



A special report of the NADO Research Foundation's Center for Regional Development and Environmental Stewardship

Taking on Water: The Role of Regional Development Organizations in Helping Local Partners Manage and Protect Water Resources

In the summer of 2002, the City of Shelby, within the **Isothermal Planning and Development Commission (IPDC)** of North Carolina, knew that their primary source of drinking water, the First Broad River, was dry. With less than a 10-day water supply, Shelby's largest water customers would be forced to shut down and lay off workers if the situation was not resolved. The city needed a short-term supply of water and a long-term plan to avoid this scenario in the future. The short-term solution was three-pronged: a new well interconnecting with the nearby City of Kings Mountain, purchasing water from a private lake and very strict conservation measures. The long-range solution was to find an alternative water source for Shelby to be shared with the sanitary district in times of crisis.

After examining all options, the city, the County of Cleveland and the sanitary district agreed to construct a raw water pipeline from the Broad River to the City of Shelby's water treatment plant. IPDC played an integral part in securing two \$600,000 Community Development Block Grants and a third supplemental grant from the North Carolina Rural Economic Development Center to help fund the \$6 million project. Within six months of acquiring funds, over 12 miles of pipeline had been laid. By the summer of 2003, the entities involved had an ample, long-range back-up water supply.¹

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A Regional Perspective

Regional development organizations (RDOs)* and their local communities across the nation are increasingly faced with strained water resources due to enduring drought conditions similar to those in the Southeast. It is an issue that has off-set the delicate balance of water demand for industrial and agricultural use versus residential needs. Water intensive processes such as crop irrigation and energy production are competing with the needs of communities to provide residents with sufficient water capacity. As the drought continues, fear looms, prompting local water districts to take action and develop new and creative ways to combat water restraints.

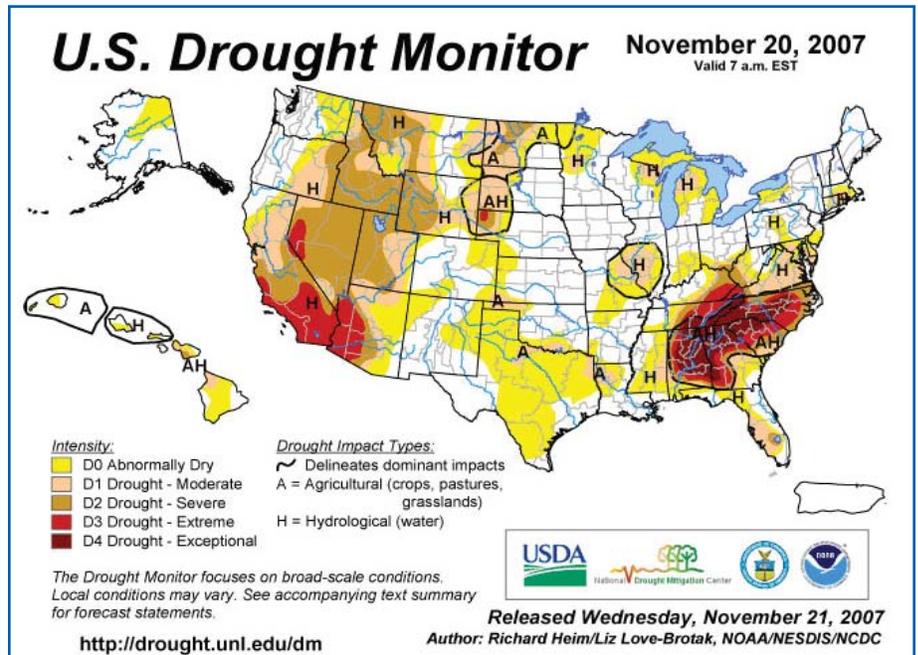
*The national network of 520 regional development organizations are known locally by various names: regional councils of government, regional planning commissions, economic development districts, local development districts and planning and development districts.

Water and wastewater management is a critically important issue in small metropolitan and rural America as populations fluctuate and clean water resources become scarce. Lack of rainfall accentuates the problem, but it is not the only reason for concern. Across the Western states a decade-long drought has scientists theorizing that “drought” may perhaps be the new norm for the region. In 2007, California and Nevada realized the lowest amount of rainfall since 1924.

