

Water:

Principles of Water Policy

Water policy in Georgia must provide a reasonable balance of health, public safety and private property rights. Policy must be based on sound science and objective data, with ongoing analysis of effective water management tools. On a statutory and regulatory front, water policy must be focused on outcomes that meet environmental and community needs while allowing flexibility to meet standards using the most efficient and cost-effective approaches. To relieve taxpayers of burdensome costs in meeting local, state and federal regulatory and statutory requirements, a market-based approach should be used incorporating the private sector wherever possible. As far as possible, water allocation must be based on the highest and best use.

Agenda

1. **Ensure competent oversight of watershed-based water management.**
2. **Adopt better pricing of water to encourage conservation.**
3. **Adopt user fees to pay for source-water protection.**
4. **Expand opportunities for public-private partnerships for treating, developing and delivering water.**
5. **Encourage public utilities to privatize services.**
6. **Ensure individual residential metering in multi-family dwellings.**
7. **Adopt cost-based user fees to fund watershed protection.**
8. **Consider a market-based trading system for allocating water use.**
9. **Encourage cost-effective efficiencies such as gray-water use.**

Facts

- Georgia has 14 major river basins: the Altamaha, Chattahoochee, Coosa, Flint, Ochlockonee, Ocmulgee, Oconee, Ogeechee, St. Marys, Satilla, Savannah, Suwannee, Tallapoosa and the Tennessee, and 52 watersheds.
- Georgia has 44,056 miles of perennial streams, 23,906 miles of intermittent streams, and 603 miles of ditches and canals, for a total of 70,150 stream miles. The State has 4.8 million acres of wetlands (9 percent tidally affected), 11,813 lakes, reservoirs and ponds totaling 425,382 acres, 854 square miles of estuaries, and 100 miles of coastline.¹
- Only 34 water supply reservoirs have been permitted and constructed in the past 20 years; eight of these were permitted in the last seven years. The Georgia Environmental Protection Division is currently working with applicants on permits for 11 water supply reservoirs.²
- Twenty-six major reservoirs make up more than 90 percent of the total lake acreage.³
- Georgia's dispute with Alabama and Florida over the allocation of surface water, referred to as the tri-state water wars, is ongoing since 1990. After negotiations over the Alabama-Coosa-Tallapoosa and the Apalachicola-Chattahoochee-Flint Compact basin broke down – once again – in February 2008, the Department of the Interior and the Army Corps of Engineers, responsible for the federal reservoirs linked to the rivers, said it would come up with a plan. Georgia seeks to ensure enough water for the metro Atlanta region. Alabama and Florida want a guaranteed downstream flow, citing needs for economic and environmental protections.

¹ Georgia Environmental Protection Division, Water Quality in Georgia, http://www.gaepd.org/Files_PDF/305b/Y2006_303d/Y2006_Chapters_1-3.pdf

² Georgia Environmental Facilities Authority

³ Georgia Environmental Protection Division, http://www.gaepd.org/Files_PDF/305b/Y2008_303d/Y2008_Summary_of_Comments_and_Responses.pdf

- Georgia’s waters are currently classified for one of the following water use classifications: drinking water, recreation, fishing, coastal fishing, wild river or scenic river. Specific water quality standards are assigned to support each water use classification. Of Georgia’s assessed waters, fully 77 percent of river miles, 86 percent of lakes, ponds and reservoirs and 90 percent of estuaries support or partially support their designated use.⁴
- Excluding agriculture and industry, Georgia’s average daily per capita water consumption is estimated at 166 gallons (2000), compared with 168 gallons in 1995, and compared with a national average of 164.5 gallons.⁵
- The pollution impact on Georgia’s waterways is largely “nonpoint”, such as mud, litter, bacteria, pesticides, fertilizers, metals, oils, detergents and fecal matter associated with storm runoff from areas with high densities of wildlife, pets or livestock. Stormwater runoff from impervious surfaces and rooftops contributes to nonpoint pollution.
- Georgia’s publicly owned wastewater treatments will need \$2.35 billion to control wastewater pollution for up to a 20-year period, according to the Environmental Protection Agency.⁶ The need results from aging infrastructure, population growth and tougher water quality regulations.

