

WATER CONSERVATION IN GEORGIA: WHO'S DOING WHAT AND WHERE DO WE GO FROM HERE?

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Abstract. The purpose of this paper is to show that, regarding water conservation, there is quite a lot happening in Georgia. Coordination of all of these efforts is needed, which is the main objective of the newly formed Department of Natural Resources (DNR) Water Conservation Program.

This paper discusses not only water conservation planning at a statewide level, but also some of the many educational and measurable results programs taking place at this time by all water use sectors: residential, business and commercial, institutional, industrial and agricultural. Recommendations for future action are also given.

A list of web sites is given for those wishing to conduct more extensive research into this topic.

INTRODUCTION

There is nothing new about water conservation in Georgia. Water conservation plans have been mandated by the state Environmental Protection Division (EPD) since 1982 regarding permits for drinking water and the withdrawal of surface and ground water. There are many examples, as reported in the Savannah Morning News, from the 1940s to the present, of water conservation being a necessary action to protect the Floridan Aquifer from saltwater intrusion.

With several droughts during the past several decades compromising the available water supply, and with a current population of 8.2 million and growing, water conservation's time has come to be preached and practiced year round.

It is important for the residents, workers, industry executives, and farmers of Georgia to take personal responsibility for water conservation. By showing who is doing what, we can move forward with this essential program, and engender personal responsibility for our renewable, yet finite, water resources in Georgia.

STATEWIDE PLANNING

There are five major planning efforts currently underway that include water conservation: the Joint Comprehensive Water Plan Study Committee recommendations (<http://www.cviog.uga.edu/water>); the Metropolitan North Georgia Water Planning District Water Supply and Water Conservation effort (<http://www.northgeorgiawater.org/>); the Water Conservation and Regional Reservoir effort; the State Drought Management Plan (currently in draft form); and the State DNR Water Conservation Action Plan.

A long-term, mandated planning effort is the State requirement that all entities that withdraw greater than 100,000 gallons per day (gpd) submit a water conservation plan to the EPD.

If Georgia is to significantly increase water use efficiency, then State leadership must play a key role. Water conservation must be included at the highest levels of decision-making and included in comprehensive water management planning.

RESIDENTIAL AND MUNICIPAL

Education

There are many examples of residential educational programs in Georgia. One example is the City of Atlanta Water Department. They sponsored free consultations during the summer of 2002 to provide one-on-one instruction in Xeriscaping™, a technique that helps conserve water while providing attractive, low maintenance landscaping for homeowners. Student interns from the University of Georgia visited homes throughout the city and made recommendations on water-efficient irrigation and landscaping practices (Adler, 2002).

Measurable Results

A fine example of a residential, measurable results water conservation program is the City of Savannah's Savannah Water Efficiency Program (SWEP)

(<http://www.ci.savannah.ga.us/cityweb/webdatabase.nsf>). The SWEP program has replaced 1,355 older, less-efficient toilets in private homes and public housing with new ultra low-flow toilets (ULFT) that have saved the city approximately 7.1 million gallons of water per year. The average water savings per household from installing a ULFT is 43 gallons per day assuming a 3.4-gallon savings per flush and an average of 10 flushes a day per household. If every residence in Chatham County were equipped with a ULFT, a savings of 3.4 million gallons of water per day (mgd) would accrue. Residences that have received ULFTs have shown a decrease of 16-24% in their bi-monthly water bills (Denion, pers.comm.).

BUSINESS AND COMMERCIAL

Education and Measurable Results

The example given for business and commercial water conservation is the WellStar Health System Centralized Laundry Operations. WellStar Health System (www.wellstar.org) is a community owned and operated network with a central laundry washing facility in Marietta, Georgia. Wellstar Health Systems Centralized Laundry is the state's largest not for profit health care laundry and one of the largest in the southeast. The laundry handles 14 million pounds of laundry a year, servicing 67 hospitals, clinics, nursing homes and doctors offices throughout Georgia.

Washing and sterilizing hospital linen requires an extremely large amount of water. Wellstar's laundry operation required an average of 36 million gallons of water annually, or an average of 2.5 gallons per pound of laundry. Well Star Laundry Operations installed a water reuse system in 2001 that reduced water consumption by 85%, saving 34 million gallons of water per year. The water reuse system also reduced wastewater discharge by 95% and reduced energy costs to heat water by 30%. This resulted in a total cost savings of \$253,943 with a payback period to WellStar of one year (Adler, pers. comm.).

In this circumstance, the workers at the laundry facility most likely have become better educated on water conservation, but, like industrial and institutional examples, a better job could be done of educating the public by encouraging these business, institutions and industries to release press releases regarding their water conservation successes so that the public understands that businesses and industry are doing their part to conserve water.

INSTITUTIONAL

Education and Measurable Results

The Georgia Dept. of Corrections operates a canning plant in Reidsville, Georgia. Most of the vegetables consumed by Georgia inmates are produced and processed at the Food and Farm Operations in Reidsville, Georgia. Canning processes include several vegetable rinsing steps, peeling, dicing, can filling, blanching, exhausting (to create a vacuum), can washing, and can cooling.

