THE FLORIDA LEGISLATURE Report No. 96-82

Office of
Program Policy Analysis
And Government Accountability

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April 1997

Review of the Economic Components of State Water Policy

Abstract

Although the basic concepts of Florida's water policies do not need to be changed, the policies do not provide sufficient economic incentives for developing alternative supplies and resolving serious conflicts. Improvements to existing water supply development and funding mechanisms are needed in order to achieve affordable and sustainable water supplies and protect the environment.

Purpose

We conducted our review at the direction of the Joint Legislative Auditing Committee in response to a request from the House Select Committee on Water Policy. Our review assessed whether state water policies contain sufficient economic incentives to assure the availability of an adequate supply of water for all reasonable and beneficial uses. Our specific objectives were to determine whether state water policies are effective when water supplies are scarce and whether state water policies provide for use of economic principles in water allocations. We also assessed policy options available for the Legislature's consideration for meeting increasing water demands.

Background

Water supply policies. The protection and continued maintenance of the integrity of water resources, hydrologic systems, and the ecologies associated with them are fundamental principles and goals of Florida's water policy. The Water Resources Act of 1972 recognizes that the waters of the state are among its basic resources and that these waters had not previously been conserved or controlled so as to realize their full beneficial value. The Legislature's intent was to conserve, develop, and use surface and ground water to the benefit of the citizens of Florida, while preserving the state's wildlife and natural resources. The Act established an administratively-based water law system and declared water to be a public resource to be managed in the public interest. Florida statutes and other laws provide authority and direction to preserve and protect the waters of the state and to plan, manage, and provide for their proper use consistent with the public interest.

Programmatic authority. Programmatic authority for water resource management is shared by the Department of Environmental Protection (DEP) and the five water management districts (WMDs). DEP is responsible for the state's water resources management activities and has general supervisory authority over the WMDs.

The 1972 Water Resources Act established the statewide network of five WMDs that are responsible

for the overall management of water resources in the state. One of the WMDs' key responsibilities is to regulate water through consumptive use permits. WMD rules establish the threshold for permitting. The threshold is generally withdrawals exceeding 100,000 gallons per day. The consumptive use permitting program is intended to ensure that water use is consistent with district objectives and is not harmful to the water resources of the area. Section 373.223, F.S., requires consumptive use permit applicants to demonstrate that the proposed use is a reasonable-beneficial use, will not adversely impact existing legal users, and is consistent with the public interest. Most permits may be issued for a period not to exceed 20 years; permits for a municipality, a governmental body, or other public works, may be authorized for up to 50 years. Upon expiration, permits must be renewed and must meet the same criteria as an initial permit.

WMDs are also required to carry out other activities that assist them in their planning and regulatory decisions. These activities include setting minimum flows and levels for surface and ground water sources and providing needed information on water supply availability to assist local governments in preparing their comprehensive plans. [1]

Findings

State water policies have been effective at allocating water when supplies are abundant; however, the policies are not as effective when supplies are scarce and conflicts occur. Making water allocations decisions will become increasingly difficult in the future as the state faces increasing demand and costs for the resource.

Water policies effective at meeting demand when resource is abundant. The overall goal of Florida's water policy is expressed in the State Comprehensive Plan, enacted into law in 1985 (s. 187.201, F.S.):

> "Florida shall assure the availability of an adequate supply of water for all competing uses deemed reasonable and beneficial and shall maintain the functions of natural systems and the overall present level of surface and ground water quality."

State water policies are designed to ensure the protection and continued maintenance of the water supplies and the needs of natural systems such as lakes and wetlands. Consumptive use permitting decisions should ensure that water withdrawals do not cause harm to these natural systems.

Florida's system for implementing these policies are contained in the Water Resources Act of 1972. The Act was implemented after a severe drought and when localized shortages and conflicts were beginning to develop. Although some conflicts existed, water resources were fairly abundant in relation to demand at the time the Act was passed. The Act established an administrative permit system for allocating water to resolve conflicts and protect the resource. Consequently, potential conflicts and impacts should be avoidable rather than resulting in lengthy litigation. This system has been generally effective at ensuring an adequate supply of water for all reasonable-beneficial uses and functions with minimal conflicts when supplies are abundant. The consumptive use permitting process has effectively addressed potential water use conflicts in many cases across the state.

