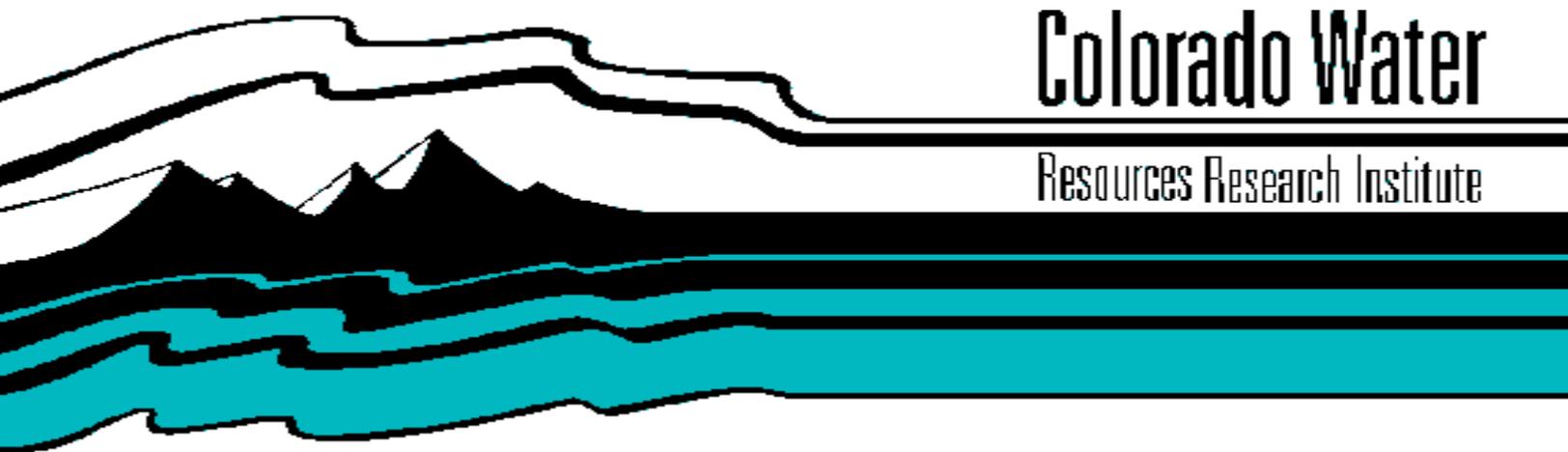


Proceedings: 1993 Colorado Water Convention
Front Range Water Alternatives and Transfer of Water
from One Area of the State to Another
January 4-5, 1993
Denver, Colorado

Sponsored and organized by

Governor Roy Romer
Dept. of Natural Resources
Colorado Water Conservation Board
State Engineer and Division of Water Resources

February 1993



Colorado Water

Resources Research Institute

Information Series No. 74

Colorado
State
University

PROCEEDINGS

1993 COLORADO WATER CONVENTION

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Information Series No.74

**Robert C. Ward, Director
Colorado Water Resources Research Institute
Colorado State University
Fort Collins, CO 80523**

1993 COLORADO WATER CONVENTION

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PREFACE

The Colorado Water Convention, held January 4 and 5, 1993, allowed the Governor, the Colorado Water Conservation Board, members of the public, and various water interests from around the state to meet and discuss the issues and conflicts surrounding the transfer of water within Colorado. Particular focus was placed on interbasin transfer of water and the transfer of agricultural water to urban use.

The most important goal of the Convention was to gather public input to assist the Governor, the Department of Natural Resources, the Colorado Water Conservation Board, and the Colorado General Assembly in their deliberations on water policy. Toward that end, the public input received at the Convention is given priority in these proceedings.

The first day of the Convention was devoted to Front Range Water Alternatives, followed by a second day of discussions concerning water transfer within Colorado. Speakers included:

- Colorado Governor Roy Romer
- mayors and representatives of Colorado cities
- representatives of irrigation and conservation districts

These speakers presented their perspectives on Front Range water needs and its role in water transfers.

Members of the Colorado State General Assembly discussed the role of the legislature in addressing water transfer issues and described potential legislation in the upcoming session.

Other presentations/issues included:

- A review of issues for a scoping analysis of water transfers.
- The question of need for statutory changes and ways to accomplish this, by speakers representing a wide range of perspectives on water policy.
- Small group workshops to give participants the opportunity to discuss strategies that would help assure adequate water supplies for the Front Range.
- Identification of what role the state has in helping assure adequate water supplies for the Front Range.

The speeches presented at the conference are summarized, and are followed by verbatim lists of the written questions submitted by participants in response to the speeches. Where prepared speeches were not obtainable, transcriptions are used. These transcriptions were edited by CWRRI staff. The only editing done on questions was to correct spelling and to put in question marks where necessary. In one case, we were unable to read the handwriting. The introductory speeches and convention wrap-up speeches are printed in their entirety. In addition, the results of the small-group sessions and of the participant survey are printed here. The list of participants is provided to assist the participants who wish to follow up with any issue of the convention.

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1993 Colorado Water Convention

**SECTION I
KEYNOTE ADDRESSES**

WELCOME

Tyler Martineau, Chairman
Colorado Water Conservation Board

Good morning. If many of you are like me, you have one foot in the Stouffer Concourse Hotel and some idea that this is January 4th, but the rest of you is still back in the part of the holidays that you found enjoyable. As I was trying to shift gears from where I have been the last week, I realized that one thing the holidays did for me was to emphasize our commonality of interests in water. That commonality spreads many miles, in fact, it spreads far beyond Colorado.