The U.S. Drought Monitor shows that through the end of November 2007 many Southeastern states remained in exceptional drought conditions despite rainfall. Conditions have resulted in a slow emergence of winter crops, degradation of pasturelands and depletion of vital water reserves. In South Florida, Lake Okeechobee, America’s largest body of fresh water outside the Great Lakes, fell to a record low in June of 2007 – causing 12,000 acres of dry lake bed to catch fire. Saltwater intrusion threatens to contaminate municipal wells for Atlantic coastal towns as fresh groundwater levels drop.²

Current drought conditions are merely an indicator of a broader issue. Are America’s local communities properly equipped for long-term water sustainability? Many remote communities are concerned with connecting residents to public water systems and frequently lack the resources to tackle sustainability options. Also, for many communities that already have public water, antiquated systems compound the problem of meeting future demand. As these communities strive to forge economic growth through private investment and workforce development, they are faced with the reality that their existing water infrastructure may be inadequate to support such growth.

Within the **Upper Savannah Council of Governments** region in South Carolina, growth was the primary driver behind a \$1.1 million Economic Development Administration (EDA) grant to support a million-gallon elevated water tank. A project undertaken by the Laurens County Water and Sewer Commission (LCWSC), construction of the water tank is expected to create approximately 405 permanent jobs and produce \$41 million in private investment. The Upper Savannah COG assisted the LCWSC with application preparation and is slated to administer the project.



Owings Industrial Park - site of water tower

Located near Greenville-Spartanburg, Laurens County intends to capitalize on the growth of their metropolitan neighbors through a strategically placed industrial park. LCWSC Executive Director Jeff Field states, “By having the tank in the industrial park we not only can provide water capacity for the area but we can also satisfy the fire protection need.” The tank will replace the district’s original water tank, a much smaller 150,000-gallon tank built in 1972. According to Fields, an added benefit of the tank’s location will be using it as a billboard to advertise the town and the industrial park.



Taking on Sin City in a Battle for Water

Deep beneath the arid soil of Western Utah lays a water resource that has served local residents for decades. Covering several thousand acres, the Spring and Snake Valley Aquifers are a lifeline to a region surrounded by desert. Member communities of the **Six County Association of Governments (SCAOG)**, as well as the entire Federated Tribe of the Goshutes, draw from these underground aquifers for drinking water, crop irrigation and other daily necessities. Recently, access to this water has become highly coveted by the burgeoning population of Las Vegas, Nevada, and it has set in motion a politically charged game of David and Goliath that is leaving Western Utah thirsty for resolution.

The Southern Nevada Water Authority (SNWA) is proposing a system of 146 water-supply wells that is expected to produce up to 200,000 acre-feet of new water supply for the Las Vegas metropolitan area. Most of this water is expected to come from inside the border of Utah through purchase agreements from the State that would allow Nevada access to currently un-appropriated water rights. What worries residents in Western Utah, however, is that the sale of Utah's water will eventually draw down these long-standing aquifers to a point where they will be of little use to anyone.

If the intent is to supply a growing metropolitan population with water, then what makes this a sustainable solution? Six County AOG Executive Director Russ Cowley states, "Sapping the aquifers of western Utah with 200,000 acre-feet of pipeline creates a band-aid remedy to a long-term issue in Nevada." For a region that receives an average of just four inches of rain a year, Las Vegas would certainly need to devise other means of water supply at some point in the future.

The goals of Six County AOG are many in this case. Of paramount importance is ensuring that due process is followed by the State of Utah to guarantee that 'test wells' are installed. These wells would provide necessary evidence that the SNWA project would not significantly alter groundwater levels of the region. Another goal of Six County AOG is to act as liaison between local, tribal, state and federal authorities throughout the duration of the proposal so the interests of entire community are represented. Having representation is especially critical for members of the Goshute Tribe who were not considered in the original impact studies conducted by the Department of Interior, Bureau of Land Management and the Bureau of Indian Affairs. Six County AOG is also intent on providing relevant information to all stakeholders, including potentially affected residents of Millard and Juab Counties, so local residents remain apprised of the economic benefit versus the negative impacts of their water depletion.

Bridging the Water Gap in West Virginia

In West Virginia, **Region I Planning and Development Council (PDC)** provided professional staff support and technical assistance to Mercer and Summers Counties on a project that would interconnect two area resort towns with regional water facilities. Executive Director David Cole states, "What began in 1999 as a \$25 million project to relieve water supply problems in Pipestem and Leron has now escalated into a \$50 million project involving several communities and over 45,000 residents."

