

Overview of Findings

The assessment was successful in obtaining information that describes the opinions of Colorado’s water users statewide, within major water basins, and within each of the segments of water use. The overall results, which are presented below, can be framed in terms of issues related to the current water situation and the future water situation.

The current water situation was described in terms of:

1. Limitations to current water supply,
2. Current levels and types of water management planning and implementation, and
3. Current drought (2000 through 2003) impacts.

Opinion data collected to characterize water user distress with regard to the current water situation identified the following issues of widespread concern:

- Availability and reliability of water (including stored water, water for augmentation, water for ground water recharge, etc.)
- Limitations of existing infrastructure (including water transmission and distribution systems, canals and ditches, etc.)
- Limited use of meaningful drought and water conservation planning and implementation (which specifies conservation measures and programs) in all segments
- Limited use of effective drought and water conservation tools (i.e., methods and programs) in the agricultural segment

Water users indicated that meaningful and effective drought and water conservation measures and programs would need to include those components listed in Table 17-1.

Table 17-1 Summary of Effective Drought and Water Conservation Tools

	Municipal	Agricultural	Other Entities
Drought	<ul style="list-style-type: none"> ▪ Public Education and Involvement ▪ Lawn and Garden Watering Restrictions ▪ Fines and Tiered Rates for Water Use 	<ul style="list-style-type: none"> ▪ Water Conservation ▪ Cooperative Agreements/ Operating Agreements 	<ul style="list-style-type: none"> ▪ Public Education and Involvement
Water Conservation	<ul style="list-style-type: none"> ▪ Public Education and Involvement ▪ Metering ▪ Distribution/Transmission System Leak Detection ▪ Fines and Tiered Rates for Water Use 	<ul style="list-style-type: none"> ▪ Alternative Irrigation Practices (includes alternative crops and planting strategies) ▪ Lining Ditches and Canals ▪ Conjunctive Use of Surface and Ground Water/Recycle Water ▪ Metering 	<ul style="list-style-type: none"> ▪ Public Education and Involvement ▪ Use of Recycled Water ▪ Alternative Irrigation Practices (includes alternative crops and planting strategies)

Given the current status of water supply, drought and water conservation planning in the state, these various measures and methods need to be further emphasized and promoted for use by those entities that either do not plan, or do not have plans that allow for meaningful implementation to occur.

The major issues identified by the opinion data regarding future water supply planning and potential drought mitigation projects included:

- Need funding to support water development and infrastructure projects (including capital, repair and maintenance).
- Need to develop new water supplies.
- Need to improve the ability to predict the weather (as it relates to predicting drought).
- Need for new infrastructure including surface water and ground water storage, transmission and distribution systems, large-scale multi-basin projects, and water reuse projects.
- Need for repair and rehabilitation of existing infrastructure including lining ditches and canals, dredging and repairing existing reservoirs and dams, repairing existing diversion structures, and upgrading water transmission and distribution systems.
- Need for improved water conservation measures and programs, as well as measurement techniques.
- Need for additional public education and involvement programs.
- Need for technical assistance in water supply, water conservation and drought planning.

There is a clear overlap between some of the issues identified based on the current water situation and the expected future water situation, and it is the nexus of these issues that is the basis of the major recommendations presented below, since it is those critical water issues that are concern now and into the future as identified by the state's water users that may be best addressed by state water policy and programs.

Recommendations

The recommendations presented below are provided first in the form of the major objective and related specific objectives that the state of Colorado should address with existing or new policies in terms of technical, educational, project, and funding support. Next, a group of specific actions and/or activities that could be performed to begin to address the major objectives are presented.

It is worth noting that implementation of a complete set of actions and /or activities to address all identified water user needs is not realistic, or attainable. Rather, the state will need to prioritize and manage its resources in such a manner that the key water user needs are met. In some situations, this will require the state to provide those resources that will best benefit the majority of water users. In other situations, it may require that the state address the needs of only a few water users that face dire circumstances. In all situations, the state must allocate resources in ways that are prudent and appropriate to the state water and programmatic missions. The objectives and actions that are recommended below take into account, to some extent, all of these issues. Final decisions related to how the recommendations of this report are to be implemented lie with the CWCB Board, the Executive Director of the DNR, and the Governor.

