State Water Planning – An Overview of Approaches Used and Lessons Learned Across the U.S.

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ABSTRACT. State water resource planning is increasingly recognized as a vital foundational element to provide for the economic welfare and environmental health of a state. States across the nation have embarked upon water planning efforts in a variety of manners. This paper outlines the various planning methods and provides an overview of benefits and challenges of the various planning processes.

One common theme across state plans is that a critical factor to ensuring a safe and reliable water supply is to understand how water is being used and how it can be managed, developed and protected for future generations. It is important to understand current and future water supply needs, the amount of water supply available, and where conflicts might arise from increased demands, reduced supplied, or competition for water between users. A successful water plan will articulate demands and supplies and will also frequently identify solutions to help address potential conflicts. Further, a successful planning effort will include identifying opportunities to leverage state and local financial resources to meet current and future needs.

States undertake both centralized and stakeholder based planning. Centralized planning typically includes a top-down approach to provide consistent policy implementation and compliance with state and federal standards. Stakeholder based planning provides greater input on issues and has a more targeted/local focus. Stakeholder based planning can be challenging because state water planning typically needs to be conducted at a scale that differs from traditional planning/political boundaries. Stakeholder based planning must also be managed to reduce the tendency to focus on differences rather than common goals.

In any statewide water planning effort, it is important to make sure that an integrated planning process is considered. The approach is frequently enhanced by including a look at the needs of multiple users and an evaluation of the interconnectivity of surface and groundwater both within and between river basins and ecosystems. It should also look at the water quality and water quantity nexus for both groundwater and surface water. Major building blocks to consider in the state planning process include:

- The existing State Water Plan, if any
- State, Local and Federal statutes and laws
- Existing policies and programs
- Water availability data and forecasted needs
- Public and stakeholder input

Successful planning allows states to evaluate competing needs and develop strategies to wisely manage limited water resources. By leveraging existing information and building upon stakeholder input, a plan can be developed that is implementable and leads toward the effective management of water resources.

INTRODUCTION

Across the nation, states have found that ensuring the availability of an adequate water supply is essential to providing a safe and reliable drinking water supply. This water supply is obviously necessary for municipal, industrial, and agricultural water users. It is also critical for retaining and attracting commercial and industrial business interests; sustaining and promoting ecological health and recreational opportunities; and helping ensure a high quality of life for citizens.

As South Carolina prepares to update its State Water Plan, it is important to reflect upon what has been learned through recent planning efforts across the country. This includes reviewing the approaches used across several states and understanding the benefits and challenges of the various approaches. South Carolina can then use this information to tailor its water plan to meet the unique and specific needs of the state.
BACKGROUND

Many states have recently embarked upon statewide water plans to address the need to manage limited water resources statewide. In other areas, regional water planning has been completed rather than planning at a statewide level. In evaluating the water planning processes used across the nation, it is apparent that the process is different for each state and regional plan. These range from plans that are created by the government entities themselves to plans that have regional stakeholder and citizen involvement. They further range from data driven plans to those that are implementation focused.

In 2010, the United States Army Corps of Engineers completed a project evaluating trends and findings in water resource planning across the country. The study found that states are addressing water supply planning in a variety of manners, but all share key challenges. One of the main challenges includes limited funding and resources to complete planning. The findings suggest the need for technology and information transfer across regions and states to help address this issue.

DRIVERS TO STATE PLANNING

The review of state water planning processes highlights a variety of drivers which have encouraged states to complete water plans. These include:

- Water shortages resulting from population and economic growth
- Competition/conflict for water for different uses
- Lack of sufficient supplies where and when there are water needs
- Lack of infrastructure and/or aging infrastructure
- Impaired water quality (source or nonpoint source pollution)
- Natural disasters (flooding and drought)
- Variability in supply, climate change, and other uncertainties
- Habitat and species loss or degradation, invasive species

Approaches to planning are dynamic and are shaped by both drivers and desired endpoints. Comprehensive planning quantifies and identifies current and future needs, quantifies supply, evaluates supply and demand management strategies, and seeks solutions to meet multiple needs. States need to understand how the population is currently using water and how future water needs will be shaped by population changes, changes in how people use water, current and future regulatory considerations, and water quality challenges. This information will help identify where water supplies are plentiful and where conflicts might arise from limited resources. By understanding this baseline information, planning can be conducted to identify and implement solutions that maximize and conserve water resources across the state.

