

ORGANIZATIONAL ARRANGEMENTS FOR DEVELOPING LONG-RANGE WATER RESOURCES PLANS FOR GEORGIA

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INTRODUCTION

The Georgia Department of Natural Resources (DNR) has developed a state water plan, introduced by Governor Harris^{1,2} which calls for the state to construct 12 regional reservoirs in north Georgia and to fund design and construction for approximately 30 local reservoirs. The 1989 Georgia General Assembly passed legislation, based on the recommendations of the Governor's Growth Strategies Commission, which authorizes the DNR to carry out the reservoir construction program.

The state water plan and the new legislation significantly change the water management situation in Georgia. We have now reached, or possibly even passed without realizing it, a crucial juncture in deciding how the planning and management of Georgia's water resources will be conducted. The organizational and procedural arrangements that are selected will determine the future of our water resources and our state. We need to think carefully about the decision process that will be used to develop and select the long range water management plans for Georgia. The decision process should be designed to be professional and fair, and to produce water management plans that are cost-effective and environmentally sound.

In passing the GSC legislation, the General Assembly reserved the right to approve, in its 1990 session, some of the regulations being written to implement the new legislation, particularly the "minimum standards and procedures for planning" required for substate agencies under HB 215. This would be an opportune time for the public and the General Assembly to consider what sort of minimum standards and procedures should apply for state level water resources planning as well.

This article discusses the organizational arrangements for water resources planning and construction at the federal level, using the Corps of Engineers' water study for the Athens area as an example. It points out some problems with the federal organizational arrangements and recommends ways to avoid duplicating these problems in designing the state level organizational arrangements for water resources planning and decision-making.

PROFESSIONAL WATER PLANNING

The long-range water resources management plans produced at the state level and at the local level with state funding should be good plans-- conscientiously designed to serve the best interests of the public, rather than to benefit a few influential groups at public expense. Professional procedures for water resources planning are taught in graduate courses in water resources management and are codified in the federal planning guidelines, "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies" (P&G)³. The goal of professional water planning procedures is to identify the water management plans that best meet the planning objectives, with affected citizens and water users having fair representation in the statement of the planning objectives. The P&G sets forth a series of planning steps designed to identify the best water resources management plan in a thorough, fair and open manner. The key points for professional planning are: 1) careful definition of the water problems to be solved in a particular area, 2) identification of all reasonable alternatives for solving the problem, 3) use of relevant criteria for evaluating the alternatives, 4) a written evaluation of all reasonable alternatives including the benefits and costs of each alternative, 5) public participation in the major planning steps and review of the final report.

Other desirable features of a fair planning process include: 1) final report shows the distribution of benefits and costs to affected parties, with affected parties having this information before the final plan is selected; 2) final report receives an independent peer review which is made public; and 3) the final plan is selected by representatives of the affected parties, with public knowledge of how their representatives voted.

By contrast, unprofessional water resources planning is not conducted in the best interests of the public. Rather, it is conducted in the best interests of those who have power in the decision-making process. For example, agency personnel may only evaluate alternatives which are of most benefit to the agency and their own positions, or which are of most benefit to powerful interest groups that can advance or hinder the agency's position.

Instead of using professional planning procedures, self-serving agencies use some of the following tactics: 1) use the media to exaggerate the public's perceptions of water problems in order to gain political support for increased

agency powers and funding to solve the problem, 2) limit the alternatives considered to those which advance the agency's political power and budget, 3) don't seek advice from independent water resources experts regarding innovative alternatives, 4) gain cooperation of other water agencies by providing cooperative funding, 5) don't encourage public awareness of the key issues and decision points in the planning process, 6) control the public participation process by appointing project beneficiaries to the public advisory committees, 7) set the agenda at the public meetings to provide favorable agency information and to busy the public with minor topics, while the major decisions are made quietly and internally, 8) keep the planning report, if any, in "draft" form not available to the general public until the decisions have been made, 9) avoid a clear delineation of responsibility for the final plan selection, 10) avoid a full account of project costs and who pays.

The use of unprofessional procedures in water resources planning leads to overly expensive water development projects and unwise use of the area's natural resources. It eventually leads to loss of the public's esteem for the water resources profession and loss of the public's faith in its own government.

CASE OF THE ATHENS REGIONAL RESERVOIR

The example of the planning process for the Athens regional reservoir is described here to point out some organizational and procedural problems which have led to a poor planning result (the selection of an unnecessarily expensive and environmentally unsound solution, when better solutions are available). If we hope to obtain good long-range water resources plans for Georgia, we will need to design a state level planning process which avoids the organizational arrangements that produced the less-than professional result in the Athens example.