State water policies are not as effective at resolving conflicts when water resources are scarce. The state's water policy has not worked as effectively to resolve conflicts among users when water allocations are reduced or supplies are limited. Population growth and periodic droughts have placed additional burdens on water supplies in recent years. Droughts occurred in most of Florida twice during the 1980s. In addition, Florida's population increased by 42% and public supply water withdrawals increased by 41% between 1980 and 1994. Increasing water scarcity in some areas has heightened conflicts between the WMDs and water permit applicants as well as among the applicants themselves. WMDs have found it increasingly difficult

[1] Minimum flows for surface watercourses and minimum levels for ground water in aquifers and surface waters represent the limits beyond which further water withdrawals are considered to be significantly harmful to water resources of the area (for both levels and flows) or the ecology of the area (for flows only).

to make allocation decisions that balance diverse needs, ensure effective and efficient use, and protect the resource. This is particularly true when the area of scarcity encompasses hundreds of square miles and thousands of water uses.

For example, the efforts of the Southwest Florida WMD to limit or reduce permitted withdrawals resulted in extensive litigation and delays. A District investigation concluded that ground water withdrawals from an area well field system run by the West Coast Regional Water Supply Authority had contributed to serious environmental impacts including loss of lakes, wetlands, and wetland dependent species. In 1994, the District issued an emergency order to reduce pumping by 4% at the well field because of conditions that existed within the region. West Coast Regional Water Supply Authority subsequently challenged the District's findings and emergency order. This dispute has not yet been resolved. The press has reported that agencies and local governments involved in the dispute spent an estimated $8 million on legal fees in the last two years. Expensive and time consuming conflicts are also occurring in the District's Southern Water Use Caution Area due to its proposed rule to not allow any net increases in withdrawals from the Floridan Aquifer.

The Water Resources Act was never fully implemented. Compounding the difficulties of addressing water shortages, key elements in the Act that were intended to prevent water over-allocation and adverse impacts have not been fully implemented. Two previous OPPAGA reviews of water management programs found that WMDs have not developed all the research and technical information required to fully meet all the requirements of the Act.[2] While progress has occurred since the issuance of the two OPPAGA reports, the most critical requirement that has not been fully implemented is the minimum flows and levels requirement. Minimum flows and levels define the limit at which further withdrawals would be significantly harmful to the water resources or the ecology of the area. The absence of more definitive knowledge regarding the sustainability of the resource not only hinders water supply planning, it can mean, at least in some cases, that WMDs are allocating water through consumptive use permits without knowing if the withdrawal will harm water resources. [3]

Water shortages and adverse impacts have occurred in some areas. Pumping from ground and surface waters has contributed to shortages in water supplies and damage to natural systems in some areas. The most serious and publicized adverse impacts occurred within the Southwest Florida WMD due to a combination of over pumping, periodic droughts, and tremendous population growth. The District has been experiencing long-term declines in water levels in the Upper Floridan Aquifer. Permitted pumping to meet agricultural needs and significant population growth demands have resulted in significant adverse impacts to ground and surface waters. Lake levels in Highlands and Polk counties have declined. For example, the size of Crooked Lake, one of the most severely impacted lakes, has decreased from 7,500 acres to 4,500 acres in the last 30 years. In addition, saltwater intrusion has affected numerous wells in coastal Hillsborough, Manatee, and Sarasota counties. Although the Southwest Florida WMD is developing a number of regulatory and non-regulatory initiatives to address these problems, it will take time before the benefits of these initiatives are realized.

Competing water needs also exist in the southeast urban coastal areas, agricultural areas, the Everglades, and Florida Bay. The South Florida WMD estimates that the southeastern portion of the state is likely to experience water supply shortages in the future unless potential conflicts are resolved.

It is questionable how well aspects of current state water policies will respond to additional scarcity, increasing conflicts, and increasing costs. Water resource planners estimate that water is expected to

[2] A Review of the Water Resources Management Program Administered by the Department of Environmental Protection and the Water Management Districts, Office of Program Policy Analysis and Government Accountability , December 6, 1994, Report No. 94-17.

Performance Review of the Consumptive Use Permitting Program Administered by the Department of Environmental Protection and the Water Management Districts, Office of Program Policy Analysis and Government Accountability, February 28, 1995, Report No. 94-34.

[3] Water Supply Policy Considerations, Interim Project Report, December 1995; House Select Committee on Water Policy Staff.

become more scarce in the future. As water becomes more scarce, other areas may begin to experience the types of conflicts that are occurring in the Southwest Florida WMD.

The Water Resources Act has limited mechanisms for valuing the resource.

Florida's approach to paying for water does not sufficiently consider the value of the resource. As a result, water continues to be undervalued even though some areas of the state have very limited supplies. This undervaluing can encourage inefficient use.