Overview

The vast majority of Georgia’s water originates as rain, with the state enjoying an abundant average annual rainfall of 50 inches, compared with an average of 30 inches for the continental United States. Rainfall ranges from more than 60 inches in the northeast Georgia mountains to 45 inches in the southeast. The numerous rivers originating in the northern part of the state, the large aquifers of groundwater to the south and the rainfall provide Georgia with abundant water resources. However, there are legitimate concerns about water quality and supply amid dry spells; a growing population concentrating in the north, where fragile headwaters are located, and ongoing resistance to additional impoundments – reservoirs – in Georgia.

Except for the Chattooga River bordering Georgia in the northeast, none of the state’s rivers originate elsewhere. The ongoing conflict with neighboring states over water allocation stems from Georgia being a “headwaters” state: Its rivers generally begin in the northern part of the state and flow toward the Atlantic Ocean or the Gulf of Mexico. The rivers in the northernmost part of the state flow westward into Alabama or northward into North Carolina and Tennessee. The rivers that flow into Alabama combine to form the headwaters of the Mobile River, and the rivers that flow north combine to form the Tennessee River, which eventually joins with the Mississippi River before entering the Gulf.

Georgia, the fourth fastest-growing state in the nation, has more than 9 million residents and is projected to have a population of more than 12 million by 2030. Most of the growth is expected to take place in the water-challenged northern part of the state, around metro Atlanta. Despite the population growth in the region, the average annual flow from the Chattahoochee River – Atlanta’s main source of water – has not changed appreciably downstream in Columbus. The challenge comes, however, in dry years: The region’s reservoirs are drawn down, but the rivers shared with neighboring states are required to provide a flow at a level depicted as supporting federally protected species. Drinking water supplies for the metro Atlanta region are threatened, as is the waterways’ ability to dilute their total maximum daily load of pollutants (TMDLs) and support aquatic ecosystems that naturally assimilate waste.

⁴ Georgia Environmental Protection Division, Water Quality in Georgia, http://www.gaepd.org/Files_PDF/305b/Y2006_303d/Y2006_Chapters_1-3.pdf

⁵ U.S. Geological Survey <http://water.usgs.gov/pubs/circ/2004/circ1268/pdf/circular1268.pdf>

⁶ <http://www.epa.gov/cwns/2004rtc/cwns2004rtc.pdf> U.S. Environmental Protection Agency, Clean Watersheds Needs Survey 2004 Report to Congress, January 2008

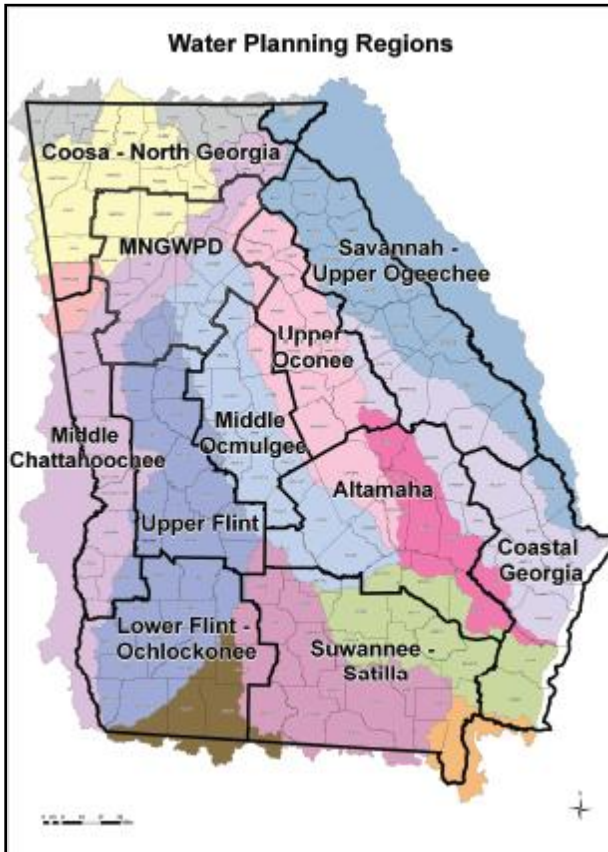


Figure 1: Georgia Water Planning Regions (Source: Georgia Water Council)

The total number of dams in the state may be as high as 68,000, according to the Georgia Environmental Facilities Authority. But the vast majority of these are small projects developed for amenity, recreation and agriculture. Only 34 water supply reservoirs have been permitted and constructed in the past 20 years; eight of these were permitted in the last seven. EPD is currently working with applicants on permits for 11 water supply reservoirs. The time required to complete a reservoir after the initial consultation can vary widely, but the process generally takes five to eight years or more. For example, Big Haynes Creek in Rockdale County took 14 years, while Bear Creek in Jackson County took eight years.