The two towns were drought-stricken in the late 1990s, when a decimated local water supply and insufficient water resources left them searching for alternative solutions. In a partnership headed by Summers County Commission and involving Mercer County Commission, Region I PDC, Oakvale Road Public Service District (PSD), the City of Hinton and the City of Princeton, the project has now grown almost twice its



Challenges for Water Utilities

- Ensure sufficient supply to meet growing demand for water
- Meet higher level water quality standards
- Manage external risks (weather events, security threats, chemical spills)
- Protect in-stream flows for the environment and recreational uses
- Protect endangered species
- Act as environmental steward on water issues
- Abide by local, state and federal water rights laws
- Abide by tribal water rights and treaties
- Replace aging infrastructure
- Install new technologies
- Attract, train and retain qualified personnel
- Implement conservation programs
- Balance competing needs and wants of agricultural, industrial, commercial and municipal customers
- Improve reliability for customers
- Avoid raising rates or increasing taxes
- Provide enhanced security

Source: National Rural Water Association

original size. Reasons for growth of the original project stem from increased interest by other PSDs to be part of a regional system.

Unfortunately, similar West Virginia water projects have not witnessed the same success as Region I PDC in recent years. With problems of out-migration due to coalfield closures and job automation, McDowell County in the depressed Appalachian coal region has seen the population drop from 98,887 in 1950 to 27,329 in 2000.³ A dwindling customer base over a several year period finally took its toll on the incumbent private water company in the 1990s, and the state public service commission was forced to intervene and make \$15 million in necessary repairs and upgrades to keep the system afloat. “By the time the private operator covered his costs, there was no money to cover maintenance and water testing for quality assurance,” says Cole.

Collaboration Across County Lines

A form of partnership that small metropolitan and rural communities often consider when addressing water concerns is cross-boundary partnerships with other

county and municipal water systems. In Virginia, the **Roanoke Valley-Alleghany Regional Commission (RVARC)** has adopted a collective approach to water by creating a regional water supply planning group. Comprising 13 local governments and two service authorities, the planning group produces a functional plan to support sustainable growth and economic development with the following guidelines in mind:

- Ensure that adequate and safe drinking water is available to all citizens within the region
- Encourage, promote and protect all other beneficial uses of the region’s water resources
- Encourage, promote and develop incentives for alternative water sources
- Promote conservation

To date, the planning group has been responsible for several water-related projects, including an initiative to map over 35 possible interconnection points for jurisdictions to share water resources. This was in response to the 2001 - 2003 drought and was intended to mitigate the impact of future drought conditions.

RVARC also combined resources to establish, a Water Supply Planning Committee that would address water needs of the region over a 50-year period. The plans demand analysis matches population and development growth with water supply to identify solutions to potential resource limitations throughout the region. As a direct result of the study, two of the region’s largest jurisdictions merged their water supply operations to form the Western Virginia Water Authority. Originally financed solely with local funds, the Water Supply Planning Committee is now partially financed by the State of Virginia and partially by participating local governments.

RVARC Executive Director Wayne Strickland states, “Our greatest assets have been support from the commission board members to look at regional approaches to resolving water-related problems, and the strong support of local government staff members who see the benefit of a regional approach to water and stormwater planning.”

But Strickland acknowledges that major obstacles exist to a collaborative approach, such as “finding the funds to undertake the projects in a time when public funding is tight, and implementing recommendations offered during the planning process.” This problem is exemplified by the challenge of convincing all local governments involved to agree on a funding mechanism to support the \$80 million in infrastructure improvements originally put forth in the 1990s.

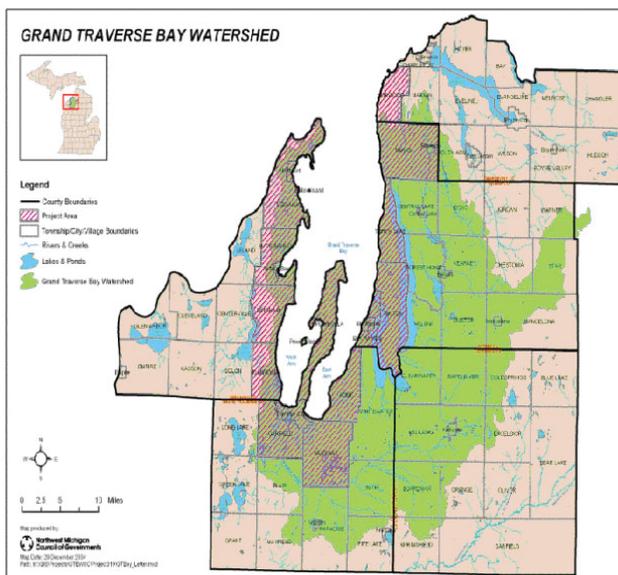
Despite the inherent risks to regional consolidation and interconnection of water systems, there are many advantages. A collaborative approach to water management can improve supply reliability, offer greater economies of scale for infrastructure improvements and widen the technological skill-set of maintenance operators available to a community.