The major objective that has been identified for the state to address with respect to Colorado’s water users needs is to **improve water availability and reliability statewide**, which is not differentiated by water use or user. In fact, all water users in all geographic regions identified a need for improved water availability and reliability – including water for domestic and municipal use, water for agricultural use, water to support natural stream flows and lake levels, water for fire fighting, and water for commercial and industrial use.

Related areas of practice that Colorado’s water users identified as needing state involvement, which will address the major objective include:

- Improving public understanding and knowledge of state water and water resources issues.
- Supporting infrastructure needs of water users.
- Supporting technical assistance needs of water users.

By addressing these three specific areas of practice, the state can address the major objective of improving water availability and reliability statewide.

Public understanding and knowledge of state’s water and water resources issues

Colorado’s water users utilize public education and involvement at many different levels in developing and implementing water policy and programs. For example, water users use public messaging programs to announce the arrival of drought, identify drought and water conservation program needs, and promote water savings

Table 17-2 Summary of Recommendations

Major Objective For State Water Policies*
<ul style="list-style-type: none"> ▪ Improve water availability and reliability statewide
Areas of Practice to Achieve the Major Objective*
<ul style="list-style-type: none"> ▪ Improve public understanding and knowledge of State water and water resources issues. ▪ Support infrastructure needs of water users. ▪ Support technical assistance needs of water users.

* Based on data and opinions collected from Colorado’s water users

measures. In addition, much of the process for water development and project permitting requires public input and comment.

The state may have numerous roles in supporting the effectiveness of local and regional public education and involvement efforts, as identified by water users. First and foremost, the state could promote the broadcast of consistent messaging from all water users regarding drought response, water conservation, and the similarities and differences between these two programs. Messaging within media sheds, as well as across media sheds, is often inconsistent and/or conflicting (e.g., different municipalities have different timing and types of lawn watering restrictions). The state could provide resources to help reduce the inconsistent and conflicting messages provided by neighboring water users. In addition, the state could provide resources to help the citizens of the state better understand the seriousness and need for meaningful water conservation during periods of no drought – in part to help local and regional efforts.

The state could also promote general education policies within our primary and secondary schools to give school aged children a basic understanding of where our water comes from, its relative scarcity, and how important water conservation and drought response programs are to sustain the Colorado life style and related quality of life. In addition, state resources can be used to provide citizens access to water information through public workshops, water fairs, state web sites and technical forums.

Support infrastructure needs of water users

Colorado's water users identified a plethora of infrastructure needs statewide. Most prominent was the need for more new or expanded water storage for the benefit of all water users. Storage of water (including both surface water and groundwater) was followed by identified needs to transport water from storage facilities or water sources to water users via pipelines, canals, and ditches. Water users also identified significant needs for repair and rehabilitation of existing infrastructure (e.g., dams, diversion structures, water treatment facilities, etc.) to improve water availability and reliability.

The state could provide additional funding mechanisms to support both local and regional water development and infrastructure improvement projects – beyond the funding programs that are currently available through the CPWRA and the CWCB. The state could also provide resources to help leverage federal funding programs that could be used to support local and regional water projects.

The state could also provide mechanisms and resources to facilitate diverse water interests in the identification and evaluation of multi-basin water projects that have been preliminarily identified by water

users as important to support current and future water supply needs. This facilitation effort could lead to both a group of identified projects that can be built to provide water, and to a sustainable process that can be repeated in the future to support project identification, evaluation and development.

Another way that the state could support water user infrastructure needs would involve developing funding programs to promote and support meaningful water conservation, especially in areas with or expecting high growth or increased water demands. State support, which could include technical assistance programs (to be discussed later), could include grants and low-interest loans for planning and implementation of water supply master planning, water conservation and drought response and management programs.