Amid the tri-state water wars and a drought classification for some areas of the state, the Georgia Comprehensive State-wide Water Management Plan became law on February 6, 2008.⁷ The purpose of the plan is to guide Georgia in managing water resources in a sustainable manner to support the state's economy, to protect

public health and natural systems, and to enhance the quality of life for all citizens. The Plan promises a flexible framework for

water management with statewide policies guiding regional plans.

The next step is water resource assessments and establishing the regional planning process. About \$11 million was allocated for the first year, funding 20 new and some existing positions within the Environmental Protection Division (EPD), resource assessments, forecasting activities and the preparation of guidance documents through contracts with academic institutions and private companies.

The regional planning councils will be finalized by nomination by January 2009 and will work with EPD and a consultant after water data and information are collected and prepared. Regional Water Development and Conservation Plans will be developed for each region.

Water quality linked to broader environmental and economic issues

Impervious surface increased 81 percent between 1991 and 2005 in Georgia, but remains just 824,250 acres of the state's 38,068,964.63 acres of total surface, or less than 1 percent, according to the Natural Resources Spatial Analysis Laboratory.⁸

⁷ http://www.georgiawatercouncil.org/Files_PDF/water_plan_20080109.pdf

⁸ Georgia Land Use Trends (GLUT), 2005, http://narsal.ecology.uga.edu/glut/state_lc.html

Georgia is under federal court order to identify unhealthy waters and reduce the amount of pollution fouling its rivers. The pollution impact on Georgia streams has shifted over the last two decades from untreated sewage to stormwater. While untreated sewage remains a problem, especially in the city of Atlanta, most sewage and industrial effluent is now treated before being discharged. However, stormwater runoff from impervious roads and rooftops is causing increasing amounts of “nonpoint” pollution to be washed into rivers and lakes. Impervious cover in a watershed is a good indicator of the overall health of streams that feed rivers and lakes. When one acre of forest is replaced with impervious surface, such as a parking lot, stormwater runoff from a typical thunderstorm increases from virtually none to almost 100 percent.

There is also a direct link among various types of environmental degradation, ecosystem health and higher economic costs. A progressive loss of tree cover and increases in impervious, paved areas in metro Atlanta have caused summer temperature increases of up to 10 degrees compared to the surrounding countryside. Higher temperatures lead to increased use of electricity for air conditioning. These increased temperatures exacerbate the area’s air quality problems. Air quality contributes to water quality problems because most of the atmospheric pollutants falling on impervious surfaces are washed into streams that feed water-supply rivers. The loss of tree cover, higher temperatures and pollution load lead, in turn, to unhealthy streams with a reduced capacity to assimilate wastes.

Need for integrating environmental and economic management

Traditionally, public entities have managed environmental issues one at a time with little regard to their overall cost. But ecosystems are too complex to respond predictably to such a piecemeal management approach. Moreover, this approach reinforces, or even encourages, land-use practices that can substantially disrupt natural cycles that we depend upon for clean air, clean water and temperature moderation. Until recently, these services of nature have met human needs and largely been taken for granted. With water becoming a limiting resource in Georgia’s economic future, the complex hydrologic cycle providing supplies of clean water can no longer be taken for granted.

Although markets are often blamed for the problem and slighted as a solution, the marketplace has proven highly effective at distributing economic goods and services and preventing scarcity. Ecological economists argue persuasively that market approaches can better address complex interrelated issues affecting the environment, resulting in less waste and a more efficient and fairer allocation of scarce resources.

Compared to command-and-control regulations, a market-based approach better provides for ecosystem needs with increased flexibility based on local conditions. Markets can be established to price natural resources and charge for harmful, polluting activities on a much broader scale. Rather than addressing environmental problems one at a time through command-and-control regulations, the state should implement a market-based approach integrating economic and ecosystem needs.

Agenda

Ensure competent watershed-based water management.

Under the Georgia Comprehensive Statewide Water Management Plan approved by the 2008 legislative session, appointments to each of the 25-member regional water planning councils will be made by the governor, lieutenant governor and House speaker. Selection of competent members is critical: The state Environmental Protection Division, in consultation with the water planning councils, will ensure coordination of planning across the boundaries of adjoining planning regions.

