

NOTES FOR GEORGIA TECH PRESIDENT G. WAYNE CLOUGH
Georgia Water Solutions Forum, December 10, 2007

- Introduce panel:
 - **Dr. Carol Couch**, director of Georgia Environmental Protection Division
 - **Jack Dozier**, Georgia Association of Water Professionals = 5,000 people connected to engineering, managing, operating Ga water resources (and my student at Duke long ago)
 - **David Kubala**, environmental affairs manager of Cherokee County Water and Sewer Authority
 - **Greg Koch**, managing director, Global Water Stewardship, Coca-Cola Company
 - **Jeff Garwood**, president & CEO, GE Water & Process Technologies
- I will set the stage with a few remarks, then engage in a conversation with panelists. Then opportunity for audience to pose questions.
- A few years ago – led National Academy of Engineering initiative that required envisioning future. Voted on 100 major problems world would face in coming decades. Water was No. 1.
 - Water consumption around the world is doubling every 20 years – faster than population growth.
 - World Bank – 80 countries have water shortages.
 - UN projects virtually every nation will face water problems in next 2 decades. By 2025, half to 2/3 of humanity will be living with fresh water shortages.
 - Implication for food – 2/3 of global water use = irrigation; 40 percent of world's food from irrigated land.
- Here in United States:
 - Last 30 years – population grew 52 percent; water usage tripled.
 - News reports of recent weeks – increasing vulnerability of U.S. to water-related extreme weather events.
 - While some parts of U.S. have record rainfall and flooding, about 35 percent of nation presently experiencing drought – lack of rainfall, shrinking snowpack (National Drought Mitigation Center).
 - Southwest – worst drought in 500 years. Colorado River – serves 5 of nation's 10 fastest growing states – is bled dry before it gets to the Pacific. Its once thriving estuary is now parched and dead.
 - At least 36 states will face water shortages within next 5 years (some already do) brought on by combinations of drought, population growth, growing industry demand, depletion of aquifers, waste, and mismanagement.
 - Aging water-sewer infrastructure creates waste, prevents effective management (personal experience – New Orleans, Atlanta)
- Tempting to think Georgia won't have problems
 - 70,150 miles of streams, rivers

- 425,000 acres of lakes
- 4.5 million acres of freshwater wetlands
- 100 miles of coastline, 854 sq miles of estuaries
- Assumption that water is abundant = lack of planning for shortages. Now coming to realize that our usual approach of simply dealing with individual issues and problems piecemeal as they emerge is no longer adequate.
- Piedmont region of state, where drought most severe:
 - Two-thirds of state's population; fastest growing part of the state
 - Geology = no underground aquifers
 - No large rivers flowing into state = small river volume and basins.
- Metro Atlanta
 - Doubled in past 20 years to over 5 million people – still same water resources as before.
 - Region straddles parts of 5 different river basins. Individual water-sewer systems often straddle basins – drawing from one basin and discharging into another.
 - Poster child for need for collaborative planning.
- Present drought
 - In 2nd year with rainfall deficits up to 40-50 percent of normal
 - Weather pattern = cycle of drought every 8-12 years; drought usually lasts 4 years.
 - Means we probably still have 2 years to go in this one.
 - Hear a lot about Lanier, Allatoona, because of size and proximity, but impact severe on ALL Ga lakes – several already depleted.
- Implications
 - Every drought cycle more stressful, bigger impact because of growth, increased demand for water. With this record drought – learning how perilously close to capacity of our resources we are, even with more normal rainfall patterns.
 - Drought has demonstrated areas where we need work:
 - Better, more comprehensive understanding of the interdependence of natural processes and water systems with human water use.
 - Broad approach of managing entire river basins, rather than narrow perspective of particular local entities and problems.
 - Better local, state, and federal cooperation and integration of resource management.
 - More investment in the modernization of infrastructure and management techniques – Atlanta water-sewer project undertaken when city had back to the wall; Clayton County engineered wetlands – a good example of proactive water management.
 - Stronger education and research programs.

