Testimony before the

Subcommittee on Water Resources and Environment
Committee on Transportation and Infrastructure
United States House of Representatives

"Comprehensive Watershed Management and Planning"

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Complete Statement

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INTRODUCTION

Madam Chair and Distinguished Members of the Subcommittee:

Thank you for the opportunity to testify before you on Comprehensive Watershed Management and Planning. I am testifying today in my capacity as Deputy Executive Administrator for Water Science and Conservation at the Texas Water Development Board (Board). The Board is the state agency charged with collecting and disseminating water-related data, assisting with regional water planning, and preparing the state water plan for the development, management, and conservation of Texas' water resources. The Board also administers cost-effective financial programs for constructing water supply, water infrastructure, wastewater treatment, flood control, and agricultural water conservation projects.

Most recently, the Texas Legislature designated the Board as the lead state agency for coordinating the National Flood Insurance Program in Texas. The Board also provides financial assistance for flood mitigation planning and flood control projects.

Please allow me to take a moment to once again thank Chairwoman Johnson for her strong support of Texas water issues and of the Board, in particular. This subcommittee, along with Committee Chairman Oberstar, has been and continues to be extremely receptive and accommodating to the Board's insights on water resources policy of benefit to Texas and the entire nation. It is an honor and privilege for the Board to maintain a supporting role to the subcommittee.

The subcommittee's commitment to the consideration of water resources issues is commendable. The importance of water to the nation's economy, environment and public health is beyond measure. As drought, climate variability, population trends and socio-economic changes impact this resource, we must find better ways to share and conserve our water. With all of the complexities we face in the 21st century, we must transition our focus toward truly comprehensive watershed planning and management, which integrates a multitude of issues, including not only water supply, but also water quality, flood control, environmental sustainability, land use practices, and economic development.

WHAT IS WATERSHED PLANNING?

The call for watershed planning is almost universal, yet a universal definition of watershed planning eludes us. The Board is involved in a variety of venues that provide an opportunity to deliberate on the necessity for a more comprehensive watershed planning approach. Board staff have interacted with the U.S. Army Corps of Engineers, Federal Emergency Management Agency, Environmental Protection Agency, Bureau of Reclamation, Natural Resources Conservation Service, and the U.S. Geological Survey on this very issue, to name a few. It is my sense that, despite the great number of water resources experts within each of these agencies, not one singular definition, description, or goal of comprehensive watershed planning exists today. Of course, valid reasons can be identified for this lack of uniformity, most notably the fact that each federal agency has a distinct mission, which may conflict with, or duplicate that of other agencies. Although the notion of watershed planning has matured and gained significant momentum, we still are in need of a definitive mission and goal to ensure that we move watershed planning from a preferred concept to a viable, workable approach. So our first task must be to develop a mutual understanding of what it is and how it can help us to better manage the resource. Please allow me to be bold and offer my working definition of what comprehensive watershed planning should include. Comprehensive watershed planning in the 21st century should be a process initiated and led by stakeholders whereby to the greatest extent possible, physical, chemical, biological, and socio-economic characteristics of a watershed are evaluated and the results of that evaluation are integrated. Upon completing this integration, challenges and opportunities are to be identified and prioritized, anticipated or projected changes to the watershed such as a new water supply project, a change in land use or climate variability are then thoroughly evaluated with respect to their affects on physical, chemical, biological, and socio-economic characteristics of the watershed. Based on this analysis, management objectives, recommendations, strategies and projects are identified, evaluated, and prioritized. Finally, once the comprehensive watershed plan, containing any adopted strategies has been finalized, then a systematic process should be established to monitor progress of plan implementation along with opportunities to refine and revise the plan as new data becomes available or unanticipated changes occur.

Texas initiated steps to implement watershed planning with the advent of what we call Senate Bill 1, the landmark water legislation passed by the Texas Legislature and signed into law in 1997 by then-Governor George W. Bush. Senate Bill 1 greatly increased public participation in water supply planning by implementing a bottom-up local and regional planning process that emphasizes conservation, increases protection of the environment, and promotes voluntary water transfers through marketing. To carry out this approach, Texas divided the state into 16 planning regions, delineated roughly along major watersheds and aquifers.