A balance of water planning professionals, scientists and elected officials must be maintained to ensure that sound science, economics and public policy prevail, not politics or environmental zealotry, as these critical regional water plans and regional cooperation are forged. For the state to continue to thrive economically and environmentally, the controversial issues of interbasin transfers, water impoundments (reservoirs) and water allocation need to be tackled with the assessed data as the basis for decisions. Additionally, as the question of what to do in regions where the resource is fully allocated is tackled, council members must be willing to consider market-based approaches.

Adopt better pricing of water to encourage conservation.

Many local governments in Georgia still use a declining block water rate: The more water a consumer uses, the lower the price per unit is charged – exactly opposite of how a market would price a scarce resource. In addition, prices should be dynamic rather than static. For example, water prices should rise during droughts and fall when water is more plentiful. A promising development is that as of 2007, 98 percent of the 100 jurisdictions covered in the Metropolitan North Georgia Water Planning District reported implementing conservation pricing.

Alternatives to pricing involve voluntary conservation and mandatory conservation through watering restrictions. Voluntary efforts are laudable, but unlikely to result in significant savings. Watering restrictions are difficult to enforce and can cause ill will, suspicion among neighbors and costly enforcement measures. Pricing allows individuals to self-regulate their water use, rewards voluntary conservation, can result in significant water savings and provides local utilities with the much-needed revenue for infrastructure maintenance and upgrades.

In addition to conservation, water quality can be influenced by proper pricing. Georgia and Mississippi are the only states in the Southeast where industries and publicly owned treatment plants are not charged a fee to discharge wastewater. Georgia's neighboring states charges a wastewater permit fee (usually reflecting both the volume and toxicity of the waste discharged.) Not only do these fees provide an incentive to reduce the amount of waste discharged, they also create significant revenues for monitoring and protecting water quality.

Adopt user fees to pay for source-water protection.

User fees can pay to protect watersheds that are the source of drinking water, even when the source waters are outside a local political jurisdiction. For example, metro Atlanta relies on water from the Chattahoochee and Etowah Rivers that originates in the mountains of North Georgia. These watersheds are now being rapidly developed, affecting water quality downstream. One way to gain the cooperation of North Georgia counties in protecting water supplies for metro Atlanta would be to pay them through the mechanism of a user fee. Following this approach, members of the Metropolitan North Georgia Water Planning District could agree on a small percentage of their customer's water bills to be contractually paid to North Georgia counties for the protection of source waters. Collected fees could pay for improved onsite stormwater controls, or the purchase of conservation lands.

A city that has implemented a simple market-based approach for protecting its water supply is Quito, the capital of Ecuador. Deforestation and intrusive development threaten the watersheds supplying Quito. To fund protection of its water supply, the municipal water utility pays a percentage (2 percent by 2012) of its customer's water bills into a special trust fund to be used exclusively for watershed protection. Quito's water-user fee was developed by the Nature

Conservancy, and 30 cities and municipalities in Colombia, Ecuador and Venezuela are in the process of adapting or replicating the approach.⁹

Expand opportunities for public-private partnerships for developing, delivering and treating water.

In response to water supply challenges since 2007 in some areas of Georgia, the amended state budget for FY2008 (HB 989) authorized the Georgia Environmental Facilities Authority (GEFA) to provide \$40 million in grant funding to local governments and water and sewer authorities to develop reservoir and water supply projects, which the authority will dole out under the Georgia Water Supply Competitive Grant Program. The FY 2009 budget includes \$30 million for GEFA to make water supply loans to local communities. But in the interim, state budget woes cut the money available to local governments for projects. And, according to the U.S. Environmental Protection Agency, Georgia will need \$2.35 billion to control wastewater pollution for up to a 20-year-period. The EPA cites aging infrastructure, population growth and tougher water quality standards.

To meet the shortfall, local governments can turn to public-private partnerships: private sector involvement in what traditionally have been public sector activities. Using private dollars for capital facilities can reduce the burden on local government budgets and therefore on the taxpayer. The EPA suggests, as one example, example how “a developer could build a stormwater facility large enough to also treat the runoff from nearby public roads.”

Encourage public utilities to privatize services.

Private sector wastewater treatment programs have been 15-20 percent more cost-efficient than public programs, according to the EPA, which reports that public-private partnerships often result in higher-quality service and shorter implementation time.

Unfortunately, local governments are often concerned about loss of control and revenue; government employees are concerned about job losses and citizens often expect such services to be a government service. Given the cost of service maintenance, repairs and improvement, and the limited public funding available, statutory and regulatory reforms that can encourage and facilitate private-sector involvement should be enacted. Government, meanwhile, has a responsibility to ensure that the public interest is protected during and after implementation of such a program.

