

**TECHNICAL MEMORANDUM ON THE  
WESTERN STATES SURVEY**

**Framework Water Plan, Level II**

October, 2006

Submitted to:

Wyoming Water Development Commission  
Cheyenne, WY 82002

**COLLINS PLANNING**  

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**• A S S O C I A T E S •**

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## **HIGHLIGHTED IDEAS FOR CONSIDERATION**

Below is a list of ideas and suggestions that are derived from the review of water resources planning of several western states. In reviewing the planning approaches, several documents posted on web sites reviewed and key individuals in the planning process were interviewed.

### ***Colorado***

1. The individual basin roundtables provide a forum for negotiating and settling controversies among differing parties within a basin and across basin boundaries.
2. A state-wide committee appointed by the Governor and Legislative leadership provides a high level of political recommendations on water related matters.
3. The state provides comprehensive information and data but the emphasis is on a local “bottom-up” planning process.
4. An implementation program is needed. Perhaps it is less than an action plan and is more of an established procedure for proposing and deciding upon proposals. It needs to be as tangible as possible.

### ***Idaho***

1. Basin planning looks at stretches of streams from an environmental perspective and recommends minimum stream flows and state protection to maintain the natural values.
2. Establish planning objectives that are achievable within a reasonable timeframe. Avoid a program that takes 40 years to complete all of the basin plans. The inability to complete the planning program is a result of limited staffing levels and the difficulty in isolating the planning staff from various other assigned duties.
3. Establish a Water Bank in which users can temporarily rent their unused water to other users.
4. The state Water Plan sets out state-wide objectives and policies to guide water related decisions.

## ***Montana***

1. Avoid creating an elaborate planning process that exceeds the financial and political commitment of the state.
2. Focus on solving the problems and addressing the issues that are important to the local residents. Ensure the citizens see local results of water resource planning.
3. While the involvement of grass roots committees and a focus on their problems can provide tangible local results, some type of construct is needed to provide focus and priorities. A comprehensive long term perspective is needed to avoid simply jumping from one individual problem to another.

## ***Kansas***

1. Avoid preparing basin plans for the sake of planning. Update these plans as needed but do not become a slave to a standard cycle of updates when they may not be needed. Instead, include the study and planning of issues that transcend basin boundaries to ensure all important topics are covered.
2. Move past the first stage of planning in which data are collected and issues are identified. A deeper level of understanding issues comes from preparing to implement plans. Develop strategic plans to implement the results of planning, which will require more detailed information.
3. Coordination and communication among program personnel is critical and some type of structure is needed. Convene the decision-makers of all agencies that are involved in water resources. Kansas created a Natural Resource sub-cabinet consisting of the heads of seven state agencies that have water related responsibilities.
4. The state must have a commitment to follow through on recommendations of the citizen committees if citizen participation is to be sustained. The Natural Resource sub-cabinet has the responsibility of preparing strategic plans to implement the priorities of the basin committees.
5. A formal state committee consisting of high level appointees can lend credibility to the water planning process and its recommendations.
6. While priorities are important, they must be balanced with flexibility that allows important issues to be addressed despite them not matching the priorities. When the focus deviates from the priorities, it occurs deliberately and in a measured way, thereby maintaining a context.

## *Texas*

1. The Texas Water Development Board (TWDB) provides funding and guidance to Regional Planning Groups to prepare Regional Facilities Plans. These plans bridge the big gap between plans and implementation. Much highly detailed information is needed to implement plan recommendations such as alternative analyses, feasibility analyses, and detailed cost estimates.
2. The next cycle of Regional Plans is more advanced than simply updating the initial plans. The Regional Planning Groups are moving to the next stage of planning by focusing on implementation and local issues/problem solving.
3. Transferring the decision-making and the crafting of the solutions to the local groups sustains the local participation. When the solutions and implementation strategies come from the local level, a message is sent to the Legislature that the water planning program is not planning for the sake of planning, but is solving problems and addressing issues.
4. Policy recommendations that come from the local level are powerful recommendations to the Legislature.
5. Texas administers a funding program designed to secure the optimal size for a development project. If projections show that a facility should be larger than a community will need in the near term, the state will finance the cost of the added size until such time as the community needs it. The community then pays back the cost of the added size at the time the additional capacity is needed.
6. A report card on a water planning program should focus on two things: how much positive influence was brought to bear on implementation; and, has the level of knowledge and understanding of water issues risen among the Legislature and general public.

## *Nebraska*

1. The local Natural Resource Districts in Nebraska play a significant role in water planning and administering regulations.
2. Nebraska did not regulate groundwater wells and for many years and only required new wells to be registered. The lag in impact on the water resource eventually hit and the state now has to cut back on water rights in several basins.
3. Integrated Management Plans are prepared for basins and sub-basins that are over appropriated with the purpose of reducing water use to 1997 levels within ten years.

4. Physical information on the water resource is critical. Nebraska is spending a lot of money modeling the relationship between surface and ground water.

## *Utah*

1. Look for opportunities to solve specific problems or issues. Use the basin plans to identify local areas of actual need.
2. Utah has two goals that relate to estimating and projecting water use. They review for quality control the water use summaries submitted by water users. The Division of Water Resources (DWR) has the goal of reviewing all summaries for the entire state in five years. Similarly, the DWR undertakes an extensive effort to field check water related land uses. Land uses are mapped from aerial photography and ground checked by windshield surveys. The state has the goal of covering the entire state in five years. The land use mapping is popular and well used by many agencies and groups.
3. The state has been tracking water use data for over ten years and updates populations every two years. The DWR hopes to soon be able to calculate water budgets for each basin on an annual basis.
4. The state adopted a goal of reducing per capita municipal and industrial consumption by 25% by 2050, and is ahead of schedule in meeting this goal. Retail water users with more than 500 connections are required to have a water conservation plan.

## DETAILED NOTES BY STATE

### *Colorado*

Water planning and development in Colorado is driven by the rapid population growth and the fact the water is most easily accessed in western Colorado but 85% of the population lives in eastern Colorado. The basic question is “where will water come from to meet projected demand?” The two alternative answers are 1) from existing uses on the Front Range or 2) from the unappropriated water in the western slope basins.

Water use planning and administration is not centralized in Colorado. There is no centralized water use plan for the state and currently little in the way of localized plans for the individual water basins. Legislation calling for assessments of local needs and sources, and recommendations was passed in 2005. Individual basin committees and a state-wide committee are working to create the new administrative structure and documents called for in this legislation, but few results have been achieved at this time. Two divisions of the Colorado Department of Natural Resources (CDNR) and one Committee within the CDNR are responsible for administering, researching and planning for water allocation.

The state went through an earlier planning process to produce a report stemming from the State-wide Water Supply Initiative (SWSI) called for by a resolution of the 2003 General Assembly. The first part of this report is complete, but it provides information only and does not have any legal effect. The second part of this initiative is the identification of specific projects for implementation.

The 2003 legislation that led to the SWSI research effort was a result of concern about the state’s water supply. There is little evidence of any comprehensive planning or information gathering occurring prior to this effort.

### **Administrative Information**

The Colorado Water Conservation Board (CWCB) and the Colorado Division of Water Resources (CDWR) are the two divisions of the CDNR that administer water rights and allocate money for projects that protect water resources in the state. The CDWR also contains the State Engineer’s Office, the permitting agency for surface and groundwater wells and the administrator of all surface water rights. This division monitors stream flows and administers water laws but does not prepare water plans.

The CWCB has more of a planning function and contains a division dedicated to Water Supply Planning and Finance; however, this Board emphasizes that they do not mean to supersede local water planning. In fact, the word “planning” is intentionally avoided to prevent any impression that the state is attempting a “top down” planning effort. There is a frequently repeated emphasis to defer to local planning and for the state to provide

sound data and information. The local planning seems to be the planning of large projects to create reservoirs and diversions for water supply.

The CWCB attempts to provide influence through the provision of information and funding for projects. Two key goals of the state are to provide good data to make wise decisions and to understand the impacts of decisions, and to empower the local basin committees. If no local interest exists in a basin area to oversee the water resource, the state may take a bigger role, but exactly what this role would be is still being determined. The clear orientation of the state is to promote a “bottom up” approach to studying and overseeing the state’s water resources.

The CWCB loans or grants about \$55 million annually for projects, studies, and reports. The Water Supply Planning and Finance division of the CWCB has seven full time employees. The CWCB as a whole has 40.5 full time employees and a fiscal year 2006 budget of \$5.5 million. However, the SWSI project was funded with a \$3 million dollar appropriation; \$2.7 million went to a contract to provide technical work. The remaining funds provided for one staff person and the expenses for this 18 month project. It was completed by a consultant team communicating with the staff of the CWCB. This funding level, when divided over eight basins and spread across technical work, public outreach and meetings, provided for only a reconnaissance level of detailed information.

The CWCB is currently in Phase II of a SWSI which is meant to identify, suggest and ultimately fund beneficial projects to provide for the adequate provision of water for all of Colorado through 2030. Phase I of the SWSI was published in November of 2004.

The CWCB also administers many funding sources for water projects from which some of the budget for the SWSI may have been obtained. The CWCB in 2002 also published Basin Fact Sheets and Basin Use, Growth and Demand Projections for each of the eight basins in the state. These were created again to assist in local planning processes.

The newest entity within Colorado addressing water basin planning is the Interbasin Compact Committee (IBCC). The IBCC was created by statute in 2005, along with nine basin roundtables (IBCRTs), to facilitate discussion between basins and among parties within each basin to avoid conflict and make the best use of the state’s water supply. Each IBCRT is directed to:

- ❑ develop a basin-wide consumptive and non consumptive water supply needs assessment;
- ❑ conduct an analysis of available unappropriated waters within the basin; and,
- ❑ propose structural and nonstructural projects to meet the needs and utilize the unappropriated waters where appropriate.

These recommendations are then to be forwarded to the IBCC and the other eight IBCRTs for review.

Funding for this effort is in the range of \$600,000 to \$800,000 dollars, which will go to contracts to refine and/or prepare needs assessments for the individual basins. This

results in \$68,000 to \$88,000 per basin. One full time position in the Governor's office and 1.75 positions in the CDWR are dedicated to the IBCC/IBCRT program.

The IBCC/IBCRT format does not call for updates or revisions to the assessments or recommendations. Participation in the IBCRTs and IBCC is voluntary and though it seems to be going well so far, the system is only about a year old and its ability to actually produce plans and answer questions is unknown.