TRENDS IN THE PLANNING PROCESS

When reviewing water planning nationwide, it is found that most states have at least one entity that is involved with state water planning. These agencies often have a Board or Commission that assists them in planning with policy development, oversight, and project funding responsibilities, especially in the western US. Many of these Board and Commissions have similar visions and goals. For example, the Texas Water Development Board’s Mission is to “provide leadership, planning, financial assistance, information, and education for the conservation and responsible development of water for Texas.” The mission of California’s Department of Water Resources is to “manage the water resources of California in cooperation with other agencies, to benefit the State’s people, and to protect, restore, and enhance the natural and human environments.”

Most states have developed multi-functional state water plans. In general these plans or frameworks can be considered comprehensive in nature in addressing more than one water use. The plans often have a strong focus on water supply; however water quality and infrastructure needs are also frequently assessed. Most states that have comprehensive plans also have a strong basin/local planning focus, and many of these states develop a statewide framework plan with most of the detailed planning occurring at the basin/local planning levels. Other states have programs that address water rights administration and management, and some are just beginning to do more comprehensive planning and management. States emphasized the dynamic nature of their planning process: at times shifting focusing from data collection, to analysis and tool development, to policy, to project implementation depending on political support and available resources.

A locally focused multi-stakeholder process is often helpful in identifying the needs and values of the communities that are served and affected by water resource development and management decisions. Final decisions that emerge from collaborative and inclusive planning processes often take longer but are more likely to be supported by the public and key stakeholders. Because of this, they may face fewer implementation hurdles. However, it is often difficult to address all the needs that are brought to the table and early stakeholder involvement at the state level sometimes complicates the
plans and activities of local water providers who, in the majority of cases, are charged with actual project implementation. To help address this issue, states are using many means to communicate and foster public participation, e.g., websites, newsletters, focus groups, meetings, educational forums, and outreach.

From a technical perspective, many states are developing resource assessments and decisions support tools. For example, in Georgia three resources assessments were completed: surface water quality, surface water quantity, and groundwater quantity. Across the nation, it’s been found that data collection and modeling methods can be challenging. Before embarking upon a stakeholder participation process, it is beneficial to spend time in upfront planning to develop sound technical processes and modeling approaches.

IMPLEMENTATION AND OUTCOMES

Methods for implementing plans vary across the country, and implementation is at various levels. Most states do not build and/or operate state water projects. Implementation is typically at the water provider level. Some states provide financial assistance, often in the form of state loans and sometimes grants. For instance, Georgia has recently set aside $300 million in funding to assist in financing large water supply projects. Implementation is at the water provider level. States also provide incentives for projects or activities that advance a state’s planning objectives. Many states provide incentives for water conservation projects across the state.

Most states use a combination of the various strategies to meet current and future needs: conservation, new storage, and enlargement or improvement of existing infrastructure. Many state plans provide a portfolio of water supply and management actions. In some cases, at the basin planning level, specific projects and activities are identified. Some states are considering other solutions such as reuse and the conjunctive use of groundwater and surface water. A few states are actively exploring desalination and regional water importation.

The role of the state in implementing state water plans varies across the country. In some cases, states are leading the planning effort and driving the results. In others, states are playing a supporting role to regional planning efforts. One common theme is that defining current and future conditions is challenging, but provides the foundation for successful planning. A reliable funding source reinforces the commitment to plan for the future.

CONCLUSIONS

State water resource planning is increasingly recognized as a vital foundational element to the economic welfare and environmental health of a state. State water plans should be tailored to meet the unique and specific needs of an individual state—-one size does not fit all. It is important however, to make sure that the planning process considered an integrated approach. One that looks at the needs of multiple users and uses and evaluates the inter connectivity of surface and groundwater both within and between river basins and ecosystems.

There are many identified needs for the implementation of a planning process. These include to:

- Streamline and reduce regulatory requirements, especially permitting
- Promote development and sharing of critical water resource data and increase access to water data and information
- Secure reliable funding to implement state water plans --- for staff, programs, and infrastructure
- Ensure sustainable sources of water supply to meet current and future water demand for multiple water uses
- Balance and resolve competing water uses
- Address aging infrastructure
- Address “uncertainty” - regulatory, political, legal, climate, and administrative

When water planning is conducted at the stakeholder level, it allows for local expertise to improve the information available on local resources. It also provides greater buy-in to the technical work and support for conclusions and recommendations. There is a steep learning curve, however, and ample time must be allotted to provide the background on water planning issues and technical data. Decentralized planning can also lead to a focus on differences rather than common goals. Successful plans have addressed this through joint planning efforts that bring different regions together to discuss overlapping issues.

As South Carolina prepares to update its State Water Plan, it should consider the state water planning efforts completed nationwide and tailor an approach that meets South Carolina’s needs. This includes developing universally accepted methods to effectively assess water resources. South Carolina should consider developing the framework for a planning process that builds upon the previous state plans while leveraging public and stakeholder input.
LITERATURE CITED