Planning for the regional reservoir to serve the North Oconee basin area (4 counties) near Athens has been underway since 1982, and earlier, as part of the U.S. Army Corps of Engineers five-year planning effort for the Northeast Georgia Water Resources Management Study, covering a 10-county area around Athens. The Study (1982-87) was directed by an executive group consisting of four members representing the Corps, the Georgia DNR, the local Area Planning and Development Commission (APDC), and the U.S. Environmental Protection Agency. In 1982 the U.S. Congress authorized the Corps, in concert with state and local agencies, to conduct the study to develop an integrated regional water resources management plan considering "alternative futures in the study area, flood damage reduction, water quality management, regional water supply, fish and wildlife conservation, recreation, management of flood plain lands, and strategies or measures for enhancement and protection of the environment and streams serving the study area." Although this Study was exceedingly well funded for \$1.43 million, with adequate planning time and professional involvement, it did not meet the authorized planning objectives and did not proceed according to the federal "Principles and Guidelines" for the conduct of federal

water planning studies. The Athens area would have benefitted greatly by having a good long-range regional plan for integrated management of its water quality and quantity resources.

Instead of an integrated water resources management plan, the Study's final report recommended for the Athens area (upper Oconee River basin) three alternative sites for a regional reservoir, with rough cost estimates for each. The regional reservoir was oversized to provide the peak month water demand in the year 2030 for the "high" population projection during the 100-year drought, assuming no water conservation. The Study evaluated only a narrow range of alternatives (various sites for a large reservoir), and it did not evaluate them using the relevant criteria-- in particular, the final report did not include estimates of the benefit/cost ratio and net present value for the recommended plan. Since Athens' present water supply is adequate to meet its basic water needs in the year 2030, the regional reservoir's main benefit is to meet the peak summertime demand for lawn watering. A benefit/cost analysis would likely have shown that the project's costs greatly exceed its benefits. The reservoir alternative is unnecessarily expensive, and it will have environmental impacts including inundating wetlands along the North Oconee River corridor.

Water Supply Alternatives

In addition to reservoir sites, the Study should have evaluated other reasonable alternatives that could meet the area's water needs with less environmental impact, and possibly much lower cost. These alternatives include:

- 1) A smaller regional reservoir sized to meet the water demand after water conservation during the 30-year drought instead of the 100-year drought. With this alternative, the public would have a choice of risk level, and may decide that the risk of having inadequate water for lawn watering three times per 100 years is preferable to paying higher water bills for the larger reservoir.
- 2) Each existing water supply facility would find its own best solution, rather than creating a regional water supply source. With information for this alternative, the public could assess the tradeoff between possible cost savings for a regional system versus loss of some self-determination for a local water system.
- 3) Pumping water upstream from the existing Lake Oconee reservoir owned by the Georgia Power Company. Pumping charges could be high but would be only incurred infrequently during droughts, since the existing water supply source (the Oconee River) normally has adequate water supply to meet the 2030 water demands. Charges by Georgia Power Company would be fairly low, since most of the water would be returned to the reservoir. The pipeline would not need to be sized to provide the total water demand, but only the portion of demand exceeding the current supply, and this portion could be minimized by using water conservation.
- 4) Use the existing Sandy Creek Reservoir designed by the U.S. Soil Conservation Service and owned by Clarke County.
- 5) Continue to use the existing water supply sources (Middle and North Oconee River), which actually have an adequate 7Q10 drought streamflow to meet the water supply needs but not the instream flow requirements. The instream flow

requirements could be met by returning the wastewater flow to the stream at the withdrawal point, with adequate waste treatment and flow augmentation to replace the water losses due to lawn watering and other consumptive uses. The augmented flow could come from groundwater or a much smaller reservoir such as Sandy Creek, and it could be minimized by using water conservation.

6) Require new subdivisions and commercial developments to meet their lawn watering requirements with on-site water supply, such as from private wells and stormwater detention ponds or wastewater reuse.

7) A vigorous water conservation program alone would allow the existing Athens water system and existing supply to meet its water demands in the year 2030.

The water conservation alternative was mentioned, but none of the above alternatives were evaluated in the Corps' final report for the Northeast Georgia Water Resources Management Study. Alternatives similar to these should also be evaluated for the other regional reservoir sites in Georgia.

The DNR has recently committed a \$75,000 grant to the local APDC for siting and design studies for the regional reservoir.

Causes of Poor Planning Result

The Corps' water study did not produce the most cost-effective or environmentally sound water management plan for the Athens area because the Corps did not consider all of the good alternatives.

Why didn't the Corps consider all the good alternatives for the Athens area? Their professional training and the federal "Principles and Guidelines" direct them to consider all reasonable alternatives and specifically-- listed by name in the P&G--the nonstructural alternatives such as water conservation. At every public meeting without exception, the public asked that the water conservation alternative be considered. The Corps participated in a League of Women Voters public meeting to consider the public's preferences for 15 water supply alternatives, including many non-reservoir alternatives. (The Corps' own public meetings were designed to provide information rather than to invite the public to express preferences for a range of alternatives.) Yet, in the end, despite the the federal planning guidelines and DNR's participation in the Study, the Corps only considered alternatives for siting reservoirs of maximum design size assuming no water conservation. That is, the Corps limited the Study to only consider alternatives of most benefit to the Corps and to the local water interests desiring a federally funded water project.

This result is typical of water resources planning studies conducted by the federal construction agencies, and it has been the subject of many articles by scholars of organizational behavior, governmental processes, and water resources planning. The Study's failure to produce a good integrated water resources management plan as authorized and its use of the \$1.43 million in federal planning funds to justify building reservoirs is primarily due to the organizational arrangements for the planning process, rather than to any technical inadequacy.