Provide technical support to Colorado's water users

Water planners and managers statewide have been planning, and should continue to plan, for water supply development and management, water conservation, drought response, and infrastructure management. Integral to these planning efforts will be the need for technical analysis, data and information management, system and information mapping, cost estimation, hydrologic and hydraulic system modeling, economic and demand forecasting, etc. Some of the state's water users have the means to perform all of the necessary planning functions within their resource base. Others have some of the resources that they may need, whereas still others are challenged by such demands.

Colorado's water users have called upon the state to extend its technical assistance to aid all water users in need, in all water use segments, in their water supply planning, water conservation planning and implementation, and drought planning. The nature of the technical assistance may vary depending on the needs of individual water users, however a number of pressing needs have been identified:

- Agricultural water users have identified needs for better water conservation measures and programs, as well as better mechanisms to measure water conservation.
- Municipal water users have identified similar, but less widespread, needs for better water conservation and drought planning programs.

In addition, agricultural water users who have linked effective water conservation with drought management (unlike municipalities and other water users) have identified the benefit of cooperative and operating agreements in weathering periods of water shortages.

To address these needs, the state could provide technical assistance to support local entities in their various water planning and implementation efforts by:

- Developing better technical understanding of the nature of drought – its reoccurrence; and its metrological, agricultural, and hydrological characteristics and features (especially as it relates to planning for future water supplies and water development).
- Developing guidance programs and manuals with recommendations for different types of best management practices, communications methods, and plan components that water users could use in developing their plans.
- Developing example cooperative agreements (e.g., dry-year leases, substitute supply plans, etc.) that water users could utilize in their efforts to develop and implement cooperative agreements.
- Conducting training-type and informational workshops for water users, water planners, and water managers statewide.
- Continuing to maintain and update the Colorado Decision Support System as additional information becomes available, conditions change, new projects are developed, or additional detailed analyses are needed or warranted.

Other Issues

There are some other issues that the Drought & Water Supply Assessment brought into focus regarding potential state policy related to the three areas of practice listed and discussed above. The other issues involve the potential need for the state to evaluate alternative funding mechanisms and sources to support future state public education and involvement, infrastructure financing, and technical assistance programs. The other involves having the state commit resources to further market surveys.

The state may want to evaluate different funding mechanisms for the various demands that exist on its resources with respect to public information and education, infrastructure and technical support. The state could provide guidance to local entities with respect to different water use fee structures and surcharges. The state could evaluate alternative taxing and finance mechanisms for enterprise revenue generation. And the state may want to support the development of local and regional partnerships that will boost synergies for water development and infrastructure financing. The focus of these efforts would be to leverage state resources to develop alternative financing mechanisms beyond those currently available – both in terms of grants and loans.

Finally, the state may want to continue performing market surveys of Colorado's water users as a means to connect with one of its key

constituencies, and one of its more important service providers. The market surveys should, at a minimum, include some repetition of the content questions asked in performing this assessment to aid in understanding the temporal changes of water user needs and attitudes within the different state geographies and water user segments. In addition, based on the market survey results, the CWCB can use more exposure to its customer base, especially with regard to services that it provides. Thus it will be increasingly important depending, in part, on the policy revisions and improvements that are made based on the recommendations provided herein that the CWCB keep abreast of its customers perceptions of the Board and Board staff. Therefore future market surveys should include questions on water use, water supply, project and support needs, and perceptions of the CWCB.

Initial Implementation Steps

The process of developing a meaningful, comprehensive state response to Colorado's water users concerns regarding water supply, water conservation and drought planning and management, in general, and the drought of 2000-2003, in particular, is a multi-step, multi-year undertaking that will require the coordination of many steps performed by the state and its partners over the coming years. Rather than identify all the tasks that will be needed to address the major objective of "improving the water availability and reliability statewide," this portion of the report provides a listing of those task and activities that need to be performed to initiate full implementation of programs and projects to address the defined major objective.