Central to the current water planning process in Colorado is a voluntary negotiation process through which differences can be aired and agreements reached among parties within a basin and between basins. Peer pressure, politics and expectations may encourage project sponsors and affected parties to enter the process. Once an agreement is reached, there is an intention to make it binding but the method is not yet determined. The Legislature passed to some degree on this detail by saying that upon reaching an agreement, a method for making the agreement binding will be determined. In essence, the execution of each agreement will be determined on a case by case basis.

Prior to the recent legislation and the SWSI and IBCC/IBCRT, no water planning program existed in Colorado.

### **Process for Preparing Plans**

Colorado is fond of the roundtable approach to public participation. There have been two sets of roundtables: the first formed as part of the SWSI, which is now complete; and the second set formed as part of the current IBCC/IBCRT program.

The CWCB used technical roundtables in each of the basins when preparing the SWSI Phase I report. These roundtables were composed of representatives from

- agricultural and ranching community,
- business, development, and civic organizations,
- environmental interests,
- federal agencies (e.g., USFS, BOR, BLM),
- local governments not directly providing water,
- municipal water providers,
- recreational interests and
- water conservancy and conservation districts.

In each basin there were three or four meetings of the technical roundtables as well as two public information meetings intended specifically for presenting information to and obtaining feedback from the general public on the findings of the technical roundtables. Using these roundtables and public information meetings, the state hoped that the SWSI would be a study largely directed and informed by local communities.

In the new IBCC/IBCRT process, a similar approach is being used. There are nine total IBCRTs – one for each river basin and one for metro Denver. The Denver metro area is a separate IBCRT under the new system. Each roundtable is composed of:

- one member appointed by each city and/or county in the roundtable area;

- one member of the local government of each city and/or county in the roundtable area;
- one member appointed by the board of directors of each water conservancy or conservation district in the area;
- one member appointed by agreement of the House and Senate Agriculture, Livestock, and Natural Resources Committees;
- ten members appointed by the roundtable; and,
- three non-voting members that represent interests outside of the roundtable that own water rights within the roundtable study area.

As stated above each IBCRT is to complete a needs assessment, identify available unappropriated water, and recommend projects. Each IBCRT also is to review and comment on the other eight IBCRTs' assessments and recommendations for the purpose of identifying conflicts, improvements or possibilities for cooperation. Each IBCRT meets monthly to discuss issues and receive reports from other IBCRTs and the IBCC.

The members of the SWSI roundtables were hand selected by the state and there was an emphasis on selecting knowledgeable individuals. These roundtables may have worked better than the current groups because of this uniform level of knowledge. Also, the SWSI roundtables were participating in an information gathering process and members were freer in their participation. The current round tables in the inter-basin program are characterized by an uneven level of knowledge that hinders the groups' productivity, but also these groups are perceived as being more binding and members are more defensive and guarded in their participation. Given the newness of these roundtables, members do not yet know each other very well, which also may be inhibiting their early work.

The IBCC will be made up of

- two members from each IBCRT, at least one of whom holds adjudicated water rights and at least one of whom resides within the roundtable study area,
- six members appointed by the Governor,
- one member appointed by the chairperson of the House Agriculture, Livestock and Natural Resources Committee,
- one member appointed by the chairperson of the Senate Agriculture, Natural Resources, and Energy Committee, and
- the Director of Compact Negotiations appointed by the Governor.

The IBCC will present a charter to the Legislature for approval that:

- provides bylaws, procedures, goals for the operation of the committee;
- will guide voluntary negotiations between roundtables and provide a safeguard against conflicting agreements being reached;
- provides procedures for ratifying compacts between roundtables including the requirement that every roundtable with waters affected must approve a compact; and,
- provides procedures for making compacts legally binding.

The IBCC also must submit an annual report to the House and Senate that outlines the compact negotiations that occurred during the year. The committee also is charged with creating a public outreach program to inform the public of compact negotiations and provide a forum for public input.

The CWCB has begun working very closely with the IBCRTs on Phase II of the SWSI to avoid duplicate work. This communication also informs the IBCRTs in their assessments and the CWCB of the intentions of each basin. In addition to the CWCB and the CDWR, federal agencies such as the BOR, BLM, and USFS often provide assistance in writing plans and preparing assessments. The SWSI Phase I report lists a number of additional federal, state, and local agencies that were sources of information in the preparation of the water supply studies.

### **Plan Content and Structure**

The focus of the Colorado approach is on supply/demand surveys. The IBCC/IBCRT program calls for needs assessments and available supply studies. This is similar to the structure of Phase I of the SWSI. The SWSI report is the closest thing to a state-wide plan in Colorado and looks at population, economic and social conditions. Using this data and examining the current physical conditions in each basin and current water law, the SWSI projects the water use for the state. This leads to the water needs assessment which identifies the areas of the state that will see the most increased need by 2030. The next section is an examination of existing water supplies to determine how these match up with the water needs; which is followed by a determination of the options for meeting the water needs. The report ends with sections on basin specific options and implementation alternatives.

The needs assessment of each basin that is the work of the existing round tables in the IBCC/IBCRT is roughly repeating the work of the SWSI; however, each basin group is allowed to decide how to assess their local needs. The state hopes that in empowering these local groups and providing good data, the various groups will gravitate to a reproducible methodology for the needs assessments.

The SWSI uses population projections for each county to determine the water needs. They couple this with projection of industrial needs by projecting industrial business growth in each county. The report then analyzes the amount of water needed for production as well as the amount of water that is returned into the system versus lost into products or waste. Projections of agricultural growth also were done. Different supply scenarios were determined using an input/output supply analysis of the hydrological system. The computer program WatSIT projects various components of water supply (e.g., flows, reservoir levels) based a number of different types of hydrological recycling systems in agricultural and municipal/industrial use. There are also studies used in the SWSI that look at the water needs of the endangered and threatened fish and wildlife in each basin. As stated above, the SWSI also relied on the roundtables and public comment session as information and guidance.

### **Implementation and Legal Considerations**

These plans and reports contain no legally binding regulations or restrictions. They serve only as studies with recommendations for future projects and compacts that might solve the problems Colorado faces in its water use. The implementation of this planning comes in the form the CWCB's allocation of the funds for water development projects. However, that \$55 million in annual loans and grants is only a portion of the funding that is available state-wide and through federal and local sources for the funding of projects to provide water for Colorado's various needs. The SWSI is meant to be an information source for those pursuing water projects.

The IBCC/IBCRT has some authority and legal effect. When compacts are made between basins they become legally binding in their distribution of water rights. This negotiating forum will theoretically produce water rights allocations that will be monitored by the CDWR. However, the needs assessments, supply analyses, and recommendations produced by each IBCRT are not regulatory documents. They are only informative studies to aid the making of compacts and the planning of the water projects that would best aid the state and the individual basins.

The state has never undertaken a state water project. They only have funded local projects.

### **Concluding Thought and Recommendations**

An implementation side to the water planning program is needed to describe how priorities are determined. An implementation program can be something between a collection of data and an action plan. Perhaps this portion of the program is only a process for determining implementation tasks, but it should be as tangible as possible.

Priorities among the various users and projects are important. Perhaps each basin has a water budget that generally allocates water among the categories of users that can be a starting point for evaluating future projects and proposals.

### ***Idaho***

Idaho has a state-wide comprehensive water plan produced by the Idaho Water Resources Board (IWRB) that contains two parts. The first part is a general statement of state goals and policies by which public and private water projects should abide. The second part is the collection of the plans of 39 basins. The IWRB produces each of these plans with the help of citizen advisory committees from the respective basins. Only ten basin plans have been completed and approved and one is in the planning process.

The focus of the initial legislation passed in 1988 was to develop plans for five priority basins that had low population levels but very high natural resource values. The legislation created interim protections for these basins and created a two year window to complete the basin plans. As result, the currently completed basin plans reflect a strong conservation orientation designed to protect stretches of river that are vital to outstanding

resources (e.g., recreation, fish/wildlife, agriculture) and to establish minimum stream flows necessary to maintain this protection. These early basin plans are limited in their analysis to project future consumptive needs and recommend projects to ensure the projected need is satisfied. The early plans propose streams for state protection or minimum flows and recommend projects and compacts that might be beneficial in preserving the natural resource values of the basins.

More recent basin plans; however, are addressing supply and demand issues in areas of greater population levels. Several of the policies in the state water plan, furthermore, call for the need to project and plan for meeting future consumptive needs.

### **Administrative Information**

A state statute passed in 1988 establishes the IWRB and charges it with preparing the water plans. The State Water Plan Part A was completed in 1996 and lays out state goals and policies regarding water planning. Part B consists of the 39 comprehensive basin plans, each to be approved by the Legislature and then included as part of the State Water Plan. The IWRB is a part of the Idaho Department of Water Resources. The old position of State Engineer is now the head of this department.

The IWRB is composed of eight members appointed by the Governor and is supported by the planning office that has a staff of nine people and a budget of about \$300,000. All of the individual comprehensive basin plans are prepared in house by IWRB staff and the board approves each plan before it is sent to the Legislature.

Data typically comes from federal and state agencies. The staff analyzes the data and incorporates it into the basin plans. Staff also conducts the public information meetings and citizen advisory committee meetings that make up the public input portion of the plans.

In FY2004 the IWRB contributed over \$47 million in loans, grants and development bonds to water projects assisting local governments, water and homeowners associations, non-profit water companies, canal companies and irrigation districts. A single project accounted for over \$24 million; however. Aside from a few large projects, \$2 to \$3 million dollars are awarded annually in loans and \$50,000 - \$70,000 is awarded annually in planning grants. The Legislature appropriates \$200,000 to \$500,000 most years to the each of two funds, the Revolving Development Account and the Water Management Account. In addition, the state sells revenue bonds as an additional funding source for projects.

The comprehensive basin plans are to be completed for every basin and then reviewed every five years. As only ten are completed in the eighteen years after the legislation was passed calling for their creation, the IWRB is clearly having difficulty meeting the requirements of keeping the plans up to date. Another 20 – 30 years will be needed to complete the basin plans at the current rate.

The planning office estimated the staff size needed to complete the remaining basin plans in a timely fashion, and concluded that the staff needed to be increased from seven to 30. The Governor recommended the increase, but the result was two additional positions. No one is interested in attempting again to increase funding for basin planning.

Compounding the staffing problem is the additional duties the staff are assigned. They continually are pulled off of planning projects to work on new issues and problems. The planning staff also provides staff support to the Board, provides some administration of regulations, assists in the financial programs and works on special projects.