The primary problem is that the Corps of Engineers has a built-in conflict of interest, in that it is responsible for both

planning to find the best water management alternative and then building that alternative if it happens to be a reservoir. Since the agency benefits by building reservoirs, its planning studies usually conclude that a reservoir is the recommended alternative.

The second problem is that in the Athens example the Study's local sponsor, the Northeast Georgia Area Planning and Development Commission, strongly represented the local water development interests, and its staff assisted (possibly even led) the Corps in limiting the Study's agenda to reservoir alternatives. The local APDC's staff lobbied to obtain the congressional funding appropriation for the Corps' Study and was rewarded for its efforts by receiving annual sole source contracts from the Corps for work on the Study.

Federal Organizational Arrangement

Cortner and Auburg (1988) describe the federal arrangement for water resources development which results in classic pork barrel politics. The federal arrangement is described as an "iron triangle" because it results from the political relationships of three main groups: "(1) local water interests who want a congressionally funded water project; (2) federal water construction agencies who plan, design, and build such projects; and (3) public works committees in Congress that legislatively authorize projects and appropriate monies." The local water interests derive profits from the project due to increased land prices and development. The construction agency derives benefit due to increased budget and influence in distributing projects. The elected representative derives increased political support from well-funded interest groups who desire the project. "Those who seek benefits, whether in the form of projects, budgets, or political resources, are satisfied and prosper, while those who carry the costs, i.e., the general taxpayer, are largely unaware of their burden. Iron triangle interests control information and have little at risk" (Cortner and Auburg, 1988). They also note that "control over water translates into political power," and "the test of obtaining a water project is political savvy in the congressional marketplace" rather than economic justification for a project.

The federal "Principles and Standards" for water planning were written to counteract the agencies' tendencies to recommend self-serving alternatives at the public's expense, by requiring the agencies to follow planning procedures to produce a reasonably unbiased analysis. Unfortunately, the federal "Principles and Standards" were downgraded to optional "Principle and Guidelines" by James Watt during the Reagan administration. Even when the federal planning standards were not optional, they were not entirely effective in curbing self-serving agency decisions because the agencies had many ways to creatively adjust the planning analysis. Cortner and Auburg (1982) note that "agencies like the Corps have always been respected, if not admired, for the ingenious analyses they could make to support a favorable project recommendation." Even mandated planning standards cannot overcome the built-in conflict of interest that occurs when the same agency is allowed to both conduct the planning to recommend the best plan and also to build the best plan if it happens to be a reservoir. Some carefully

designed organizational arrangements with adequate checks and balances on agencies' powers are needed to ensure that an agency will serve the public.

STATE RESERVOIR PROGRAM

We would hope to avoid these problems in the state-level organizational arrangements and planning procedures set up to implement the new GSC legislation. However, the new legislation authorizes the DNR to both plan and construct a system of regional reservoirs in north Georgia, with no requirements for a planning analysis to evaluate non-reservoir alternatives. The new Georgia Water Supply Act (SB 86), one of the four bills passed as part of the Governor's Growth Strategies Commission package, authorizes the DNR to acquire, construct, finance, and manage regional water reservoirs with advice from local Regional Development Centers (reorganized APDCs created under HB 215), and to be responsible for reservoir siting and sizing, jurisdictions allowed to withdraw water and how much, construction and financing of reservoirs and distribution networks, and dispensing, pricing and selling raw water to users. The DNR also has the authority to 1) evaluate and regulate the environmental impacts of its own reservoirs and 2) to set "minimum standards and procedures for planning" for natural resources for substate agencies under the new statewide coordinated planning process set up under HB 215. However, the new legislation does not provide for planning standards for the DNR. Another new bill, SB 83, authorizes the state to make loans to local governments for design and construction of water projects and to require the local governments to establish water and sewer rates to raise revenues to repay the state loan or to make payments for leasing the facilities from the state.

Recommendations

The new legislation gives the DNR broader powers than those enjoyed by the U.S. Corps of Engineers, and with fewer "checks and balances." We might hope that the DNR would voluntarily use those powers to identify and implement the best long-range water management plans for Georgia, but it is wiser to design our governmental processes to ensure that result. The following recommendations are offered to increase the chances that the best long-range water management plans will be implemented for Georgia.

1) In January, 1987, Governor Harris released the "State of Georgia Water Resources Management Strategy Summary Document" which set forth the "statewide plan for water resources" to be implemented by the Georgia Department of Natural Resources. Basically, this State Water Plan was adopted without a professional planning analysis to evaluate the best alternatives for meeting Georgia's long-range water resources needs. This plan to develop a system of regional and local reservoirs should not be implemented until the DNR has demonstrated that this is indeed the best plan for meeting Georgia's long-range water needs. The regional reservoir program represents a major public investment and major alterations in the river system throughout north

Georgia. This decision should be based on a careful and open evaluation of the alternatives.

2) Professional standards for water resources planning should be adopted and required for any projects receiving state funds.

3) The functions of water resources planning and water project construction should be separated to avoid conflicts of interest.

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