The process allows for a wide variety of stakeholders to provide input on the most efficient and effective way for using water resources in the watershed to meet future water supply needs. The Texas model, with respect to comprehensive watershed planning however, comes up short in that our regional planning approach focuses primarily on water supply. Truly comprehensive watershed planning should not only address water supply issues, but also integrate considerations of water quality, flood control, the environment, land use, socio-economics, climate variability and sedimentation and erosion. For example, our current planning process will examine the impact of a proposed water supply project located in the headwaters of a watershed on existing water supplies elsewhere in the watershed. However, the process would not include a comprehensive investigation of the potential positive and negative effects of the proposed water supply project on wastewater treatment capacities, environmental resources, water quality, flood control, and land use.

It must be recognized that we as a nation, whether at the federal, state, regional, or local level, can no longer afford the expense, inefficiency, and ineffectiveness of parsed or fragmented watershed planning efforts wherein only water quality issues, for example, are evaluated, without considering the consequences of the planning decisions on other vitally important components of the watershed, water supply and socio-economics for example.

THE TEXAS EXPERIENCE

Achieving a truly comprehensive watershed approach requires a very significant, long-term commitment to a resource-intensive process, complete with a wide range of skills and experience. Comprehensive watershed planning carried out solely by a team of hydrologists is no longer adequate or appropriate. A comprehensive watershed approach requires a team that includes individuals skilled and trained in not only hydrology, but also in geology, biology, socio-economics, public policy, agriculture, and energy. Furthermore, one cannot study the water in our nation's streams and rivers without seeking to understand how it interacts with underlying aquifers. Facilitation is also a key, but often overlooked, part of the process. But, I'm putting the cart before the horse.

One of the most important aspects of water planning recognized by the Texas Legislature and the Governor was the need for data and the tools and

technologies needed to interpret the data. Data is the foundation on which all steps in any planning process rests. In my testimony before this subcommittee back in November of 2007, I discussed the importance of accurate, timely data. Since 1997, Texas has invested approximately $36 million in the regional water planning process and another $20 million to collect and analyze basic surface and groundwater data. This data allows us to calculate current supplies and make projections for the availability of future supplies to meet needs over the next 50 years.

Comprehensive watershed planning cannot be conducted in a vacuum. Data needs are enormous. In addition, as the gap between water supplies and demands for those supplies narrows, more and better data is needed to ensure that we maintain the often delicate balance between economic growth and environmental protection and sustainability. Local and regional planners, who will also be the project sponsors, understandably insist upon having adequate and reliable water data on which to base their policy recommendations and funding decisions. Thus, the dearth of data can be a potential obstacle for truly comprehensive watershed planning in many parts of the country. I have had the privilege of sharing and working with numerous states throughout the country on the Texas planning model (from California to Pennsylvania and several states in between) and concluded that few if any of these states possess the volume and quality of data, both temporal and spatial, necessary to build a credible water supply plan, let alone create comprehensive plans in a watershed to account for the multitude of uses and users. Even where adequate data exists, there has yet to be adequate modeling tools developed to facilitate 21st century-appropriate comprehensive watershed planning.

In Texas, one of the key results of the implementation of Senate Bill 1 was the development of surface and groundwater availability models. Surface water availability models for all 23 major and coastal river basins and groundwater availability models for 9 major and almost all of the 21 minor aquifers in Texas now exist and are available for public use. The water availability models are used for planning and regulatory purposes, ensuring some synergy and communication not only between responsible state agencies, but also with project sponsors and other interested stakeholders.

Effective and efficient data sharing reduces duplication of effort and, at the same time, helps us to identify data gaps. Recent technological developments have enabled data sharing like never before. National initiatives such as the Consortium of Universities for Advancement of Hydrologic Science Inc., Hydrologic Information System (CUAHSI HIS) are enabling local, state and federal agencies as well as consultants and universities to make their data available to a broad community of interested users through Web-based data portals.