### **Process for Preparing Plans**

The first part of the State Water Plan (the policies) was completed by the staff conducting scoping meetings around the state and then preparing a draft. Additional public meetings were conducted to solicit comments on the draft with changes made by the staff and Board. Formal public hearings were then held with a comment period before the Board produced the final State Plan that was submitted to the Legislature for review and adoption. This process took one and a half years to complete, was adopted in 1996 and is supposed to be updated every five to ten years. However, an update is not scheduled for the near future.

The process for the preparation of the individual comprehensive basin plans is laid out in the rules and regulations of the IWRB and is generally uniform across the plans that have been completed to date. The process includes seven steps to follow in preparing the basin plans, not necessarily in this order or independent of each other:

- ❑ inventory resource attributes;
- ❑ identify local issues, concerns, and goals;
- ❑ assess current and potential water uses and constraints;
- ❑ assess and identify river segments with outstanding resource values;
- ❑ develop alternatives or strategies;
- ❑ determine actions and recommendations; and,
- ❑ develop the plan.

The public participation program follows a general pattern but varies slightly from basin to basin. The IWRB requires that the plans be informed of local interests and principally accomplished by citizen advisory committees. These committees met seven times in some basins but only three times in others. In some basins the citizen advisory committees only participated in the scoping stage at the beginning of the process. All citizen advisory committee meetings are open to the public.

These advisory committees are composed of a variety of interests and the members are selected by the IWRB from applying citizens so as to be geographically and ideologically diverse. The goal of these groups is to ensure that no issue or interest goes unconsidered even if no consensus can be reached. In most cases these committees participate in the scoping and identification of local issues and concerns, the identification of river segments with outstanding value, and the development of alternatives. The most recently

completed plans contain a section or appendix with a detailed listing of concerns and suggestions from the citizens' advisory committee.

In addition to the citizen advisory committees, Idaho uses a combination of formal public hearings and public comment periods to obtain additional input on the plans. There are usually one to three public information meetings conducted throughout the process to gain general public comment on the work done at various points in process. At the initial public meeting in the basin the IWRB will announce its intentions to complete a comprehensive basin plan for the area. This step is followed by the selection of a citizens committee and in some cases public scoping sessions.

After a draft plan is created and circulated for public comment, a second draft is prepared and again circulated for comment, or, if the changes are limited, they are made and the plan is approved by the IWRB. Following IWRB approval the plan is submitted to the Legislature for review and approval and inclusion in the state plan.

The IWRB is responsible for the creation of each of the basin plans. This helps in the coordination of all of the plans as the individual plans are pieced together to make the whole without state-wide consideration or debate.

### **Plan Content and Structure**

Part A of the State Water Plan is a list of objectives followed by a list of more specific policies. The policies are divided into five groups:

- ❑ water use;
- ❑ conservation;
- ❑ protection;
- ❑ management; and,
- ❑ river basins.

According to this last group there are only three river basins in the state. The Snake River basin encompasses most of the state and includes most of the state's population. The other two basins are the Bear Lake and the Panhandle River basins. The desire to have more local control over water planning led the state to divide major basins into 39 smaller basins for the individual plans.

The 39 Basin Plans constitute Part B of the State Water Plan and each has a similar structure guided in part by statutory requirements and in part by the rules and regulations created by the IWRB. Each plan begins with an introduction that includes a description of the planning process and authority for preparing the plan. The introduction usually includes an executive summary of the plan. Each plan then includes the following components.

- ❑ A basin description that includes physical characteristics and demographic, social, and economic information of the area.

- ❑ A list of issues, concerns and goals that arise out of the planning process. In some of the earlier plans these goals are outlined in the introduction, while in later plans they are listed in a separate section and described in much more detail.
- ❑ Every plan is required to have a description and analysis of 15 resources in the study area. These resources are:
  - water supply;
  - timber;
  - flood control;
  - mining;
  - irrigation;
  - livestock watering;
  - power development;
  - scenic values;
  - energy conservation;
  - natural or cultural features;
  - fish and wildlife;
  - domestic, commercial, municipal, and industrial uses;
  - recreational opportunities;
  - navigation;
  - other aspects of environmental quality; and,
  - economic development.
- ❑ Every plan also includes, sometimes mixed in with the resource description and evaluation, a survey of the outstanding values in the study area that may lead to the designation of stretches of river as state natural or state recreational protected. These designations prohibit damming, hydropower, dredge or placer mining, and gravel extraction. Stream bed alteration and stream diversions also are prohibited in streams with natural protection but only conditionally prohibited in streams that are recreation protected.
- ❑ Lastly, every plan includes a section with actions and recommendations. From this section the IWRB makes recommendations for protection designations, stream flows and certain projects and actions they feel would be beneficial to the health of the basin.

The issues identified in the plans often are derived from the list of the sixteen resources that are described and evaluated. However, the way these issues are dealt with in the basin plans is determined largely by citizen advisory committees. Typically the Idaho basin plans are focused on protecting the current environment as projects and agreements are created in the future to provide water.

In some cases various resources such as fisheries, wildlife, agriculture and mining are valued economically to help determine their importance versus domestic, commercial, municipal and industrial (DCMI) needs. There is little or no projection of the population or economic growth in the plans. When projections are used they are very simple extensions of previous growth trends with proportional water demands. For one region in the Boise area a separate projection of DCMI use was completed by the IDWR, but overall the projections in the plans are minimal or nonexistent.

The focus of the early basin plans was on establishing the minimum flows required to maintain the natural resources in each basin. Upstream basins are most affected by these actions as the plans recommend minimum stream flows and assignments for state protection that prohibit the construction of dams or diversions. These appear to promote the perspective that development projects and agreements will creatively meet the demand for water while maintaining the minimum flows and respecting the protection designations. This approach to basin planning likely reflects the fact that most of Idaho has not faced the population increase that other states have and has less worries about meeting the demand for water in the near future. More recent basin planning efforts; however, have focused on more rapidly growing parts of the state and on supply/demand issues.

### **Implementation and Legal Considerations**

The implementation of the State Water Plan Part A is in the creation of the individual basin plans, which is Part B of the state plan. The implementation of these basin plans is carried out in two ways.

- ❑ The first way occurs when the Legislature approves the basin plan, in many instances creating the river designations and the minimum stream flows. From that point on, all water rights applications, decisions and water projects must comply with these standards. It is the duty of the IDWR and the water courts in the state to enforce these standards.
- ❑ The second implementation mechanism is the realization of the recommended projects. These recommendations carry no legal weight; however, and any future projects can be proposed.
- ❑ The IWRB administers the several sources of financial resources. The Revolving Development Fund, Water Management Account, and Conservation and Development Trust are financed by general fund appropriations and are available for projects. The IWRB also can allocate funds gained through the sale of bonds. These funds are loaned to project sponsors for the realization of the goals and policies of the State Water Plan. The current interest rate is 5 ½%. There are few planning grants awarded up to \$7,500 with a one-to-one local match. This funding typically goes to expansions and improvements of existing water systems. New systems are very rare. Recipients are small water companies providing a domestic supply, small towns and cities maintaining water systems, non-profit corporations and agricultural interests. There is an emphasis on assisting the agricultural community across the state. The administration of the major funding sources for water projects by the same body recommending projects and preparing basin plans provides a great implementation mechanism for the recommendations in each basin plan.

### **Major Current Water Projects**

In 2005 the IRWB loans mostly went to groundwater districts for water rights. They also spent \$24 million on the Bell Rapids Water Right Acquisition which was a Legislature required acquisition of a canal that was then leased to the Bureau of Reclamation at a rate that pays back the purchase price.

The Boise Canal Company Rehabilitation Project also was funded by the IRWB. This canal provides water to about 525 shareholders around Boise and was developed to provide water to downtown Boise. The canal is 100 years old and still had portions of its original construction. Various smaller irrigation and dam projects are also being funded by the IRWB.

### **Concluding Thoughts and Recommendations**

The Planning Bureau Chief believes the basin planning process is working very well except for the insufficient funding for staff. He believes the Wyoming Framework Plan is a great idea and the state should think more about policies to guide the local planning and project development.

Idaho maintains a Water Bank in which users who do not anticipate using their full allocation can temporarily rent the unused portion of their water to others in need of additional water.

### ***Montana***

Planning and managing water resources in Montana have evolved through four major changes in the last 40 years. Beginning in the mid-1960's water planning consisted of planning for development projects. After several years it was determined that project based water planning lacked coordination and public input from all interested parties. In the late-1970's the emphasis shifted to basin planning. It was later determined that while basin specific planning produced a lot of very useful information it lacked political and implementation feasibility and did not lead to action. It was also determined that the basin plans, because of their local specificity failed to address larger issues such as the administration of interstate and international compacts, federal water rights, and non-point source pollution. This led to a new initiative in 1987 that created a very elaborate process focusing on state-wide issues and sub-basin planning. Now all efforts have shifted completely away from preparing state-wide and basin plans and to solving specific problems. State-wide problems are addressed by state personnel and local watershed problems are solved by volunteer watershed groups.

Following the earlier initiatives, the Montana Legislature in 1987, reviewed its water planning process and those of the surrounding states and determined to model their water planning program after the Kansas approach. In the 1987 evaluation of prior water planning efforts, the state identified four practical objectives for the state water plan:

- 1) document and clearly state water policies;
- 2) promote more coordinated water management among governmental agencies;
- 3) designate water management priorities and focus resources on their resolution; and,
- 4) lead to water management action and produce results rather than produce an academic exercise.

Lessons learned in 1987 from Montana's prior water planning efforts were:

- 1) planning must be continuous and should not conclude with the publication of a plan;
- 2) plans must be adaptable because problems change;
- 3) the process must have a strong commitment to public involvement; and,
- 4) the planning process must be thrifty by resolving the most important and greatest number of problems.

While the planning process initiated in 1987, partly in responses to these lessons learned, has since been abandoned, the current approach of problem solving is still responsive to these 19 year old lessons. The current watershed groups continually function as long as there are problems to solve, their efforts adapt to the changing problems, they are totally citizen driven committees and they address the problems that are the most pressing in the view of the local citizens.

But prior to adopting the current problem solving approach, Montana modeled the state's program after the Kansas approach which theoretically created a living state water plan. The plan consisted of sections that addressed state-wide issues and were to be updated regularly. Certain of these sections were to be reviewed each year depending on the priorities of the Legislature, Governor, and public. The current write-up of these issues and the individual sub-basin plans were to be added to a three-ring binder that comprised the plan and allowed annual replacement of the various sections as they were updated.