Ensure individual residential metering in multi-family dwellings.

Georgia allows apartment complexes to divvy up – “allocate” – water and sewer service charges to residents based on reported occupancy, not individually metered amounts, which does not accurately reflect usage. The result is that a resident who may be absent for three months continues to be charged, while a resident who misstates his home’s occupancy is not charged equitably. Separate water meters and individual residence charges ensure that customers are being charged for the water they use, become more aware of how much they use and are encouraged to be more efficient users.

Adopt cost-based user fees to fund watershed protection

One way to balance the need for a dynamic economy with the need to protect essential ecosystem “services” is to adopt user fees that reflect the costs of addressing stormwater runoff

⁹ http://www.riversymposium.com/2007_Presentations/C4_Ramos.pdf

and pollution impacts. Urban development is often concentrated around rivers, lakes, wetlands and coastal estuaries – areas that contribute most to the functioning of the hydrologic cycle. Fees that reflect such costs could discourage development of high-impact areas and could encourage innovative development patterns that make better use of natural hydrological cycles.

User fees can play a vital role in providing long-term, dedicated funding for protecting watersheds as well as equitably assigning the costs so those creating the greatest impact pay the highest fee. In addition, user fees can lessen dependence on property taxes, which weaken the linkage between costs and benefits. However, it is critical that the user fees are not perceived as a punitive tax with no objective basis or underlying science. Choosing an objective and scientifically based criteria, such as the amount of impervious surface area covering a given piece of property, will ensure a sense of fairness. The costs of the projects funded by the user fees should be clearly understood by the community and dedicated to the service so that the fee is perceived as targeted rather than an arbitrary “tax.”

In place of regulations that force developers to increase density, market approaches such as user fees can equitably assign the cost of impacts to those causing the greatest harm. Since much of the negative impact of urbanization is a result of replacing natural vegetation with impervious surfaces, user fees based on the amount of impervious surface area could also serve as a mechanism for long-term, dedicated funding as well as motivating a more environmentally responsible approach to development. This kind of objective, science-based criteria is crucial to the acceptance of a user fee approach.

User fees create a positive feedback loop between costs and benefits. Compared to tax-based regulatory management, user-fee funding is more likely to be economically efficient and respond to the dynamic nature of both real estate markets and ecosystems. Moreover, user-fee-funded utilities are less prone to political manipulation and better able to raise funds needed for long-term planning and maintenance.

Provide opportunities for industry and farmers to trade for water quality improvements similar to the current air trading program

Twenty-three water quality trading programs have actually carried out at least one trade, according to a June 2007 survey by the U.S. Environmental Protection Agency, whose regulations for TMDLs (total maximum daily loads) also encourage trading. Within a watershed, one pollutant source meets regulatory requirements by paying another source that reduces pollutants using lower pollution control costs. The flexibility produces greater efficiency and lower costs – and the desired water quality standard.

This approach is particularly suited to the unique needs of agriculture. In agriculture markets it is very difficult to pass on costs, and costly environmental regulations can often be a competitive burden that results in direct costs to farmers. With pollution trading, farmers are able to receive payment to offset the financial losses due to actions that result in improved environmental quality.

Under a water quality trading scenario, point sources pay nonpoint sources (farmers, tree farms, developers, etc.) for making reductions in phosphorous, nitrogen and sediment runoff in order to meet current water quality standards and TMDL requirements. For example, a point source could pay (in a contractual relationship) a farmer for reducing phosphorous runoff by a certain amount. If a farmer fails to live up to his contract, the point source parties and the state can sue to enforce. Thus, property rights are recognized and all parties have clear expectations of conduct and punishment, rather than behavioral change interpretations which can vary from one site to the next. Trading makes for a flexible and place-specific program targeted and tailored to the water segment, pollutant, and specific geographic and commodity needs. Trading is superior to a uniform one-size-fits-all program, as long as all sections of the river are required to meet the

standard. Cobb County and the city of Newnan, Georgia, (Upper and Middle Chattahoochee watersheds) are currently involved in phosphorus trading programs, according to the EPA¹⁰.

Consider a market-based trading system for allocating water use

As regional plans are developed for Georgia under the Statewide Comprehensive Water Management Plan, some difficult water allocation decisions will have to be made. The plan's required science-based assessment of resources provides an ideal opportunity to reform water use allocation. The population continues to increase and commercial, industrial and agricultural output continue to grow just as a large portion of our surface water supply is under threat of reallocation to neighboring states and saltwater intrusion threatens some groundwater supplies. As opposed to allowing government to determine the water winners and losers, a market approach would be more efficient and equitable.