Many jurisdictions, however, find that independence is more critical than the benefits achieved through partnerships, and that structural partnering may impose appreciable costs. This is especially true in rural areas where small community systems tend to be more distant from neighboring systems, making physical interconnection an expensive endeavor.⁴

Alternative Partnership Models

An alternative to combining physical assets through interconnections is to form a “nonstructural” partnership that enables communities to share best practices and lessons learned without losing control over the water systems they manage. This is a particularly important option for communities who feel that consolidation would cause a disproportionate level of shared costs to the benefits achieved. Nonstructural partnerships come in the form of cooperative arrangements between two or more entities to address a common problem through information exchange or joint purchasing agreements.

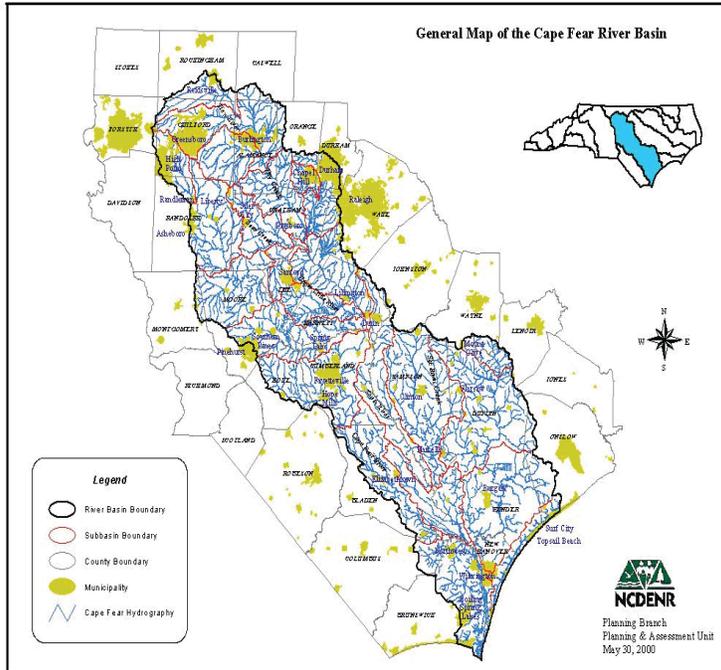
In 2004, the **Lumber River Council of Governments (LRCOG)** of North Carolina sponsored a regional water study of the Southern Coastal Plain (SCP) to determine supply, demand, quality and conservation issues. The results revealed that demand would exceed supply over the coming decade. This study led to the support of the North Carolina Environmental Management Commission for a cooperative agreement between SCP stakeholders to create a regional plan for long-range sustainable water resources. With the assistance of LRCOG, the two stakeholders involved, Central-Southern Coastal Plain Group and the Upper Lumber River Basin, each received grants from the North Carolina Rural Economic Development Center to determine the most feasible future water source options for regional users. These efforts will produce detailed reports on current and future water needs and water sources that will define the steps necessary to ensure water sustainability.



Grand Traverse Bay Watershed

Education in Water Management

Collaboration is an effective wastewater management and water quality tool even for those regions not yet challenged by dwindling water supply. Communities in Northwest Michigan, with ample water supply from Lake Michigan, face water issues that have prompted the **Northwest Michigan Council of Governments (NWMCOG)** to develop Finding Common Ground, a project that explores opportunities for joint municipal planning and collaboration to find solutions for watershed preservation, groundwater protection and wastewater management. The program not only addresses the current needs of the region, but also promotes water resource preservation through outreach, education and encouraging developers to design for sustainability.