The initial action identified 32 state-wide issues but only seven were addressed despite the six year timeframe to complete all of them. The 1987 initiative also called for plans for each of 15 sub-basins, but only two were completed.

In 1993 the state restated the purpose and objectives for a state water plan. In summary they were to provide a forum for affected parties to collaborate in solving management problems. The plan was to focus on specific management issues and serve as a vehicle for educating the public on water management issues.

The focus on solving management problems continues with the current approach. While the state has moved completely away from preparing state and basin plans, many of the objectives continue to be relevant in today's problem solving approach that relies on local volunteer groups.

### **Current Problem Solving Approach**

Montana is no longer doing state-wide plans or sub-basin plans. They are “solving problems.” They are working on problems both on a state-wide and on a local watershed bases. This is a deliberate switch made several years ago because the plans became “shelf art” and citizens did not see local results from the planning effort.

Example problems addressed by the current approach are the issues surrounding the change from surface water to greater reliance on groundwater, the issues of conjunctive groundwater use affecting surface waters and the appropriate level of exemptions for groundwater permits.

The new focus relies on 50 local volunteer watershed groups that have formed across the state, 20 – 30 of which are very active. Local interests decide to form these groups and then identify issues and problems demanding their attention. The local watershed groups basically work without staff resources, relying on volunteer local support and grants. State personnel provide support in the form of research and facilitation, but the local volunteers develop their own solutions and convince decision-makers to implement their derived solutions. Any plans prepared by the watershed groups are reviewed and approved by the Department of Natural Resources and Conservation (DNRC) although this approval carries little meaning as most of the recommendations call for legislative action. This requires the local committees to involve their local legislators early in their deliberations and to take on the responsibility to sell the recommendations to the Legislature.

Very little money is devoted to these efforts. On state-wide problems, 1.5 FTE are dedicated to research and technical support. The local watershed groups apply for grants and rely on local volunteers to get work accomplished. This problem solving approach is very much a bottom up process.

The powerful State Water Policy Advisory Committed (SWPAC) established as part of the last stage of water planning no longer exists. The current approach involves the Environmental Quality Council, which consists of both legislators and water interests from across the state. This Council works with the state personnel and the watershed groups on issues and problems.

The formal process of scoping meetings or similar outreach efforts that existed in the past stage of planning to identify issues no longer exists. The issues and problems that bubble up from the local level or have political support are the issues getting attention.

Not many large projects are underway in Montana; however, the St. Mary’s Canal rehabilitation is a huge project costing \$130 to \$150 million dollars to rehabilitate an old water diversion facility. The state owns a hydropower facility that provides an income stream devoted to expansion and rehabilitation of existing water systems. The cost of new storage facilities is prohibitive unless it is related to a Native American compact, thereby providing access to federal funding.

## **Abandoned Planning Approach**

For more than a decade Montana attempted a very elaborate planning process that was eventually abandoned for the current “problem solving” approach. It appears that the funding was never in place to initiate and sustain this approach, which is described below.

### Administrative Information

The DNRC was statutorily responsible for creating the state water plan. Within the DNRC, the Division of Water Resources (DWR) and more specifically the Bureau of Water Management were responsible for the planning portion of Montana’s water program. The state water plan was to be a conglomeration of pamphlets, some of which were to be created or revised each year. It was originally suggested that the plan contain 32 sections concerning the management of state-wide issues and 15 sub-basin plans. The state has only three major river basins but the sub-basin areas were used to create greater local participation.

The sections concerning state-wide issues were completed by the DNRC and the basin sections were completed by steering committees created for each of the basins. The data gathered came from other state and federal agencies and from the public, and the plans were written by the staff or steering committees. The DNRC appointed the basin steering committees which were to represent all of the local interests in the basin.

The Governor appointed a State Water Plan Advisory Council (SWPAC) to supervise development of the state water plan. This Council established annual priorities among the components of the plan, assigned responsibility among state agencies for drafting and updating these components, supervised the submission of drafts to outside experts for peer review, and supervised the technical revisions of the drafts.

Steering committees were created for the state-wide issues as well as for the basin plans. These steering committees in all cases were responsible for determining the issues to be studied, and alternative actions in response to the issues and recommendations. The DNRC ultimately decided what recommendations to adopt into the plan.

The DNRC adopted the sub-basin plans before the Board of Natural Resources and Conservation reviewed and approved them for inclusion in the state water plan. The sub-basin plans were then provided to the Legislature for consideration of the implementation recommendations.

Also involved was the Legislature’s Water Policy Committee (WPC) which was to be kept constantly informed of the planning process so that it could provide support and advice. The WPC also reviewed the sub-basin plans after approval of the Board of Natural Resources and Conservation.

Originally, the plan was proposed to be fully completed in six years and then updated fully every six years. The funding for the plan preparation was to come from state

appropriations. Only seven sections on state-wide issues and only two sub-basin sections were completed.

### Process for Preparing Plans

Deciding in 1987 on the type of water plan the state wanted involved a review of the previous types of planning in Montana as well as a review of the approaches used in surrounding states. There also was a study of the major water management issues in Montana and consideration of how best to address these issues.

In 1993 the DWR published the Montana State Water Plan Handbook that laid out the duties of the various players and the steps to be taken in the planning process, and the structure of the Plan.

As described in the Handbook the planning process included the following steps.

- Issue identification and selection:
  - The Governor appointed the SWPAC to hold meetings and prioritize issues.
  - Public scoping meetings were then held throughout the state where those in attendance broke into small groups to identify issues then come together to create a list of priorities.
  - The DNRC took the information from the SWPAC, the scoping meetings, and consultation with the Board of Natural Resources and Conservation, WPC and Governor and selected the issues that to be addressed in that planning period.
  
- Issue analysis:

A steering committee was appointed for each state-wide issue from nominees submitted by the WPC, SWPAC, Board and public and private interests.

  - The steering committee analyzed the issue and prepared a draft section of the plan.
  - This draft was reviewed by the SWPAC and the DNRC then presented to the WPC and Board for comment.
  - After these reviews the DNRC consulted the Governor and determined what to include in the draft plan for public review and comment.
  
- Public review and comment:
  - Eight to ten open houses were held throughout the state or a smaller number throughout the basin if it is a basin plan, attended by DNRC, SWPAC, and steering committee representatives. At these open houses the public reviewed exhibits and asked questions or made comments directly to those responsible for the plan.
  - After considering the public comment from the open houses, as well as written public comment and the advice of the WPC and Board, the DNRC proposed adoption of revised plan section.
  - The Board held a hearing on the adoption of the proposed plan section.

- ❑ Adoption and approval:
  - After the DNRC adopted the plan sections they were submitted to the Board for consideration and approval.
  - The DNRC then submitted all approved plan sections from that planning period to the Legislature for consideration of the recommendations.
  
- ❑ Implementation and evaluation:
  - The Legislature then had the option to follow the recommendations of the plan and adopt suggested legislation.
  - Administrative agencies within and outside of the DNRC were strongly recommended to implement the administrative recommendations of the plan, or maybe forced to by legislative or executive decree.
  - Finally, the DNRC was to monitor and evaluate the plan and its implementation to guide revisions in future planning sessions.

The SWPAC was appointed by the Governor and composed of:

- ❑ the directors of the DNRC, Department of Health and Environmental Science, and Department of Fish, Wildlife, and Park,
- ❑ a representative of the Governor's office,
- ❑ four legislators and
- ❑ two members of the public with sufficient experience on water issues.

The point of having all of these committees and offices check and advise each other was to ensure coordination of the sections of the plan and that all possible issues and viewpoints were considered. However, the process was not sustained.

### **Plan Content and Structure**

- As stated above the general structure of the plan was to be a collection of pamphlets which were to be easily revised and kept up to date.
- Beyond this general format each section was to include specific components and have the same structure.
  - Each section included:
    - an introduction;
    - a background;
    - a policy statement;
    - issues and recommendations; and,
    - plan implementation analysis.
  - The issues and recommendations section discussed several options and recommended one for action.
  - The plan implementation section recommended legislative and administrative actions and also discussed the financial requirements, funding options and time schedule for implementation.
- The following plan sections were published before the process bogged down.
  - Agricultural Water Use Efficiency
  - In stream Flow Protection
  - Federal Hydropower Licensing and State Water Rights,

- Water Storage
- Drought Management
- Integrated Water Quality and Quantity Management
- Clark Fork Basin Water Management Plan
- Upper Clark Fork River Basin Water Management Plan
- Montana Goundwater Plan
- Examples of other issues that were identified to be addressed in the initial formulation of this State Water Plan program were:
  - federal reserved water rights;
  - flood protection;
  - interstate/international water problems;
  - non-point source pollution control;
  - wetlands preservation; and,
  - thirteen other identified basins.
- The plan was to include continued evaluation of the issues and was not heavily based on data.

### **Implementation and Legal Considerations**

- The implementation was dependant on political support of the recommendations as the plan had no legal force. The program strongly urged the Legislature and agencies to enact the recommended legislative and administrative actions.

### **Current Major Water Projects**

- Montana seems to shy away from undertaking many projects and focuses more on regulatory control than funding control. As a result there are few projects other than dam maintenance and monitoring mentioned.

## ***Kansas***

Kansas has been involved in water planning since 1917 and in 1981 the Legislature passed a new statute that revamped the planning process and added increased emphasis on conservation and management of the resource. Water planning in Kansas is meant to be a comprehensive, coordinated and continuous effort. To make good on this vision, the Kansas Water Authority (KWA) identifies each year issues or basins that need further study and the Kansas Water Office (KWO) performs the studies and completes reports that contain recommended policies and implementation strategies. These reports or updated basin plans are adopted into the Kansas Water Plan (KWP).

In addition to the annually defined work program there is a variety of studies and reports performed that are structured similarly to the KWP, but the Plan is the central piece of the water planning program in Kansas. It contains recommended projects and programs for the management, conservation and development of the state's water resources.

The Plan is prepared by the KWO and requires a public participation program and approval by the KWA. The Authority submits an annual report to the Governor and

Legislature recommending funding priorities, legislative and administrative initiatives, and other programs designed to implement the KWP. The financial resources in the State Water Plan Fund provides another method to implement the Plan.

The Plan was first approved under the current program in 1984 and has been added to and revised many times since then. Approval of the FY2005 Kansas Water Plan included a new format that provides more focus on specific priority issues. The previously adopted Plan contained more general sections that continue to apply, but FY2005 Plan will be current for up to five years; however individual basin sections can be modified at any time to add new issues.