Current mechanisms. Water use permitting requirements do contain some consideration of economic value. For example, as part of the reasonable-beneficial use test, consumptive use permit applicants must show that the allocation is limited to an amount necessary for economic and efficient utilization. The reasonable-beneficial use test also requires the permittee to use the lowest quality source of water acceptable for the use, unless such use is not economically feasible.

Resource is not fully valued. Historically, water has been priced as a free commodity in Florida. Users typically only pay for the direct costs necessary to process and convey the water to where it is ultimately used; users do not pay all the indirect costs of using water. Direct costs are costs incurred by a water supplier such as pumping it out of the ground and transporting it to users. Indirect costs are associated with correcting or preventing environmental damage such as loss of wetland functions and salt water intrusion, as well as lower property values. Indirect costs can also include costs associated with lost economic opportunities due to insufficient or limited water supply. By ignoring these indirect costs, water is incorrectly perceived as being relatively inexpensive.

Pricing practices can also lead to situations where public water supply rates in areas experiencing scarcity are lower than for areas with sufficient supplies. Many high-population areas have lower unit operating costs because they have paid off more of their equipment costs and can allocate the costs over a larger population. For example, water utility customers in St. Petersburg, an area where shortages have occurred, paid $6.40 per 5,000 gallons in 1995 compared to $11.20 in Tallahassee, an area with sufficient supplies. The lower rates in St. Petersburg are due in part to the fact that it has paid off a large portion of its equipment costs. However, these low rates do not include the costs of correcting environmental damage caused by over pumping.

Value not always tied to resource. Because water is relatively inexpensive, pricing practices can also lead to situations where local governments use water rates to subsidize other local government functions. For example, cities may use water revenues to subsidize local services such as fire and police protection.

Fully valuing the resource could make alternative water supplies more economically feasible. The practice of undervaluing the resource contributes to alternative water supplies, such as reuse and desalination, generally being more expensive to develop than traditional water supplies. As a result, alternative water supplies are often not economically feasible in areas that rely on cheaper traditional supplies. For example, market principles indicate that reclaimed water, a lower-quality product, should be less expensive than higher-quality potable water.[4] However, the reverse is generally true. The development of reclaimed water systems requires a significant investment in both the reclamation of the wastewater supply and the delivery to end users. However, if traditional water supplies were fully valued, alternative water supplies may be viewed as being more economically feasible.

Southwest Florida WMD staff contend that if water suppliers in that area had explicitly considered the full costs of well field pumping in their rates, they might have chosen an alternative other than continued reliance on ground water.

[4] Reclaimed water is water that has received at least secondary treatment at a domestic wastewater treatment facility and is then reused. For a discussion of water reuse, see Office of Program Policy Analysis and Government Accountability Report No. 96-61, Review of the Reuse of Reclaimed Water, issued March 3, 1997.

Shortages have raised questions about the effectiveness of the competing applications process for resolving conflicts. The state's regulatory decision criteria used to allocate water does not provide sufficient economic considerations needed to more fully value the resource. The Water Resources Act allows the WMDs to reallocate water when there is inadequate water for all uses. As part of the competing applications process, the Act directs the WMDs to use the public interest test to determine which competing reasonable-beneficial use best serves the public interest. In cases where the public interest is equal, preference is given to existing legal users. The competing applications process does not include a process for voluntarily reallocating permitted quantities.

The competing applications process would require WMD Boards to take into account the relative economic productivity of various users and uses. This could potentially put the WMD Governing Board in the position of deciding between an agricultural and an industrial use. Opponents of the competing applications test argue that population and water demand pressures are too great, water resources too limited, and the options too complex to try to efficiently reallocate water solely through a regulatory program. Having the WMDs rely solely on the competing applications process could result in substantial costs for those users whose allocations are reduced or eliminated. Furthermore, opponents of the competing applications test contend that these proceedings would involve lengthy and complex arguments and counter arguments that would greatly slow WMD administrative processes.

Voluntary reallocations. In response to water shortages in the District, the Southwest Florida WMD is proposing that voluntary reallocations of permitted quantities be allowed, subject to Governing Board approval. The District is advocating using a regulated voluntary reallocation process in the Southern Water Use Caution Area where the District has imposed a cap on new water withdrawals. As soon as this cap was imposed, water resources in the area became a valuable, limited resource. This "market" approach where willing buyers and sellers make the reallocation decisions would be used in addition to the public interest test. A voluntary reallocation process would allow the WMD to issue permits for new uses but not new quantities of water. The District chose this process because it determined that the competing applications approach is not an efficient or effective method for reallocating limited supplies.

