings Facilities)

Use of in lieu recharge programs or groundwater savings facilities is another water resource management tool employed in AMAs. In these kinds of recharge projects, a person (a municipal water provider or the Arizona Water Bank) with access to an excess supply of renewable water (typically excess CAP water) makes this water economically available to a person (an irrigation district or farmer) who otherwise would have pumped groundwater. The person with the renewable water then earns credits which can be recovered at a later date. As of December 2006, the total amount of indirect recharge in the Phoenix AMA that has been permitted by the Department of Water Resources is 463,000 acre-feet per year. These credits also can be used to firm up surface water supplies during droughts or to demonstrate an AWS. It is problematic whether the concept of in lieu recharge holds any meaningful promise for most of the rest of Arizona.

One first needs “access” to an “excess” supply of renewable water. Both “access” and “excess” are in short supply in most of rural Arizona.

What the State Legislature Should Do

In this upcoming legislative session, the Legislature must continue to address the lack of rural water planning and management in rural Arizona. Although, the Arizona Legislature took a small step toward improving water management in rural Arizona, the legislation falls short of providing a consistent, comprehensive approach to water management in rural Arizona. While the strict application of the Active Management Area approach is not appropriate for many areas of rural Arizona, there are aspects of the GMA that have practical application in rural areas. Management goals and plans should reflect local conditions. The Arizona State Legislature must provide rural Arizona with the water management tools that can help to ensure its future prosperity. At minimum, the Legislature is urged to recognize that the water management situation in rural Arizona requires the following:

1. Prohibit the Arizona Department of Real Estate from issuing a public report to allow the sale of subdivided land, including dry-lot subdivisions, unless the Arizona Department of Water Resources has determined that there is an adequate water supply available to support the proposed subdivision.

An “adequate water supply” means:

- a. Sufficient groundwater, surface water, or effluent of adequate quality will be legally and continuously available to satisfy the water needs of the proposed, new residential use for at least 100 years; and
 - b. The financial capability has been demonstrated to construct the water facilities necessary to make the supply of water available for the proposed, new residential use, including a delivery system and any storage facilities or treatment works.
2. A private well to serve a new residential use **may not** be drilled without demonstrating an adequate water supply to DWR.
 3. DWR must be given the authority to enforce water conservation requirements for all water users.
 4. All wells must be metered or use a DWR-approved measuring device with the amount of water withdrawn annually reported to DWR.