



## AWWA DIRECTOR'S REPORT

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### *A New Paradigm for Water Resource Planning*

**L**ONG-TERM DROUGHT HAS BECOME THE CRITICAL ISSUE of water resource planning for the western United States. The Colorado River, now in its 9th consecutive year of the worst drought on record, is one of the major sources of water for the seven basin states of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming as well as Mexico. This region is the fastest growing in North America with a population of 19 million and 2.2 million-acres of farmland. Until recently, most water resource planning in the southwest was based on our written record of 100 years including the allocation of the Colorado River to the seven basin states and Mexico. Now we are concerned that this drought, which based on this record is an extreme event, is actually only the very beginning of a longer-term drought. Using tree ring research to reconstruct Colorado River stream flows for the last 1,500 years, we know that 2002 stream flows of the Colorado River are among the worst of the last 1,500 years and alarmingly droughts of 20 to 30 years were not uncommon. This record shows that 10-year droughts are only part of normal dry wet cycle and that the last 100 years was one of the wettest centuries of the last 1,500 years. This is not good news for the west and has water resource planners scrambling to understand its implications to our short-term and long-term water supplies.

What is needed is a new paradigm for water resource planning. Predicting climatic conditions or growth over a fifty to hundred year period is well beyond the current science of climatic and population forecasting. Yet this is the time period over which we must plan our water supply and distribution systems. We have been relying on historical climatic and growth records to help us plan for what might happen in the future but it is now clear that this will no longer be sufficient. The factors affecting climate, institutional water allocation,

and growth are highly uncertain, particularly when viewed over a time span of 50 to 100 years. Predicting a community's future over 50 years in such an environment is really no more than a wild guess. Given the implications of making a mistake in regards to our water supply, this is not acceptable. In response, municipalities are now taking a more strategic approach to its water resource planning efforts in order to plan within a highly uncertain environment of climate change and growth.

For example, Phoenix is currently updating its Water Resource Plan which was initially adopted in 1985. This plan was based on the worst case drought of the last 100 years and a growth rate that is now already 10 years behind. For this update, rather than base our future's analysis on static views of past climate and growth, we are developing a drought sensitivity model to assess how vulnerable we are to a wide variety of future scenarios including various drought conditions and lengths, various growth rates and patterns, various future institutional allocations of water supplies, and other issues such as quality of ground water. Using this analysis we will assess the level of risk that the City faces over the next 50 years and strategically what actions should be taken now and in the future to reduce this risk. This will become the basis of a 50-year water resources capital improvement and management plan. We see this strategic approach to water resource planning as essential in assuring that we can meet the demands of our current and futures' customers over the next 100 years. Now that is long-term planning!



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