A voluntary reallocation would be permitted by the District if the proposed use passes the three-part test: the proposed use (1) is reasonable-beneficial, (2) will not interfere with any presently existing legal use of water, and (3) is consistent with the public interest. A voluntary reallocation application could be denied in cases of overwhelming public interest. The intent of this process is to allow the market to make suggestions regarding possible reallocation from one user to another. Those suggestions would be based on economic efficiency criteria.

Staff from the other two large WMDs, the St. Johns River WMD and the South Florida WMD, disagree that the consumptive use permitting process is not an effective method for resolving competing applications disputes. Both districts cite the relatively few unresolved conflicts in relation to the thousands of consumptive use permits that have been issued. The WMDs also believe the consumptive use permitting process has met the goals and objectives of the Act, even in areas of scarcity and potential conflict.

Conclusions and Recommendations

The principles of Florida's Water Resources Act are fundamentally sound and offer many advantages for allocating water. The Act declared water to be a public resource and was designed to ensure the needs of all reasonable-beneficial users are met, without adversely affecting the environment. There is no indication at this time that the basic concepts need to be changed; most water demands are presently being met.

The Act was developed at a time when water resources were relatively plentiful and inexpensive in relation to water demands. However, some areas are currently experiencing limited supplies and adverse environmental

impacts due to droughts and over pumping. This scarcity raises economic issues, such as whether it is cost effective to develop alternative water supplies.

Given these concerns, the Legislature should consider the following three questions:

1. Should water users pay the full costs of developing new water supplies?

2. What funding options exist for funding new water supplies?

3. What types of improvements are needed to encourage greater water use efficiency?

Should water users pay the full costs of developing new water supplies?

Water has been historically priced as a free commodity in Florida. Users typically only pay for the costs to process and transport water to where it is used. These pricing practices have helped to promote growth and economic development in the state. Furthermore, these pricing practices have helped to assure the availability of affordable supplies of water for all competing uses over the years.

However, as costs of developing new supplies increase, the Legislature is faced with an important policy question. Should all users pay the full costs of developing new water supplies or should the state supplement water supply development in some way? Local governments could opt to have new users pay most or all the costs of new supply. This could have a chilling effect on economic growth and could lead to significant increases in water costs that could adversely affect water-dependent industries like agriculture. State water policy should clearly reflect the Legislature's intent in regard to who should pay for new water supplies.

Option 1: Water users pay full cost. The Legislature could determine that water users should pay the full costs of developing new water supplies. In this case, local governments and water suppliers should have the authority and flexibility to develop supplies with minimal state involvement. The state's role should be limited to ensuring that local governments have the authority and flexibility to fund new water supply development. This option would better link payments to consumption by requiring beneficiaries of water supply development projects to pay the full costs of the projects from which they benefit. However, a major disadvantage of this option is that local water suppliers may not be able to provide adequate and affordable supplies to all users in the future.

Option 2: The state supplements water use funding. The Legislature could also determine that water users should not pay the full costs because of potential adverse impacts that could occur to certain user groups or the economy. In this case, the Legislature should clarify state policy to include assuring an affordable supply to all reasonable-beneficial users. The Legislature would also need to develop methods for supplementing regional and local funding in order to ensure user costs are affordable. In determining the portion of the state supplement for water supply funding, it would be important that communities first identify their base water rates. (The portion of the rate that pays for the cost of providing water, excluding any additional charges that subsidize other government functions.) This would be an important step in developing any rate structure to ensure that costs for other local services are not included in calculating base water rates.

The Governor's Task Force on Water Supply Development and Funding recommends that additional funding be provided to allow the WMDs and the state to assist in funding water resource development projects which contribute to the greater public good under limited and specific circumstances. However, there is no indication that such additional funding will be available.

What funding options exist for funding new water supplies?

Regardless of the Legislature's decision on who should pay for water, additional funding mechanisms are needed because the current system does not generate sufficient revenues to pay for expensive new water sources such as desalination or developing new well fields. The Governor's Task Force has identified several potential funding mechanisms such as local option taxes, gross receipts taxes, and a water use fee.

A water use fee offers certain flexibility and advantages over other options and should be considered. One option is for all water users to pay a fee for the indirect costs of using the state's water supplies in addition to the current direct costs. Under this option all users, including industries that have their own well systems, would pay a fee for using the water. A water use fee could be used locally, regionally, or on a statewide level. One option is for the fee to only be assessed in those areas with environmental stress and where all uses cannot be met. Another option would be to have certain use classes pay a fee or to vary the fee by type of use.