This new format resulted from an emphasis initiated by a newly elected Governor to strengthen implementation. This was accomplished in large part by the formation of a Natural Resource sub-cabinet consisting of the decision-makers of seven water resource related state agencies. This sub-cabinet is charged with forming strategic plans to implement the priority issues that arise from the planning efforts.

### **Administrative Information**

The Kansas water planning program is administered by the KWO and KWA. The KWO is the staff component of the program responsible for completing the various sections and updates to the KWP under the direction of the KWA. The KWO also conducts other studies and recommends goals and objectives for state water planning. Examples of their recent publications include:

- ❑ Kansas Water Plan which provides background information and specific sections on key policies in each of the 12 major river basins;
- ❑ 2010 and 2015 Objectives that lists objectives incorporated into all of the basin and policy sections;
- ❑ Water Marketing Program Capital Development and Storage Maintenance Plan – Kansas maintains contracts with the Army Corps of Engineers to purchase supply storage in 13 reservoirs which requires the state to purchase all of the contracted storage within 50 years of when the first quantity of water is called into service;
- ❑ 2006 Kansas Irrigation Water Conservation Plan Guidelines – to help those users who are required to prepare water conservation plans;
- ❑ Kansas Water Resource Conditions 2002;
- ❑ Population projections to 2040; and,
- ❑ Fact Sheets on Irrigation Water Use (2004), Municipal Water Use (2004), Municipal Water Conservation Guidelines (2000).

In addition to preparing the KWP and specific reports, the KWO manages several programs as part of its charge. The following is a summary of the programs.

- ❑ Water Conservation Project Fund – used for priority projects to conserve water in the Upper Arkansas River Basin. This fund received \$9.7 million awarded to Kansas from a lawsuit addressing violations by Colorado of the Arkansas River Compact.

- ❑ Water Conservation – create guidelines and provide technical assistance for conservation planning.
- ❑ Drought Monitoring - advise the Governor on drought conditions by collecting data on climate conditions and publishing a drought report in times of drought.
- ❑ Water Assurance – a program to assure downstream water right holders of water during drought through state storage in federal reservoirs.
- ❑ Water Marketing – the KWO contracts with water purchasers for the sale of water from state storage facilities.
- ❑ Weather Modification – administration of Kansas Weather Modification Act to insure safe and beneficial operation of weather modification projects.
- ❑ Lake Level Management – purpose is to increase the benefits to recreational users and increase wildlife and aquatic habit while protecting the flood control, water supply and quality purposes of the lake.

The Plans and reports are completed in house by the KWO, although other federal, state, and local agencies are cited as sources of information. The KWO has a staff of 22 which is divided into the departments of:

- ❑ Director;
- ❑ Basin Planning/Regional Public Water Supply/Marketing and Assurance;
- ❑ Basin Planning/High Plains Management;
- ❑ Basin Planning/Watershed Coordination; and,
- ❑ Fiscal/Administration.

The KWO budget is about \$3.6 million. The current year budget allocates about \$1.3 million for staff and operations, and the remainder for projects.

The KWA shares responsibility for the planning process and serves as the policy making portion of the program. The KWA is a 24 member board consisting of 13 private citizens who are appointed by the Governor and the leadership of the Legislature or are representatives of major stakeholders from across the state. The remaining 11 members are ex-officio members and include directors and secretaries of water related agencies.

The KWA determines each year which issues will be studied and prepared as sections of the Plan. They also administer the State Water Plan Fund (SWPF) which provides about \$18 million annually to implement KWP recommendations. Lastly they submit an annual report to the Legislature and Governor that reviews the current planning process and recommends funding allocations and legislative/administrative actions. The proposed budget for the SWPF for FY2007 is \$22.5 million, which includes \$4.8 million awarded to Kansas from the KA v. CO lawsuit. The full award to Kansas from violations of the Arkansas River Compact was \$34.6 million.

The Natural Resource sub-cabinet has been operating during the last two to three years to promote implementation and increased coordination among the related state agencies. The process of the sub-cabinet developing strategic plans for implementation is referred to as the Agency Management Planning Process.

## **Process for Preparing Plans**

The process for preparing sections of the plan is broken into steps that are completed on a July to July planning cycle. Some issues are more complicated and the completion of those sections can extend past the regular one year planning period.

- ❑ July – policy or basin issues to be addressed are identified at the July KWA meeting. KWA directs KWO to begin developing background information on potential policy or program initiatives.
- ❑ July-October – Background information is prepared and preliminary recommendations are identified. Basin Advisory Committees (BAC) and others with specific expertise in the issues under study advise the KWO.
- ❑ October – background information is reviewed with KWA, and if KWA thinks an issue is ready for further development, they direct the KWO to develop a preliminary draft. The BAC provides input and recommend changes at their October meetings, as well.
- ❑ January – A preliminary draft of the annual update of the KWP is presented to the KWA which determines if the draft is ready for public review. The KWA does not take a position on the draft, they only determine its sufficiency for public review
- ❑ March – public meetings are hosted jointly by the BAC and KWO to solicit public comment on the draft.
- ❑ April – The input from the public meetings is summarized and recommendations for revisions are presented to the KWA. The KWA then may direct a working draft be prepared with necessary changes and released for comment at public hearings; again no position is taken by the KWA.
- ❑ May-June – Public hearings on the working draft are held, with a minimum of one each in the western and eastern parts of the state. The BAC also meet in June and make recommendations on the final draft of the Plan.
- ❑ July – Giving due consideration to the comments received at the hearings, a final draft of the Kansas Water Plan is prepared by the KWO and presented to the KWA for consideration of approval. If approved, the Plan is submitted to the Governor and Legislature.

In 1985, Kansas created an 11 member BAC for each of the 12 basins within the state. These BAC act as localized KWA for the review and revision of the basin sections of the KWP. They also review state policy sections and provide comments to the KWO. They meet at least twice a year at publicized meetings that the public is encouraged to attend. The BAC are made up of members from within the basin representing water use categories of:

- Municipal;
- other public water suppliers;
- domestic;
- irrigation;
- industry and recreation; and,
- at-large members.

The BAC have been in place for 20 years, but the KWO has been re-evaluating them over the past two years. This re-evaluation has occurred on two levels: content of their input and their composition. The BAC were asked to develop priorities among issues within their respective basins. These priorities were provided to the Natural Resource sub-cabinet for the development of implementation plans. Also, as vacancies occur on the BAC, water organizations are asked to submit applicants for consideration by the KWA for membership on the BAC. Until now, vacancies were advertised to the general public and applications were submitted to the KWA for review and appointment. In addition to the core categories of members, each BAC can identify a basin specific category of member to be added to their committee.

The basin plans are coordinated through review by other BAC and the review and approval by the KWA and through completion by the KWO. Also all basin plans have the same structure as the KWP, which identifies priority issues and addresses the specified water management categories.

Other state agencies provide input and information in the completion of the plans, including the Division of Environment in the Department of Health and Environment, and the Division of Water Resources in the Department of Agriculture, both of which have representatives on the KWA. The Kansas Geological Survey and state universities also provide data and input as well as other federal agencies. Kansas also uses a series of public meetings and public hearings to inform the public of the revisions and new sections to the KWP and solicit their comments.

The annual planning cycle of developing basin plans and their updates, and studying state-wide issues to guide policy is no longer the primary focus of water planning in Kansas. This planning process remains effective and in place and is used on an as-needed basis. The principal focus now is on implementation, which is accomplished through priority identification by the BAC and strategic plans developed by the Natural Resource sub-cabinet.

### **Plan Content and Structure**

The FY2005 KWP focuses on specific policy sections that address priority issues and their management. The current KWP is broken into three categories: background information; policy sections; and basin sections.

Background Information – contains the KWP 2010 & 2015 Objectives, a review of the statutory framework and the related programs for each of several water resource management categories. The Water Resource Management Categories are:

- Water Management
- Water Conservation
- Public Water Supply
- Water Quality
- Flood Management
- Wetland & Riparian Management

- Water Based Recreation
- Data & Research
- Public Information & Education

Policy Sections – contain policy proposals of the KWA with recommendations for legislation, appropriation, gubernatorial and agency action.

The policy sections adopted under the current plan format are:

- Bond financing of capital improvements for water infrastructure development
- Delineation of the Ogallala High Plains aquifer into aquifer subunits
- Alternative ways of resolving water resource conflicts
- Reservoir restoration demonstration projects and research
- Long-term financial solvency of the Kansas Water Marketing Program
- Financial Operations of the Kansas Water Marketing Program
- Program Oversight of the Kansas Water Marketing Program
- Small Dam Safety and Rehabilitation

Policy issues currently being considered are:

- Economic Development Opportunities at Federal Reservoirs in Kansas
- Water Conservation
- Water Quality Policy & Institutional Framework

Each policy section has a similar format.

- Issue Description
- Background - usually includes relevant objectives and programs
- Policy Options and Recommendations
- Plan Implementation – includes:
  - Legislative action
  - Congressional action (sometimes)
  - Administrative action
  - Financial requirements
  - Implementation schedule

Basin Sections – the KWP contains one section for each of the twelve basins. Updates to the status of activities usually correspond to addition of priority issues to a basin plan. Five basin plans were updated in 2005, one was updated in 2004, and one has a new priority issue under consideration currently.

Each basin plan under the current KWP follows the format:

- Basin Description
- Priority issues – usually two or three
- Issue description
  - Related KWP objectives
  - Recommended actions

- Water management Categories - each of which is identified as an issue with the corresponding objectives and programs listed.
- Future Issues (sometimes)

As part of the new emphasis on implementation, the KWO and the Natural Resource sub-cabinet have established three priority categories. They are watershed restoration and protection, regional water system planning, and high plains groundwater management. While most projects that are slated for implementation fall into these categories, some issues that do not fall squarely into the priority categories are funded/implemented due to their importance.

### **Implementation and Legal Considerations**

Implementation of the KWP has two methods.

- The first is the legal route. After approval by the KWA the plan is presented to the Legislature and the Governor who can then introduce the recommended legislation or administrative decrees to enact that portion of the plan's recommendations.
- The second is through the SWPF that is administered by the KWA. This method of implementation allows the KWO to have more direct control over realization of the KWP by determining which projects get funded. The Legislature still must approve the budget. On average about \$18 million dollars are allocated to the SWPF each year. These funds come from a variety of sources, including the general fund, economic development funds derived from the state lottery, fees, fines and royalties.

### **Some Current Major Water Projects**

Projects funded by the state have shifted away from development, as they believe all good reservoir sites have been developed, and more to management. Conservation projects receive significant funding; however, 50 – 60% of the SWPF funds go to cost-share projects in Best Management Techniques for protecting public water supplies and conservation.