The initial implementation efforts will require that the state and state resources be used in various evaluation and planning efforts to define those activities that will best utilize state funds and personnel to support water user needs - needs that will change over the period of implementation activities.

The Drought & Water Supply Assessment was the first of its kind project conducted by the CWCB to better understand the challenges and issues that Colorado's water users are facing regarding drought and water supply. The feedback that was received from the state's water users has helped frame water user needs and the state role in supporting or meeting those needs. Some of the identified needs relate to programs that the state DNR already administers. In other cases, the needs indicate a gap between what is provided and what is needed. In either case, the results of the assessment point to the need for the state to respond to those issues identified by our water users.

This section of the report lists the concrete steps that the CWCB should take to better serve Colorado's water users and address the

major objective – to improve the availability and reliability of water statewide. The steps in some cases include the continued, or expanded, performance of existing state programs and policies. In other cases, the concrete steps that the CWCB should perform involve evaluating options and selecting methods to better support water user's needs. In yet other situations, problems or inadequacies may have been identified within existing state and CWCB programs, and these inadequacies need to be rectified, managed, and improved.

A list of concrete tasks to be performed by the CWCB is provided below:

- Examine need for new or revised state water policy related to how CWCB provides public information and education, technical assistance and infrastructure support from the Office of Water Conservation and other CWCB Sections with regard to identified water user needs.
- Examine and improve role and relationship of public information and education efforts by the CWCB with the DNR, EDO and the Governors Office.
- Evaluate, improve, and coordinate the role and relationship of the CWCB public information and education efforts with those being conducted by local water authorities, utilities, users, and suppliers.
- Evaluate, and where appropriate, engage alternative funding sources and mechanisms to provide resources for programs water users identified as being needing on a statewide, regional, and local basis.
- Evaluate and where appropriate support need for enhancements to and funding for improving the SEO water administration tools related to tracking annual water use, stored water, well and water administration, and diverted water by water user.
- Revise and update the CWCB Long-Range and Strategic Plans to ensure performance of the identified implementation tasks and activities.
- Examine the CWCB internal budgets and organizational structure to determine how to best achieve the desired objectives and perform the identified tasks, and to identify resource needs, if any exist.
- Evaluate means to fund public information and education, infrastructure construction and maintenance, and technical

assistance programs in conjunction with sustaining, and expanding, the construction fund.

- Coordinate use of other state resource (e.g., DoLA, SEO, etc.) and affiliates (e.g., Colorado Foundation for Water Education) in supporting needs identified by Colorado's water users.
- Continue to support the development and use of the CDSS tools, especially with respect to understanding and characterizing basin hydrology, firm yield, groundwater-surface water interactions (including augmentation water and groundwater recharge programs), and water supply development needs.
- Continue to support development and implementation of the Statewide Water Supply Initiative (SWSI) as it relates to the identification of areas with critical water management issues, water development projects, water supply and demand imbalances, and infrastructure needs; and the development of a sustainable process for maintaining inter and intra-basin communications.
- Continue development and the appropriate allocation of resources to the Office of Water Conservation and Drought Planning in providing technical assistance to covered entities, evaluating submitted water conservation and drought plans, administering fund programs, and disseminating information to the public.
- Integrate the results of this project, and other relevant projects, into the SWSI, Federal 2025 Project, and other state and regional water planning efforts.
- Provide appropriate resources to continue to develop and administer opinion surveys of Colorado water users relative to important water issues, and to create a temporal database related to drought and water supply impacts, limitations, planning needs and projects.

In addition, the CWCB needs to identify methods to keep the information and goodwill created by developing and administering this project in front of the CWCB Board and Board staff, DNR, the Governor's Office and the State Legislature such that the value of this assessment is fully realized. To address this issue, the CWCB should look for opportunities to support speaking engagements, connect with and support the Colorado Foundation for Water Education, and provide information to the SWSI project team including the Basin Round Table members, the state legislators, and the public at-large.