The issue of water use fees is not new to the water supply debate in Florida. The 1972 Model Water Code contained a provision for a graduated annual user fee to defray the costs of regulation. In 1989, the Governor's Water Resource Commission recommended that the state assess a fee on all water use and utilize fee revenues to pay for alternative water resource development, resource protection activities, water quality testing, conservation incentives and infrastructure improvement. During the 1991 and 1992 sessions, the Legislature considered but did not pass bills to impose water use fees. In 1993, the Partners for a Better Florida Advisory Council included among their legislative proposals the creation of a Water Reuse and Conservation Trust Fund to be funded by water use fees.

Advantages. Water use fees could provide a method for paying for an administratively determined full value of water and linking payments to benefits received. Fees would help to infuse a greater consideration of the value of the resource into the water supply decision-making process. Fees could be used to represent the full costs associated with environmental damage and lost economic opportunity due to scarcity. A 1991 study of the economic impact of implementing a fee system found that fee revenues could provide significant capitalization even at fee levels low enough to have no significant effects on water use sectors.

Disadvantages. Fees could produce somewhat less revenues than may be expected because the fee would likely cause some reduction in use. Another concern about implementing a fee is administrative costs. Although other states that have implemented a user fee report few problems in administering their programs, some water managers in Florida express concern that fees would be expensive and difficult to administer. The fees also would raise costs for water-intensive industries such as agriculture.

What types of improvements are needed to encourage greater water use efficiency?

Regardless of how the Legislature chooses to define its level of involvement in water supply development policies, our review identified several strategies intended to improve water use efficiency.

Adopt a policy to use local and regional water sources first. One method for maximizing water use efficiency is to require that areas consider local and regional water supplies prior to allowing interdistrict transfers of water. Under this policy, areas within South Florida would be required to maximize their supplies before transporting water from northern Florida.

Chapter 373, F.S., authorizes the transfer of water from one WMD to another under certain circumstances. The statutes define interdistrict transfers as a consumptive water use which involves the withdrawal of ground water from a point within one WMD for use outside the boundaries of that district. The transfer of water across district boundaries tends to be controversial and, as such, has seldom been authorized.

A local-sources-first policy would require regions or local areas to be self-sufficient and to meet their water demands with withdrawals or supply systems within the

area, to the greatest extent practicable. Local sources could potentially include a variety of sources including ground water and surface water as well as alternative supplies, such as reuse and desalination. Local sources would be defined by their proximity to the area where it would be used. Regions could be defined through a regional water supply planning process or through areas served by certain infrastructure configurations. WMDs could be responsible for determining whether local and regional water sources have been maximized.

Amend Ch. 373, Part II, F.S., to allow voluntary reallocations of supplies within stressed areas. In areas where water supplies are not adequate to meet demand, WMDs need an alternative method for making allocation decisions that will force a more efficient use of water. Proponents contend that voluntary reallocation allows markets to help determine what the most economically efficient uses are at any given time, while still protecting the environment and existing legal users. Under this scenario, reallocations would only occur when it is economically beneficial for both parties (i.e., the reallocation would result in gains to both parties) and all permitting criteria can be met. Markets could potentially create incentives to develop water saving technologies in order to use less water.

Critics of market approaches cite concerns that Florida would end up with a system of water-rights holders similar to the system used in the western states. However, the Legislature would not need to attach private property rights to water use to create market incentives for efficiently and effectively reallocating water from restricted water sources and encouraging water use efficiency. The commodity being reallocated is not the right to own the water but the right to a consumptive use permit allocation for the time period specified in the permit. Furthermore, the WMD Governing Board could still deny a voluntary reallocation application in cases of overwhelming public interest. The sustainability of the resource for the public interest should be the overriding force behind water allocation decisions.

Agency Response

In accordance with s. 11.45(7)(d), F.S., we provided our preliminary and tentative review findings and recommendations to the Department of Environmental Protection and to the five water management districts for their review and response. We have incorporated into our report some of the comments from their responses.

This project was conducted in accordance with applicable evaluation standards. Copies of this report may be obtained by telephone (904/488-1023 or 800/531-2477), by FAX (904/487-3804), in person (Claude Pepper Building, Room 312, 111 W. Madison St.), or by mail (OPPAGA Report Production, P.O. Box 1735, Tallahassee, FL 32302).

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