The 2006 annual report of the KWA identifies the budget for the SWPF for FY2007. The major projects which are spelled out in that budget are:

- Conservation Reserve Enhancement Program
- Phreatophyte Control Demonstration
- Permanent Irrigation Water Use Reduction
- Upper Arkansas River Rehabilitation Study
- Enhancement management, Sub-basin Program
- Neosho River Log Jam
- Watershed Restoration and Protection Strategies
- Horse Thief Reservoir

## **Concluding Thoughts and Recommendations**

Coordination is key when several agencies are involved with water resources and some type of formal support structure is needed to encourage, almost require, coordination. Coordination is important both in the planning and implementation functions.

How the local residents and stakeholders are engaged determines the success of a program. Projects and programs must have local support and the stakeholders have to help craft the solutions.

Kansas officials described the greatest amount of stress occurred when the priorities were not clear. Some form of construct is needed to establish priorities and maintain focus. This does not rule out the flexibility to deviate from the priorities as individual issues and problems demand attention, but such deviation from the priorities is done deliberately and in a measured way.

## ***Texas***

Water planning in Texas is driven by severe drought conditions. The existing conditions have been disastrous for the agricultural sector and some municipal suppliers with a population of a million people are operating in “drought of record” conditions. In 1996, Corpus Christ was within 120 days of being out of water. This has led to an emphasis on a diversified water portfolio, conservation techniques and drought management strategies.

Texas has adopted seven state water plans, the first in 1961, and released an eighth on August 12, 2006. The most recently adopted State Water Plan was in 2002. In 1997 after a bad drought year and after consideration of the pitfalls of the previous plans, new legislation was passed that called for a more participatory approach in water planning and the preparation of regional plans. Upon completion of the regional plans they would be incorporated into a state plan that recommends legislative and administrative actions and new projects.

The first set of regional plans under this legislation was adopted by the Texas Water Development Board (TWDB) in 2001 followed by the State Water Plan (SWP) in 2002. The recently completed regional plans were adopted in January, 2006. The Texas plan is focused on analyses of supply and demand projections. These projections are based on the drought of record and lead to a needs assessment. Recommendations are then prepared for projects and legislative and administrative action.

## **Administrative Information**

The TWDB is the lead agency in coordinating the regional plans and preparing the SWP. In the first planning cycle leading to the 2001 regional plans and 2002 State Water Plan, the TWDB developed guidelines and rules for the regional plans, designated regional planning areas and appointed the initial Regional Planning Groups (RPG). Upon completion of the regional plans, the TWDB approved them and then incorporated them

into the State Water Plan. In the second planning cycle leading to the current set of regional plans, the TWDB played more of a coordinating role by approving scopes of work for the RPG, awarding funding for the planning work, and assisting in population, supply, and demand projections.

The TWDB also administers several funding programs including low interest loans and grants. The state awards \$450 to \$500 million annually. Direct legislative appropriations provide most of the funding supplemented by return on investments and proceeds from programs. The TWDB also is responsible for maintaining water data, mapping and providing state water education. A Research and Planning Fund makes money available to communities and RPG for various studies and reports.

The TWDB is a six member board appointed by the Governor. The staff of the TWDB is quite extensive and is divided into the following six categories.

- ❑ General Counsel
- ❑ Governmental Relations
- ❑ Office of the CFO
- ❑ Office of Project Finance and Construction Assistance
- ❑ Resource Information Office
- ❑ Office of Planning – which has 85 employees and is broken into the following teams:
  - Administration
  - Innovative water technologies
  - Water resources planning
    - Regional water data
    - Regional water planning
    - Water uses
      - Projections
      - Water uses survey
  - Conservation
    - Municipal water conservation
    - Agricultural water conservation
  - Groundwater Resources
    - Groundwater availability modeling
    - Groundwater technical assistance
    - Groundwater monitoring
  - Surface water resources
    - Bays and Estuaries
    - In stream flows
    - Hydro-survey
    - Water Availability Modeling

The RPG are the entities responsible for creating the regional plans and determining the local recommendations. They are made up of 15-20 members from the following 11 categories:

- The public
- Counties
- Municipalities
- Industries
- Agricultural interests
- Environmental interests
- Small businesses
- Electric-generating utilities
- River authorities
- Water districts
- Water utilities

These groups undertake some of the analysis themselves, but also contract out data gathering, analysis, and writing tasks. They also receive large amounts of their data and technical assistance from the TWDB. They are responsible for presenting the scope of work and draft documents to the public and getting public input throughout the process.

TWDB assigns one staff person to each RPG and the level of input and participation of the staffer is determined by the local group. Some RPG want a lot of staff participation and others want very little.

The budget for the second planning cycle that is currently underway is \$18 million. This money funds the creation of each of the regional plans and the SWP. The portion allocated to the regional plans is awarded by the TWDB based on funding requests from each region that reflect the local scope of work. The funding awards for the 2006 regional plans is very structured and described in the content section below.

Generally, the State Water Plan and the regional plans are to be updated every five years. This involves a reassessment of all aspects of the regional plans including the regional boundaries, projections, and policy recommendations. The new state plan is written to reflect these changes. However, the planning process is maturing and the RPG are more interested in moving to the next level of planning than simply updating their first local plan. They are working more on implementation and environmental planning/mitigation.

The RPG faced a big learning curve when they were initially formed as only one-half of the members were water professionals. Now that they have been in the planning process for one full cycle of plans, they are far more advanced in their understanding. The early expectation among TWDB and legislators was that 10-15 years would be needed before the process would produce a good product, but the program is well ahead of schedule. The first set of regional plans was about 75% basic planning and 25% local problem solving. The second round of plans has reversed these percentages.

The important message this sends to the Legislature is that the program is not simply producing plans but is solving local problems and addressing issues. Legislative committees on water used to be unpopular assignments but now legislators compete for them. Another message the program sends to the state organization is that decision-

making and policy recommendations are largely formed at the local level. This generated some temporary resistance among state officials.

### **Process for Preparing Plans**

The general planning process is intended to be a bottom-up structure in which the TWDB waits for the regional plans from the RPG and then compiles them into the SWP. But first, the TWDB establishes the structure that includes:

- ❑ rules to guide the preparation of the regional plans;
- ❑ the composition of the RPG;
- ❑ guidelines for awarding financial assistance to the RPG;
- ❑ designation of the regional water planning areas by considering river basins, aquifers, political boundaries, development patterns, socioeconomic factors and public comment; and,
- ❑ selection of the original members of each RPG.

The RPG may add membership categories based on the characteristics of their respective regions. Each group then creates its own bylaws and designates a local political subdivision to administer the planning process and all contracts for funding and consultants.

Each RPG completed seven planning tasks in producing the initial regional plans and performed their work in open meetings and with public forums along the way. The recent 2006 cycle of regional plans required ten tasks to be completed, that are identified in the next subsection below. The seven tasks for the initial planning cycle are listed below.

- ❑ Describe the regional water planning area
- ❑ Quantify current and projected population and water demand
- ❑ Evaluate and quantify current water supplies
- ❑ Identify surpluses and needs
- ❑ Evaluate water management strategies and prepare plans to meet the needs
- ❑ Recommend regulatory, administrative, and legislative changes
- ❑ Meet the required level of public participation

The TWDB comments on the Regional Plans throughout the process and if there are no conflicts between regions and all the plan requirements are met, the TWDB adopts each regional plan. Within a year of adoption of the regional plans the TWDB adopts the State Water Plan which incorporates all of the regional plans and makes further management and policy recommendations.

A compilation of the Regional Plans form about 50% of the state-wide water plan. The remainder of the document addresses state-wide issues such as climate trends, the margin of error in population projections and other planning uncertainties, and similar topics. The state plan also provides for one-stop shopping for people needing data and

information on the water resources. Finally, by state law the plan provides recommended policies to the Legislature and Governor.

The public involvement program includes the open meetings of the Planning Groups. Specific public meetings are held on the regional scopes of work and public hearings are held by each RPG in adopting their regional plan. The draft 2002 State Water Plan was presented for comment at 26 public meetings in 16 cities and videoconferencing was used in ten additional cities to gain public comment. Two final public hearings were held in Austin before adoption of the Plan.

The TWDB is responsible for coordinating the various regional plans. Where conflicts arise, sub-regional groups are formed that cross regional boundaries to find mutually beneficial solutions.

Surface water Availability Models and Groundwater Availability Models were created by the TWDB to assist in water supply analysis. Their use by the planning groups is facilitated by TWDB staff where needed. The Texas Parks and Wildlife Department and the Texas Commission on Environmental Quality assist the TWDB and the Planning Groups in data collection and analysis.

The TWDB and Planning Groups also survey water user groups extensively in preparing projections, identifying users with needs, and making funding recommendations. Much data is gathered by the TWDB and distributed to the Planning Groups.

Planning Groups also hire consultants to complete portions of the regional plans, including data gathering and analysis. The studies contracted by the TWDB Research and Planning Fund also are available to the RPG for their regional plans. Consultants typically are used to prepare these studies.

### **Plan Content and Structure**

The 2006 Regional Plans are based on ten planning tasks established by the TWDB described below.

- ❑ *Planning area description* – meant to be an update of the 2001 description adding information on water pipelines gathered by the TWDB. This chapter lists the users, natural resources, suppliers, existing programs, and other characteristics of the region. The TWDB provides \$15,000 to each region to complete this task.
- ❑ *Review and revision of population and water demand projections* – using the 2000 census and water use surveys conducted by the TWDB, the regions completed projections through 2050. The funding for this task varies from \$10,200 to \$187,500.
- ❑ *Water supply analysis* – using a methodology described in the regional planning guidelines, regions updated their 2001 drought of record water supply data. The funding for this task ranges from \$20,000 to \$397,000.
- ❑ *Identification, evaluation and selection of water management strategies based on needs* – this task is an update of the management strategies identified in the 2001

- regional plans except that every need must now consider conservation methods, or justify not using water conservation as a management strategy. This section analyzes all users and providers based on the water supply analysis for drought of record conditions. Funding ranges from \$29,000 to \$527,000.
- ❑ *Impacts of selected management strategies on key parameters on water quality and impact of moving water from rural and agricultural areas* – this task looks at the effect of the suggested management strategies on water quality as compared to the prior and current conditions. Funding ranges from \$2,000 to \$111,000.
  - ❑ *Water Conservation and Drought Management recommendations* – this section provides a model water conservation plan and model drought management plan for the region to help those that have to complete such plans. Funding is \$5,000 per region.
  - ❑ *Description of how the regional water plan is consistent with the long-term protection of State water resources, agricultural resources, and natural resources* – this task is a coordination of many of the other tasks to meet a legislative requirement of regional water planning. Funding is \$25,000 per region.
  - ❑ *Unique stream segments/Reservoir sites/legislative recommendations* – this section identifies unique streams and recommends protections. If protection is approved no state agency or political subdivision may finance a development project along that river segment. Funding is \$10,000 per recommendation set (so max \$30,000 per region).
  - ❑ *Report to Legislature on water infrastructure funding recommendations* – this task allows every region to recommend infrastructure projects to aid water groups with their needs. Funding ranges from \$1,000 to \$24,200.
  - ❑ *Adoption of Plan* – this task is the administration of the public involvement requirements. Funding ranges from \$31,040 to \$336,170.