Significant technological improvements in streamflow monitoring have been made in recent years. Although the total number of water monitoring stations is

slightly lower now than in past years, the number of stations across the country for which real-time water resources monitoring data are available is significantly higher, which has been of benefit to water users, water managers and the general public. Furthermore, data quality has improved as a result of more accurate equipment and the ability to identify faults in a timelier manner. Unfortunately, the National Streamflow Information Program and Cooperative Water Program, both administered by the U.S. Geological Survey, remain significantly underfunded. Adequate funding for both of these programs will be necessary before we can start developing truly comprehensive watershed plans.

In addition to gathering sound scientific data, another key component of comprehensive watershed planning is the deliberate effort to gather the numerous voices into facilitated discussions. Again, I'll use the Texas experience to depict the looming challenge ahead.

For the 2007 State Water Plan, the 16 planning groups composed of approximately 350 voluntary representatives with a broad array of interests, including the 11 interest group categories specifically required by statute. They worked for more than four years to develop their regional water supply plans and held several hundred public meetings across the state to solicit public input. Planning group members spent thousands of hours and traveled as many miles to create these plans.

Throughout each planning process, joint meetings between the planning groups serve both to coordinate water supply management strategies and also to circumvent future potential conflicts arising over the use of shared resources. When appropriate, planning groups coordinate their planning efforts with those of neighboring states and the Republic of Mexico. Because certain water management strategies, such as the development of a large reservoir, could satisfy needs in more than one region, the planning groups are encouraged to form subregional water planning groups and to hold joint regional meetings.

As I've described, Texas has gained valuable insight into the critical components of watershed planning as it relates to water supply. We have also learned through this process, however, that it is extremely challenging to incorporate into our water supply planning the associated impacts related to water quality and the environment.

So please keep in mind that I have just described the Texas process for water supply planning. Now multiply this effort by an order of magnitude to get a sense of the effort involved in comprehensive watershed planning. The resources, time, coordination and facilitation required for the type of effort described as comprehensive watershed planning is considerable if not overwhelming.

EFFORTS AT THE FEDERAL LEVEL

It has been the Texas experience that we are not yet ready for truly comprehensive watershed planning at the federal level. Numerous discussions

have taken place, entire conferences have been held around this very issue, and as I mentioned, there has been almost universal agreement that comprehensive watershed planning is the next great plateau to attain if we are going to be successful in meeting the almost infinite myriad of challenges facing our nation in the 21st century. This is especially true when we consider the yet to be realized potential impacts of climate variability on our watersheds. At this point, however, we are holding a nice cover that promises more than the book delivers. We need to get past the rhetoric and begin to take action. Madame Chair's call and the subcommittee's consideration of this issue today will provide the impetus for an action plan.

At the risk of being repetitive, I will suggest to Congress that the very first step to be taken to improve federal support of water resources planning and management is to convene a forum to discuss the appropriate role of the federal government in this regard. Numerous federal agencies have a stake in the game, but there appears to be very little coordination amongst them, resulting in gaps, duplication, and even conflicts in approach and conclusions.

Let me be clear that I say this with some trepidation, as the members of the subcommittee are keenly aware of the states' unflinching stance on state primacy over water resources. Yet, the piecemeal approach cobbled together by various federal agencies hinders our ability to fully use federal assistance and support on water resources issues. This is especially true when one considers the significant federal legislation, such as the Endangered Species Act, the Safe Drinking Water Act, and the Clean Water Act, that local sponsors will be required to address as they formulate and develop comprehensive watershed plans.

I appreciate the opportunity to offer insights on Comprehensive Watershed Management and Planning. I hope I have been able to provide to the subcommittee a better understanding of the challenges ahead. Comprehensive watershed planning is a worthy goal, but we need to be clear on the enormous challenges, including fundamental structural changes, that we will need to address before we can be confident that a collaborative and comprehensive approach is achievable. I am available for your questions.

Thank you.