A water efficiency team performed a water audit at the canning plant during pea and potato processing. Overall water usage rates for the canning plant were 220 and 511 gallons per minute for pea and potato processing, respectively. Most of the water is used for washing of the vegetables prior to canning.

By implementing the following four water efficiency measures: a counterblow rinsing system, dry clean up, spray nozzles on hoses, and a closed loop water system for pea cooling, water efficiency was increased by 57%, or 157,000 gallons per day (Adler, pers. comm.).

INDUSTRY

Education and Measurable Results

There are many examples of industries located in Georgia that have increased their water use efficiency – from the pulp and paper industry to the production of vegetable oils. The example given for this paper is Unilever (www.unilever.com), a global company that manufactures foods, and home and personal care products. Their plant in Cartersville, Georgia, focuses on home and personal care products.

Unilever formed, with the help of DNR's Pollution Prevention Assistance Division (P2AD), an internal water conservation task force that helped the company to reuse noncontact cooling water and wash water. Rainwater collection was also performed. The results from this effort consist of a 90% reduction in wastewater effluent volume from 1996 to 2000, which equals a savings of 32 million gallons per year of water conserved. This resulted in a \$77,000 a year savings for water consumption and wastewater treatment and an \$85,000 a year savings for monitoring (Adler, pers. comm.).

It is important to note, again, that there are many examples of industrial water conservation in Georgia. To find out more, visit the following website: www.p2ad.org.

AGRICULTURE

Education

Prior to 1986, water conservation issues were not in the forefront of agricultural concerns in Georgia, particularly one area of the state that relies heavily on agriculture, the Flint River Basin. Persistent drought and scientific studies that suggested harm to the Flint River due to irrigation pushed water issues into the agricultural arena beginning in 1998. In 1999, the Georgia EPD, in cooperation with the University of Georgia, the Joseph W. Jones Ecological Center, the Cooperative Extension Service, and various smaller stakeholder groups began a major outreach program to farmers in the lower Flint River basin. Permit sign-up sessions, public meetings, and water summits held in Albany, Georgia, were used to educate and inform farmers of the nature and severity of water use issues in southwest Georgia. EPD placed a moratorium on the issuance of new permits in the whole basin, which raised the issue of water conservation to a critical level in the agricultural community and in the Georgia Legislature (McDowell, pers. comm.).

Measurable Results

In 2000, the Legislature created the Flint River Drought Protection Act, which provided a financial incentive for farmers to conserve surface water in the Flint River Basin during severe drought years. By means of an auction process, and using funds allocated by the Legislature, EPD was able to pay farmers to not irrigate part or all of their fields in the severe drought years of 2001 and 2002. The auction of 2002 removed 40,352 acres of land from irrigation at a total cost of \$5,163,645. This resulted in the conservation of 130 million gallons of water per day (on average) in the Flint River at Bainbridge. As a fringe benefit of the auction, the process of locating and verifying eligible agricultural permit holders also created a vast improvement in EPD's permit database and thus a far better understanding of actual irrigation water use (McDowell, pers.comm.).

CONCLUSIONS

This paper has discussed a few case studies of who is doing what in Georgia regarding water conservation from several water use sectors: residential and municipal, business and commercial, institutional, industry, and agriculture. While there is a good amount of work taking place in Georgia regarding water

conservation, there is plenty of work to be done to increase our water use efficiency.

We need to have a water vision statement in Georgia that shows the strengths of, supported by the public outcry for, water efficiency. Proper emphasis on water conservation calls for strong leadership at all levels regarding efficient water use. With the many water issues that Georgia has at hand: comprehensive water planning, tri-state water compacts, water allocation and supply development, it is only right for a water vision to have a strong water conservation component as part of a balanced water management plan.

RECOMMENDATIONS

The following recommendations will strengthen water conservation efforts statewide:

- Water conservation success stories from all water use sectors should be released to the press.
- A water report card that announces water use numbers from each water use sector, distributed widely, would be helpful in creating a water conservation ethic throughout the State.
- Continued attention on the importance of water conservation, not only during times of drought, will ensure adequate supplies of water for future generations and show neighboring states that Georgia is serious regarding protection of our water resources.
- Include water conservation in the highest levels of comprehensive water planning decisions.

OTHER RESOURCES

The Association of County Commissioners of Georgia, Georgia Water Management Campaign: www.accg.org

The Atlanta Regional Commission, Atlanta Area Clean Water Campaign: www.atlantaregional.com

The Atlanta Water Department: www.ci.atlanta.ga.us

The City of Savannah Water Department: www.ci.savannah.ga.us

The Cobb County-Marietta Water Authority, WaterSmart Program: www.watersmart.net

The University of Georgia, Drought in Georgia: www.georgiadrought.org

The Georgia Department of Community Affairs,
WaterFirst Program: www.dca.state.ga.us

The Georgia Municipal Association: www.gmanet.com

The Georgia Rural Water Association: www.grwa.org

The Georgia Urban Agriculture Coalition:
www.ggia.org

The Georgia Water & Pollution Control Association:
www.gwpca.org

The Southface Energy Institute: www.southface.org

The University of Georgia Center for Urban
Agriculture: www.griffin.peachnet.edu/urbanag

The Georgia Water Wise Council: www.gwwc.org

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