The Changing Dynamics of Oklahoma Water

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Abstract: The authors have been actively involved in the planning, design and construction administration of water improvements for dozens of Oklahoma communities for the past 35+ years. The 1970s and 1980s were “boom” years for Oklahoma water development and a new “boom” cycle began around the year 2000. This presentation identifies what has changed and what long-term impacts these changes will have on Oklahoma. The major presentation topics include the following:

1. **The 1980 Water World** – Things were much simpler then, Federal funding available, surface water & groundwater was abundant, and lower demands.

2. **The Middle Years (1980-2000)** – Not much going on, above average rainfall, and most capital improvements implemented in the 1980s were adequate for 20+ years.

3. **The Water Y2K Cycle** – Starting in 2000 water providers began to update old water master plans and deteriorating water infrastructure. Here is what they found:
   - Surface water supplies like Grand Lake took 30 months to design and construct...now surface water supplies take 15 years +/- and millions of dollars to develop.
   - Groundwater supplies are no longer dependable “drill, pump and chlorinate” options. Drought; contaminants such as nitrate, arsenic, total dissolved solids (TDS), etc.; and general availability are making groundwater supplies harder to find and much more expensive.
   - 20 “wet years” and inexpensive water rates have spoiled the Oklahoma water consumers. Water suppliers and customers are now facing the new costs for supply of Oklahoma water.

4. **Oklahoma’s New Water Realities**- These “new” water supply and treatment options are under presently under active evaluation in Oklahoma:
   - Desalinization of marginal surface waters, Foss Reservoir Master Conservancy District.
   - Finding and treatment of brackish groundwater, Central Oklahoma Water Resources Authority (COWRA).
   - Identifying new source alternatives including groundwater and/or surface water, City of Enid, City of Ada, Sunflower H2O Initiative, Central Oklahoma Master Conservancy District (COMCD)
   - Indirect reuse of wastewater to augment a water supply reservoir, COMCD.
   - Interstate transfer of water, Lugert – Altus Master Conservancy District.
   - Intrastate transfer of water, City of Oklahoma City.

5. **Opportunities and Barriers** – Most of these emerging water supply options are not recognized in existing State Agency regulations and codes. Therefore, the water providers and engineers are working in “uncharted waters.” Here is a candid assessment of the situation:
   - **Public Perceptions and Education**- The public does not want to drink recycled water even though all water is constantly recycled. In addition, the general public does not appreciate the true cost or value of water.
   - **The Next Levels of Technology** – Design and operations of membrane technologies will increase the sophistication of Oklahoma’s engineers and water providers.
   - **Agency Response**-Mostly good at the individual level, but very slow at an institutional level.
   - **Legislative Involvement** – Increasing, which has both good and bad connotations?
   - **Litigation** – What should be a last alternative is now a first alternative.
   - **Resource Optimization** – Politics, emotion, unnecessary regulations, ignorance and jealousies prevent Oklahoma from capturing the economic and social benefits of this renewable resource.