Cape Fear River Basin

NWCMCOG Regional Planner Patty O'Donnell states, "Education and knowledge sharing across political boundaries has been a very helpful tool in overcoming regional water issues – it really keeps us from having to reinvent the wheel." This has been especially true with the issues of groundwater and surface water. One community may have a very good system in place to protect a river, lake or groundwater, but a neighboring community may not. Because water travels freely across borders, coordinated planning at a watershed or ground-watershed level is critical for long term success.⁵

Similar to Michigan's Finding Common Ground initiative, the **Triangle J Councils of Governments (TJCOG)** in North Carolina started the Clean Water Education Partnership in 2002 to protect North Carolina's waterways from stormwater contamination. Through education and outreach, the program has grown from 13 to 29 local governments, and they have since partnered with the **Piedmont Triad Council of Governments (PTCOG)** to tackle the water resource issues of the entire Upper Cape Fear River Basin of North Carolina.

Vital to the state's economy and livelihood, the Cape Fear River Basin covers 9,322 square miles and is home to over 27 percent of North Carolina's residents. The basin acts as a watershed habitat for the Cape Fear River and the 32 reservoirs within the basin. Historically, the river and its tributaries acted as 'highways' for regional commerce. Widespread development and livestock population growth, however, has stressed aquatic systems with significant amounts of non-point source pollution (polluted stormwater runoff from land). Fertilizers, pesticides and other chemicals have contaminated the water, causing a movement to protect 'nutrient-sensitive water' used for recreation and drinking. The Piedmont Triad and Triangle J Councils of Governments advocate the use of good science and nutrient modeling to help local governments understand the fiscal and environmental impacts of conservation. Through their partnership, the two councils have been successful in providing staffing, technical guidance and financial management for the Upper Cape Fear River Basin Association, Inc., an association of 22 local governments and industries that discharge into the Upper Cape Fear Basin.

Privatizing Public Water Systems

A recent trend in rural and small metropolitan areas is to contract private companies to manage public water utilities. It is a practice that has its benefits, but is also not without its detractors. Transferring ownership of water systems from the hands of a public utility to a private entity transfers the burden of risk, often to the advantage of the community. But running a public utility as a business can lead to deterioration of service quality, poor maintenance of infrastructure, higher cost of financing and a loss of control over utility assets.⁶

Water system privatization occurs in several variations. Outsourcing, contract operations, "design-build-operate" agreements, asset lease and asset transfer are all forms of privatization that provide local governments with varying degrees of authority over water operations. Depending on the desired outcome, options abound that allow local governments to choose across a privatization spectrum of no-control to total-control. Traditionally, communities that have difficulty managing costs and operating efficiently are better-suited for some form of water system privatization, while areas of historically well-managed water systems tend to remain publicly operated.

As with other infrastructure and utilities, many factors play into water management decision-making, including local politics and available financial resources. Just as there are times when a case can be made for privatizing water systems, the case for maintaining public water operations is equally prevalent.



Glossary of Terms:

Graywater - Any water that has been used in the home, except water from toilets. Dish, shower, sink and laundry water comprise 50 -- 80 percent of residential "waste" water. This may be reused for other purposes, especially landscape irrigation.

Groundwater - Water located beneath the ground surface in soil pore spaces and in the fractures of geologic formations.

Surface Water - Water collecting on the ground or in a stream, river, lake, wetland or ocean. Surface water is naturally replenished by precipitation and naturally lost through discharge to evaporation and sub-surface seepage into the groundwater.

Wastewater - Water that has been used for washing, flushing, or in a manufacturing process, and contains waste products; sewage.

Watershed - The area that drains to a common waterway, such as a stream, lake, estuary, wetland, aquifer or even the ocean.

Resources:

- NADO Research Foundation for Regional Development and Environmental Stewardship - www.nado.org/rf/innocenters/envstew.php
- EPA Clean Water Financing - www.epa.gov/owm/cwfinance/index.htm
- National Rural Water Association - www.nrwa.org
- American Water Works Association - www.awwa.org/index.cfm
- U.S. Geological Survey Water Department - <http://water.usgs.gov>

¹ McNeill, William, Case Study "North Carolina's Regional Councils: Bringing Local Governments Together to Manage Water Resources," prepared by the North Carolina Association of Regional Councils, 2005, pg. 5

² O'Discoll, Patrick, "A Drought for the Ages," USA Today Online Edition, June 7, 2007

³ O'Dell, Gary, Case Study: "Drinking and Wastewater in Appalachia" Appendix E, Table E-8, pg. 45, 2005

⁴ National Rural Water Association, www.nrwa.org, Consolidation of Small Water Systems – White Paper, June 29, 2004, pg. iii

⁵ <http://www.nwm.org/commonground.asp>

⁶ National Rural Water Association, www.nrwa.org, "Privatization of Small Water Systems" – White Paper, December 23, 2003, pg. 2 - 5

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