Water Conservation and Desalination in Texas

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The population in Texas is projected to double in the next 50 years. That will result in a much greater demand on the water resources of the State. The State has been divided into 16 regions for projecting water supplies and needs, as well as for planning the water resources availability in each region.

According to the 2002 State Water Plan published by the Texas Water Development Board (TWDB), water supplies from existing sources are expected to decrease 19 percent between now and the year 2050. During the same period, municipal demand for water is projected to increase by 67 percent, and manufacturing water demand is likely to increase 47 percent. By 2050, approximately 40 percent of the State's population could face water shortages if a drought occurs, unless the demand is reduced or the supply is increased.

How do we ensure that Texas has adequate supplies of water for the future? There are two approaches we could take - reduce the amount of water we use through conservation, which includes the use of water-saving plumbing fixtures, appliances and equipment, and increase available water supplies through alternative sources such as rainwater harvesting, water recycling and reuse, and through desalination.

Rainwater harvesting (RWH) is a relatively simple technique of collecting roof runoff in cisterns, and using it for either landscape irrigation, indoor purposes or both. Properly designed systems can be quite effective in augmenting municipal water supplies, and to assist in reducing the peak demand. With treatment, rainwater can be used for all domestic needs as well. The Texas Water Development Board has published a technical Guide on Rainwater Harvesting which is well-recognized nationally and internationally. It is available on the TWDB website at www.twdb.state.tx.us

The State has provided sales tax exemptions for purchase of rainwater harvesting equipment, and the cities of Austin and San Antonio are promoting rainwater harvesting systems through incentives and cash rebates. Other states and cities are promoting RWH as well.

The first national rainwater harvesting conference is scheduled to be held in Austin in August 2003. More information on the conference is available from the American Rainwater Catchment systems Association website at www.arcsa-usa.org

Water reuse results in additional supplies. Texas currently ranks among the top three states in the nation in terms of water reuse. Municipal reuse in Texas accounts for 165 million gallons per day (MGD). Treated wastewater is reused for purposes such as golf course irrigation, cooling towers, etc. Industrial reuse contributes another 35 MGD.

Water is reused in various industrial applications such as power plants, refineries, and in food processing.

Desalination of brackish groundwater and surface water results in the availability of water which was previously unusable. In Texas, there are currently about 100 small desalination units inland, which provide approximately 40 MGD of desalinated water. Municipal desalination plants produce 23 MGD and industrial desalination units produce about 17 MGD.

In 2002, Governor Rick Perry charged the Texas Water Development Board to develop recommendations for large-scale seawater desalination plants on the Texas Gulf Coast. The TWDB issued a request for statements of interest from interested agencies/cities and received 10 submissions, including a research-only proposal. After a careful review and analysis of the various proposals, and considering the future water needs in the different regions of the state, the Board recommended three sites for seawater desalination to the Governor and the Legislature.

The recommended sites were: Freeport (proposal submitted by Brazos River Authority and Poseidon Resources), City of Corpus Christi, and Lower Rio Grande Valley (Brownsville). The Board has requested funding for feasibility studies to be conducted prior to actual construction. A membrane research center of excellence has been proposed at the Freeport site, which would work with State agencies and academic institutions on desalination research, development, demonstration and technology transfer. More information on the seawater desalination initiative can be obtained from the TWDB website, www.twdb.state.tx.us