The over-allocation of groundwater in South Georgia demonstrates what happens when too many people pursue an open access resource without defined property rights. Top-down government controls, such as moratoriums, do not address the real problem of the lack of ownership or property rights. Without clearly defined property rights, everyone removes more water than can be recharged since the only penalty is not getting your water out of the aquifer before it is exhausted (also referred to as a "race to the pump").

Terry Anderson and Pamela Snyder with the Political Economy Research Center in Bozeman, Montana, propose a system that recognizes property rights in the resource as a means of conserving groundwater. In Georgia's command and control approach, users can only pump so much water and are not allowed to transfer their right to pump, except in the case of farmers, whose agricultural withdrawal permit may be transferred with the land in a sale, but only for agricultural purposes. This approach puts a stranglehold on development without encouraging efficient use.

Anderson and Snyder offer a better management technique that recognizes "highest and best use." Under their plan, the total amount of water pumped from the aquifer is limited based upon a sound scientific analysis that ensures adequate recharge. Pumping rights are then allocated based upon a market trading system, resulting in a solution that allows for economic growth, as long as it does not overdraw the aquifer. (*For more information on this idea, see the Georgia Public Policy Foundation's primer, "Water permit transfers: Bridging the Misinformation Gap."*)¹¹

A similar procedure can be used to allocate surface water. Scientific analysis would determine the amount of surface water necessary to ensure sufficient instream flows to protect fish and wildlife habitat. Usage rights would then be allocated through the trading system. For example, the market would handle the difficult allocation decisions regarding competing demands such as domestic water use for growing cities, irrigation use for crops, navigation use for barge traffic and industrial use for new industry. In addition, the market provides an automatic response to the inevitable droughts. When prices for water rise, users will consume less, just as they do for other goods.

Adopting a watershed approach to a water market, and requiring that there is no downstream impact when trading occurs, should allay fears that a growing metro Atlanta will "suck up all the water" in Georgia. Water withdrawal permit holders who wish to enter the market will continue to operate under oversight of the Georgia Environmental Protection Division. And they would be transferring – selling – the right to use their allocation, not selling the water itself.

¹⁰ <http://www.epa.gov/owow/watershed/trading/tradingprograminfo.xls#a14>

¹¹ http://www.gppf.org/pub/Water/waterpermittransfers_2.pdf

Adopting a market approach does not mean that there is an absence of regulation. Policy researcher Dr. Ronald G. Cummings identified many of these issues (environmental impacts, speculation, monitoring and enforcement, transaction costs, impacts to rural economies, exports across state lines, etc.) and proposed policy options to meet these concerns. *For more information, see "Water Rights Transfers: Options for Institutional Reform" (2001), Ronald G. Cummings, Nancy A. Norton and Virgil J. Norton, www.gsu.edu/~wwwenv/programs/water/2001_001.pdf.*

Encourage cost-effective efficiencies such as gray-water use and rainwater harvesting.

Gray water is generally water that is of lesser quality than potable (drinking) water but higher quality than black water, which is what is flushed from toilets. Typically from residential water uses, it is usually bathwater and washing machine water that can be reused for landscaping, toilet flushing or golf courses. About 60 percent of household water can be recycled as gray water.

Not only does collecting and reusing gray water and rainwater reduce the need and cost of treating higher quality drinking water, it also reduces the return to regional sewage treatment facilities, and consequently their capital, operational and expansion expenditures, because of the diminished sewer flows. Sophistication of such gray water systems can range from a garbage container to systems with settling tanks and sand filters. There may be some concern that the use becomes consumptive use, that is, it is not returned to the source to replenish the supply. The conservation benefits outweigh this concern, however, when considering that less water is actually removed from the source in this approach.

Further Reading

"Frequently Asked Questions about Water/Wastewater Privatization," Geoffrey F. Segal and Adrian T. Moore, Reason Foundation, September 2003, <http://www.reason.org/pb26.pdf>

"Water Permit Transfers: Bridging the Misinformation Gap," Georgia Public Policy Foundation, 2003, http://www.gppf.org/pub/Water/waterpermittransfers_2.pdf

"Georgia Comprehensive State-wide Water Management Plan," Georgia Water Council, http://www.georgiawatercouncil.org/Files_PDF/water_plan_20080109.pdf