- Important not just to get through this drought, but also to make longer-term changes in how we manage water resources. Important to our quality of life, our economy, our natural environment.
- Beginning to move in that direction.
 - Dr. Couch and colleagues at Georgia EPD developed Georgia's first proactive, comprehensive water resources management plan.
 - Metropolitan North Georgia Water Planning District – 16 counties – pursuing comprehensive and integrated plans for watershed protection and management, and management of water supply and wastewater.
- Individual effort also important. For example, Georgia Tech:
 - Big water user – campus community of 25,000 – bigger than Forest Park or Decatur.
 - Have held water usage at same level since 2001 despite increasing square footage by 25%.
 - Low-flow fixtures; stopped leaks, increased efficiency of water, steam systems.
 - Newer buildings = technology to collect rainwater falling on roofs for use in irrigation.
 - Developing Eco-Commons to give us ability to manage gray water and storm run-off for entire campus.
- Georgia Water Resources Institute (GWRI)
 - Created when Congress passed law requiring one in each state to coordinate water resources for their state and to coordinate with each other on regional and national water issues.
 - Based at Georgia Tech – introduce Aris Georgakakos, director.
 - Georgia Tech one of the few universities in the nation that does significant water resource and management research – no federal research funds (which is what determines direction of university research); very few states far enough along in dealing with water problems to provide research money. CA the exception, GT has done research for them.
 - GWRI already did report on 2007 Georgia drought for Gov – analysis helped persuade Army Corps to reduce discharges.
 - Will be involved in helping EPD design a comprehensive monitoring and assessment plan for the state.

PANEL DISCUSSION

Have a number of topics for discussion. Each topic will obviously have one or two panel members whose expertise is more closely related to it. But this will be a conversation, and any panel members are welcome to comment on any topic. However, please keep your comments brief – two minutes or less – so we can tackle more questions, have more discussion.

1. **Economic impact** of regional water supply policy
 - a. Challenges faced by businesses that use large quantities of water.
 - b. Minimizing negative economic impact of drought**Likely responders:** Carol Couch, Greg Koch

2. **10% reduction mandate for state**
 - a. Historical data – state averages 50-60 inches of annual rainfall – normally rich in rainfall.
 - b. Just mandate for this drought, or should individuals & businesses make permanent changes in ways they use water?
 - c. How balance conservation and economic growth?**Likely responders:** Carol Couch, David Kubala

3. **Public/private partnerships**
 - a. Many ideas: new reservoirs, more wastewater reclamation, water-efficient appliances, repairing/replacing leaky infrastructure – even farther out – sea water desalination.
 - b. Many are costly. Need to make wise and timely choices
 - c. What role for private investment? Public-private partnerships to facilitate projects?

4. **Water reuse** (wastewater treatment plants providing non-potable water)
 - a. Potential problems: infrastructure problems, cost, diminished return of water to source
 - b. Public perceptions: What are they and what can be done to educate the public?**Likely responders:** Greg Koch, David Kubala, Jack Dozier

5. **Incentives for conservation and reuse**
 - a. What are effective incentives?
 - b. Are incentives enough, or do we need policies and monitoring?**Likely responders:** Jeff Garwood, Carol Couch, Jack Dozier

6. **Industry role in sustainability**
 - a. 2000-2006: Atlanta grew 20% (850,000 people)
 - b. Metro Chamber: 2 million new people by 2020.
 - c. Role of industry in helping assuring adequate water supplies?
 - d. How can technology help solve problems that political negotiations have failed to resolve?

Likely responders: Jeff Garwood, Greg Koch

ADDITIONAL TOPICS

1. **Watershed protection, comprehensive and holistic water and land use planning and management**
 - a. State history of piecemeal reactions to local problems or federal mandates; no comprehensive planning.
 - b. Over 50% of Georgia streams do not meet their designated water quality standards, largely due to storm run-off, expansion of impervious surfaces, and poor land use planning and management, which require broader-based planning to address.
 - c. EPD's Georgia's Water Resources: A Blueprint for the Future makes compelling case for comprehensive planning and management.
 - d. How can we move toward more comprehensive and holistic planning, and how can your organization contribute?

2. **Southeast Regional Conflicts**
 - a. 15 years of squabbling among Ga, Fla, Ala and still no shared vision to manage shared water resources.
 - b. When courts get involved, have decisions by judges who have no clue about the ramifications to natural hydrosystems of river basins.
 - c. How can we move forward toward amicable win-win resolution and integrated planning?

3. **Research, public education**
 - a. Georgia Tech has water experts who are involved in designing sophisticated, innovative water management systems based on scientific data for river basins around the world – Nile, Amazon – that span nations, not just states. GT collaborates with Emory on water, sanitation projects around world. Yet seldom have chance to get involved in addressing Georgia's water challenges. Expect same is true of state's other research universities.
 - b. How make better use of expertise available at state's research universities?
 - c. Also strong need for public education about conservation, reuse, etc. How can each of your organizations participate?

Open floor for questions from audience.