The structure of the 2002 State Water Plan did not follow the 2001 planning tasks. The structure was more of a summary of the supply and demand analyses followed by recommended management practices and policies. Recommended management strategies for each water user group in need are also included as an appendix to the general recommendations.

The chapters of the 2002 State Water Plan are:

- ❑ Volume I
  - Highlights and Major Policy Recommendation of the 2002 State Water Plan
  - Introduction
  - History of Water Planning in Texas
  - Water Planning Process
  - Methodology and Results (Supply and Demand Projections)
  - Environmental Planning
  - Identification of Needs
  - Recommended Water Management Strategies
  - Implementation Cost Estimates 2001-2050
  - Alternative Strategies

- Regional Summaries
- Socioeconomic Impacts
- Status of Water Availability Modeling
- Policy Recommendations
- Volume II
  - Water User Group Summaries
  - Major Water Provider Summaries
- Volume III
  - Electronic Version of Volume I
  - The 16 Approved Regional Water Plans
  - Stakeholders Report

### **Implementation and Legal Considerations**

No region is required to participate in the planning process; however, the award of funding and water rights must comply with the Regional Plan. The TWDB is not allowed to finance projects that are not recommended in regional plans, nor is the Texas Natural Resource Commission allowed to issue water rights to municipalities unless the request is consistent with the region's water plan.

The state-wide water plan, by law, must recommend policies. In January, 2001, the system of Regional Plans and RPG produced six policy recommendations that were consistent across the regions, and five of them were enacted by the Legislature in that session. Recommendations that are based in the local level are powerful when they reach the state's leadership.

The recommendations for policy and infrastructure funding go before the Legislature for their approval. Recommendations of unique streams and potential reservoirs also go to the Legislature for official designation. The TWDB has further implementation authority in its review and approval of conservation and drought management plans, the administration of the low interest loan program, and the information it gathers and distributes to the regions.

### **Some Current Major Water Projects**

Water projects funded in Texas run the gamut and include large reservoirs, conservation, reuse and inter-basin transfers.

### **Concluding Thoughts and Recommendations**

The Texas water planning program has been the model for 12 -13 other states and Illinois recently implemented a new program designed from Texas' template. The planning process will go through a maturation process in which specific local problems attract more attention and the focus on implementation grows.

The Regional Facilities Plans bridge the large gap between the plan recommendations and the ability to implement a project. The director of the Texas program evaluates the success in terms of the positive influence applied to implementation of recommendations

and the improved level of knowledge about the water resource among the state's leadership and the general public.

## ***Nebraska***

Water planning in Nebraska currently is focused on identifying basins that are over or fully appropriated, and then developing plans in response to these determinations. Studying the complex relationship between surface and ground water is central to this effort as Nebraska has the second most irrigated acres in the Country (California has the most) and 86% of these acres are ground water dependent.

In 2002 the Water Policy Task Force was created by the Legislature to be appointed by the Governor. This 49 member Task Force held facilitated work sessions over 18 months and made decisions on a consensus basis. Their assignment from the Legislature was to examine existing laws, water transfers and inequities between surface and ground water users. The Task Force concluded that the basic components of water law remain intact, but that more pro-active management is needed of integrated surface and ground water.

In response to this conclusion, legislation was passed in 2004 that called for the Nebraska Department of Natural Resources (NDNR) to annually study river basins to determine which are fully appropriated. If a basin or sub-basin is determined to be fully or over appropriated, a temporary stay on all new uses is enacted until the NDNR and the local Natural Resource District (NRD) prepare and implement an Integrated Surface/Ground water Management Plan (IMP). The IMP is to be implemented within three – five years.

The goal of the IMP is to sustain the balance between water use and supply so that the economic viability and the social and environmental health of the basin can be maintained. In fully appropriated basins, the response is to disallow any new water uses. In over appropriated basins, a contentious process is underway to determine which water rights must be reduced. The great dependence on irrigated acres creates significant economic consequences of these decisions.

The study of the basins is called an Evaluation of Availability of Hydrologically Connected Water Supplies. The first annual Evaluation was published in December, 2005 and included nine basins. There are a total of 13 basins and 23 NRD.

### **Administrative Information**

The Planning and Assistance Division of the NDNR coordinates several components of water planning in Nebraska and is responsible for the following tasks:

- An annual Evaluation of the Availability of Hydrologically Connected Water Supplies. This report annually analyzes the basins or portions of basins which have not been designated as fully or over appropriated and provides a basis for monitoring the water use.

- ❑ The NDNR determines the basins, sub-basins, or reaches that are fully or over appropriated. If a basin, or some portion of a basin, is fully appropriated it is no longer included in the annual Evaluation.
- ❑ In the cases of fully or over appropriated basins, the NDNR coordinates and assists the local NRD in creating an IMP to manage water use.
- ❑ For over appropriated areas, the NDNR creates a basin-wide plan designed to reduce water use to 1997 levels or below within ten years for the purpose of restoring a balance between water supply and use.
- ❑ The Planning and Assistance Division of NDNR also maintains a data base of information critical to the water resource.
- ❑ The division also provides staff support in the administration of several compacts and cooperative agreements.
- ❑ The division also prepares studies and reports to support the above tasks and advises state legislative and gubernatorial committees.

The annual Evaluations are purely analytical and are completed by the NDNR with data gathered in some cases by consultants, other state or federal agencies, or the University of Nebraska. They are to be completed each year to monitor the status of the basins which are not fully or over appropriated.

The 2004 legislation that initiated these annual evaluations created six new positions in the Planning and Assistance Division. This office consists of 16 individuals and has 2006 budget of \$2,125,417 with \$814,000 allocated to staff and \$745,000 for various studies. One staff member is devoted to working with the NRD and another coordinates individual basin plans. Most of the remaining budget is for work on the Platte Cooperative Agreement. This budget is provided by appropriations from the state Legislature.

The IMP are primarily prepared by the local NRD although the NDNR approval is required. They are implemented by the NRD. These Resource Districts are led by elected officials and have considerable autonomy in their own rules and regulations and in how they implement state required laws. The NRD are largely supported by a tax levy.

### **Process for Preparing Plans**

The NDNR and the individual NRD are the major participants in preparing basin level plans and IMP. NRD members are elected and stakeholder groups are formed in each basin for additional public involvement.

The public involvement process also includes a solicitation of information from all water users that would assist in determining full or over appropriation, or assist in the completion of an IMP. The groups consulted by the NDNR are:

- ❑ irrigation districts;
- ❑ reclamation districts;
- ❑ public power districts;
- ❑ irrigation companies;
- ❑ canal companies;

- ❑ municipalities relying on water from the affected basin, sub-basin or reach; and,
- ❑ other water users and stakeholders as deemed appropriate by the NDNR.

Also a series of public information sessions, hearings, and a comment period are conducted before a final determination of full or over appropriation, or the implementation of an IMP.

In addition to these basin level approaches to public involvement, the Water Policy Task Force consists of 49 members from across all stakeholder groups. Their meetings are open to the public and extensively covered by the news media.

The process for making the determination of fully or over appropriated is complicated. Once a basin, sub-basin, or reach is preliminarily determined to be fully appropriated:

- ❑ the NDNR defines the area that is determined to be hydrologically connected for the determination;
- ❑ a stay is placed on increases in irrigated acres and drilling of new wells within the hydrologically connected area and the public is notified; and,
- ❑ the NDNR holds one or more public information meetings and public hearings on the determination. The public is invited to comment on water appropriation, the preliminary conclusions, boundaries of the hydrologically connected area, and whether the stay should be extended.
- ❑ After considering the comments, the NDNR informs the affected NRD of the final determination.
- ❑ If the determination is not “fully appropriated” the stay is lifted.
- ❑ If the determination is “fully appropriated” the NDR holds public hearings and then determines whether to adopt new regulations.

The process for completion of an IMP or basin-wide plan is similar to that of a determination of “fully appropriated.”

- ❑ First, the NDNR and affected NRD must agree on goals and objectives for the IMP, surface and ground water controls, the proposed geographic area subject to controls, and incentive programs.
- ❑ One or more public hearings are then conducted in the affected area to gain comment on the proposed IMP.
- ❑ The NDNR and affected NRD then determine whether to implement the proposed IMP with or without modification.
- ❑ If an IMP is implemented the NRD incorporates the controls into their ground water and surface water regulations and enforces them.

### **Plan Content and Structure**

The annual Evaluations study the basins that are not “fully appropriated” to maintain that status or to determine their new status.

- ❑ The annual Evaluations include an introduction and overview and a section on each of the individual basins.
- ❑ The individual basin sections contain descriptions on sources of water, ground and surface water uses, changes in ground water table elevation, sufficiency of

water supply, future water development and use, compacts and state law, and water administration.

- ❑ An area is determined to be fully appropriated if existing uses of both surface water and hydrologically connected ground water supplies are equal to but do not exceed the available water supplies over the long term. To determine this, a number of methods are used.
  - Net Irrigation Requirements are calculated based on corn for all basins and then a survey is done of how many days the stream flows meet the requirements of the most junior water rights holders.
  - USGS MODFLOW models are used for hydrologic modeling to determine hydrologically connected areas in the few areas where there is a numerical model.
  - Jenkins Stream Depletion Factor modeling is used in many other areas where MODFLOW cannot be used.
  - The Cooperative Hydrologic Study (COHYST) model is used in areas surrounding the Platte River and included in the annual Evaluations.
- ❑ An area hydrologically connected to a stream is one in which pumping a well in that area for 50 years will deplete the stream or tributary by at least 10%. This definition is often referred to by the designation 10/50.

By statute, the annual Evaluations are based on available scientific data. Any information submitted by the general public is to be considered and documented in the Evaluation.

According to statute information to be considered includes:

- ❑ surface water administrative records;
- ❑ NDNR hydrographic reports;
- ❑ USGS stream gage records;
- ❑ NDNR registered well database;
- ❑ water level records and maps from NRD, NDNR, University of Nebraska, USGS, or other publications subject to peer review;
- ❑ technical hydrogeological reports from the University of Nebraska, USGS, or other publication subject to peer review;
- ❑ ground water models (MODFLOW, Jenkins, COHYST); and,
- ❑ current rules and regulations of the NRD.

Any technical assistance that is needed most likely is provided by the NRD, University of Nebraska, or USGS depending on which of these agencies provided the data being analyzed.

IMP and basin-wide plans contain goals and objectives, geographic delineation of the hydrologically affected areas which are fully or over appropriated, ground and surface water controls, and incentive programs that are designed to restore a balance between supply and use.

NDNR rules require that the following information, specific to the hydrologically connected area, be considered in adopting the plan.

- ❑ Historical stream flow data

- ❑ Past, present, and potential surface water use
- ❑ Groundwater supplies including hydraulic conductivity, saturated thickness, other ground water information, and/or ground water models if available
- ❑ Local recharge characteristics and rates
- ❑ Precipitation and the variations including trends
- ❑ Crop water needs
- ❑ Water data collection programs
- ❑ Past, present, and potential ground water uses
- ❑ Proposed water conservation and supply augmentation programs
- ❑ The availability of supplemental water supplies, including the opportunity for groundwater recharge
- ❑ Surface and ground water quality concerns
- ❑ Opportunities to integrate and coordinate the use of water from different sources of supply
- ❑ Existing and potential sub-irrigation uses
- ❑ The relative economic value of different uses of surface and ground water proposed or existing
- ❑ Rules and regulations for ground water management development by the NRDs affected by the IMP

### **Implementation and Legal Considerations**

Implementation of the annual Evaluations is dependant on their findings. If basins, sub-basins, or reaches are found to be fully appropriated or over appropriated, then the IMP process is the implementation tool. If no areas are found to be fully appropriated there is no form of implementation.

The implementation of the IMP is carried out by the NRD by incorporating the controls and incentives into its local rules, regulations, and procedures. The NRD then enforces the IMP controls and incentives as it does the other regulations of the district.

Several funds are administered that provide money for water quality, small watershed flood control, decommissioning of abandoned wells and other projects. Much of the funding is administered through the local NRD. The NDNR; however, administers the Natural Resource Fund in the amount of \$2.6M annually. Matching grants are awarded in which the state grants 60-65% of project cost. The grants typically go to flood control and recreation projects.

### **Concluding Thoughts and Suggestions**

Get all of the physical information possible on water supplies and uses. Nebraska only required wells to be registered for many years, and eventually after the lag in impact on the ground water supply, the state began facing water shortages. The state now is spending a lot of money modeling the interrelationship between ground and surface water. The need to cut back on water rights is politically volatile.

## *Utah*

Utah has a fairly extensive State Water Plan consisting of a comprehensive state-wide plan, 11 basin specific plans and studies on water reuse, conjunctive use and municipal and industrial (M & I) conservation. All of these documents are prepared by the Division of Water Resources (DWR) which is a part of the Utah Department of Natural Resources.

The first state-wide plan was completed in 1990 and plans for each of the 11 basins were prepared during the following ten years. In 2001 a new state-wide plan was completed and the follow-up process of updating the basin plans has resulted in two of the 11 basin plans being revised at this point. The State Water Plan, encompassing all of the studies, serves as an information base and seems to do little in terms of recommendations. The DWR; however, holds the purse strings on funding sources for major water projects and is the leader in providing information about the supply and demand of water in the state.

Utah does not have a regular cycle in which they update basin plans, but rather selects certain basin plans that need updating due to population growth, a large water development project or some other significant change. The state has shifted focus to more state-wide information and uses the basin plans to identify areas that need attention.

Utah has adopted a goal of reducing the per capita M & I water use by 25% by 2050. The state is ahead of schedule in meeting this goal.

### **Administrative Information**

The DWR is responsible for comprehensive water planning and its policies are intended to provide financial and technical support for local initiatives and to assist local leaders rather than issue top down directives.

In addition to completing the State-wide Water Plans in 1990 and 2001, the DWR also recently completed:

- ❑ plans for all 11 basins between 1990 and 2001 and updated two since 2001;
- ❑ Water Reuse, Conjunctive Management, and M & I Water Conservation Plans;
- ❑ M & I Water Use and Supply studies for each basin which served as a basis for the M & I Conservation Plan; and,
- ❑ research and advice on the Utah cloud seeding program.

The DWR is also charged with protecting Utah's rights to interstate waters and managing Utah's water resource project construction programs.

The DWR has a staff of 44 organized around interstate streams, project development, state water planning, and administration. About one-third is in planning and another third in project development. The remainder is in administration and interstate streams.

The project development branch is divided into:

- ❑ geologic investigation;
- ❑ design and construction; and,
- ❑ investigation and management.

The state water planning branch is divided into:

- ❑ technical services;
- ❑ river basin planning;
- ❑ water conservation;
- ❑ education and use; and,
- ❑ hydrology and computer applications.

The plans are written by the staff of the DWR with help from other divisions of the Department of Natural Resources, including the Division of Water Rights and the Division of Water Quality, and federal agencies.

The Board of Water Resources (BWR) serves as the policy making body of the Division. Its members are appointed by the Governor and approved by the Senate. The members represent river basins and work with local governments and private interests on water resource projects. The Board also reviews and approves the plans.

### **Process for Preparing Plans**

- The division is changing the public involvement process, shifting from a process that was more rear-loaded with public review to a more front-loaded approach.
- In the past, the staff prepared a draft basin plan and presented it to a local basin advisory group. Following the group's review and comment the plan was revised before starting a formal public hearing and public comment period.
- Now, meetings occur with the local advisory committee before a draft plan is prepared to identify the issues and problem areas that need attention. Following an outline of local issues, a draft is then prepared.
- Preparation of the state-wide plan does not involve an advisory group. The staff prepares a draft for internal review. About the third or fourth draft is presented for formal public hearings and a comment period.
- The various basin plans are coordinated by the DWR as they complete all of them. The basin plans also follow the same structure as the state-wide plan that preceded them. The basin plans go into more local detail on the issues than the state-wide plan.

### **Plan Content and Structure**

The 2001 state-wide plan is made up of eight sections and serves as a compilation of the basin plans. Each section is a survey of current conditions and documentation of information with very few recommendations. The 2001 state-wide plan and the recently updated basin plans contain the following categories.

- ❑ Introduction: Water Resources in Utah (or specific basin)
- ❑ Water Supply
- ❑ Population and Water Use Trends and Projections
- ❑ Water Conservation
- ❑ Water Transfers and Efficient Management of Developed Supplies

- ❑ Water Development (looks at current projects, weather modification, upgrading and enhancing existing infrastructure, and funding)
- ❑ Water Quality, the Environment, and Other Considerations
- ❑ Conclusion, Putting the Pieces Together

The 1990 state-wide plan was structured differently. It and the subsequent basin plans had 19 sections which followed an issue identification and recommendation format for each section. Some of the sections were not repeated in the new 2001 plan because the information in the 1990 plan was still valid. Also, the issues and recommendations were still considered appropriate and the point of the 2001 plans is more of an update in meeting those recommendations and goals. The sections in the 1990 state-wide plan and the first round of basin plans are listed below.

- ❑ Foreword
- ❑ Executive Summary
- ❑ Introduction
- ❑ Demographic and Economic Future
- ❑ Water Supply and Use
- ❑ Management
- ❑ Regulation/Institutional Considerations
- ❑ State and Federal Water Resources Funding Programs
- ❑ Water Planning and Development
- ❑ Agricultural Water Conservation and Development
- ❑ Drinking Water Supplies Development and Management
- ❑ Water Pollution Control
- ❑ Disaster and Emergency Response
- ❑ Fisheries and Water-Related Wildlife
- ❑ Recreational Aspects of Water Development
- ❑ Federal Water Planning and Development
- ❑ Industrial Water Use
- ❑ Groundwater

The 2001 state-wide plan uses 2050 as its projection horizon. It uses population and economic projections and water use data to determine future demand by basin. However, different scenarios are analyzed based on conservation policies such as a goal to reduce per capita M & I water use by 25% by 2050. The plan also incorporates in the supply and demand analysis the conservation plans that are required of all water retailers with more than 500 connections.

- Much of the data used in the 2001 plan is from studies done by the DWR.
  - The DWR continually refines the per capita M & I water use in each basin. Individual basin M&I reports are completed using different methodologies for community systems, non-community systems, self-supplied industrial systems, and private domestic systems. M&I supply and demand is then determined for each county within the basin. These

numbers are used with county population projections, which are updated every two years, in the state-wide and basin plans.

- Each water user submits an annual summary of water use. The staff reviews these reports for quality control and contacts the water user with questions or concerns. The DWR has the goal of reviewing all M & I reports for the entire state in five years.
- A state-wide water related land use report was compiled in 1999 using aerial photography and GIS. This is updated now on a regular basis and was used in the 2001 plan to determine agricultural supply and demand.
- The DWR spends a great amount of time in the field truth-checking land use. They review aerial photography, overlaying polygons over land uses, and then perform windshield surveys to verify the accuracy of the land use. Again, the division has the goal of covering the entire state every five years. This extensive effort to map water related land uses adds accuracy to the local water budgets and projections, and is used by many other agencies and people.

### **Implementation and Legal Consideration**

The roll of the DWR is to “provide technical, financial, and other types of assistance to local leaders” and there is little in the way of implementation tools for the plans. The plans and studies mostly serve as a source of information for the public and contain very few recommendations.

The DWR administers loan and grant programs that provide state money for water projects, providing an indirect means to implement the various plans. However, one implementation measure that comes from the state’s planning process is the requirement that every water retailer with over 500 connections must create and submit for approval a conservation plan.

### **Some Current Major Water Projects**

- ❑ Central Utah Project – Estimated to be completed in eight to ten years this project started in the 1950’s and is a large diversion and reservoir project to provide central Utah with water.
- ❑ Bear River Development – A reservoir, pipeline or canal, treatment facility project that will develop the Bear River to deliver water to various conservancy districts on the Wasatch Front.
- ❑ Lake Powell Pipeline – In the feasibility analysis, this proposal would pipe water 120 miles from Lake Powell to Washington County, Utah.