Over the holidays, I had a chance to visit with some of my relatives, and I was amazed by the fact that, although those relatives are scattered all over the United States, water came up in our conversations. For example, I have a 75-year-old aunt who, of all things, manages a large shopping center. She was concerned about how they were going to find their way through the maze of the environmental regulations that they have in Connecticut, in order to provide a water supply for that shopping center. I have 20 year-old cousin, who will be going to what was the Soviet Union, right on the Mongolian border, to the town of Irkutsk, which is right on Lake Baykal, the largest freshwater lake in the world. He is going to be studying water quality issues in that great body, which is half way around the world. I have an 80-year-old uncle, who has a cabin on Lake George in the Adirondacks. He was talking to me about the fact that on that lake one can still stick a pipe in the water, run it into your house, and drink that water without doing anything to it. He thought that was a wonderful thing in 1993.

What this said to me is that water is a lot like weather. It is a topic that binds us together -- no matter how many miles we reach across, or what differences we might have on other issues. It is also a topic like weather in that it is hard to do anything about.

Why are we here today? I think it is appropriate, at the beginning of 1993, to try and seek commonalities. In many forums, we emphasize the differences, and there certainly are many differences among Colorado water users. I hope that over the next two days we will be able to focus on commonalities.

I think it is appropriate to take a moment and talk about: where did the idea of this conference come from? Over the past year, the Colorado Water Conservation Board has taken on several new studies, both of which were authorized by the Colorado Legislature last spring. One of those was a \$25,000 study to scope the issues related to basin-of-origin. The other was a \$100,000 study to take a look at the issues surrounding the proposed Colorado Interstate Gas Proposal to

transfer water from the Fort Lyon Canal system. As the Board moved forward with both of those efforts, they realized that those efforts were driven by the need to address two issues: (1) the need to provide additional water supplies for Colorado, much of that need exists in the Front Range area, particularly in metropolitan areas, and there is a need to look at alternatives for meeting those needs; and (2) because Front Range needs drive Colorado needs there is a need to look at basin-of-origin issues, and how those issues can be resolved. Those are essentially the two topics that this conference will focus on.

What are the basic purposes of the conference? These are what I see, from the discussions at the Water Conservation Board, over the last year: (1) There is a need to facilitate the sharing of information with regard to these issues -- metropolitan water supply and basin-of-origin issues. (2) There is a need to identify barriers that exist to Colorado meeting its water needs. (3) There is a need to identify solutions that will lessen the divisions that exist between us, and will allow us to seek the commonalities that we in fact have. (4) Finally, there is a very important function of this conference, and that is to provide guidance to the State of Colorado, to the Water Conservation Board, to the Department of Natural Resources, as to what role the state should play in terms of addressing these issues of metropolitan water supply and basin of origin.

1993 Colorado Water Convention

**THE ROLE OF THE STATE OF COLORADO ON
FRONT RANGE WATER CHALLENGES**

Governor Roy Romer

Good morning. Thank you for joining with us as we seek to find solutions to some of the key water resource issues of our time.

For the last six years, my administration has focused on jobs, the environment and education. In the arid West, water obviously is a key ingredient in that agenda. Colorado's economy depends upon the vitality of our agricultural economy, and the attractiveness of our recreation and tourism opportunities. Water is essential to the economic prosperity of the Front Range metropolitan communities and is important in maintaining the environmental quality that makes Colorado the most beautiful and attractive state in this country.

I know that some of you have recognized that this Convention has been called on short notice, and some of you are probably waiting now to identify some hidden theme or veiled agenda in my remarks.

Well, there is no hidden agenda. These are the same issues we have been discussing for years. We all recognize that we can do a better job, and that we need to cooperate more, conserve more, and plan better.

I want to be very candid in telling you why we are here today. In the last 5 to 10 years, we have invested many millions of dollars in highly publicized and polarized fights over Two Forks, AWDI, Union Park, the Collegiate Range project, the transfer of Rocky Ford Ditch rights, the proposed Poudre River transfers and many other proposals.

This polarization cannot continue if we expect to assure that adequate water supplies will be available for our future needs. Nor can we expect to resolve our water-based economic or environmental concerns if we are not talking to one another and sharing our ideas.

Although our institutions and our leaders are strong, we need to blow the whistle on what has become an unacceptable level of administrative gridlock, litigation, expense, and delay whenever water development or transfers are proposed.

Many of you probably saw the headline in Saturday's *Rocky Mountain News*, concerning the state study indicating that the metro area has enough water. To be sure, many communities do have a surplus of water, while others are at risk of a shortage. My purpose here today is not to embrace the conclusion of this study -- it may be accurate, and it may not. But I think it ought to be part of the mix of information we consider.

I want you to know that I do not have the solutions for these problems. But I do know that solutions exist and can be found by those in this room.

I have three significant expectations of this Convention:

(1) I hope that we can share information and compare opportunities for assuring future Front Range water supplies in the post-Two Forks era.

(2) I also hope we can review several proposals intended to address the economic and environmental effects of transferring water from one area of the state to another. As we evaluate these proposals, we must keep in mind our responsibility to assure that adequate water supplies will be available for future needs throughout Colorado.

(3) Finally, I hope we can clarify the role we may want state government to play in addressing both the Front Range water supply and area-of-origin issues.

THE CURRENT SITUATION, AFTER TWO FORKS

The Denver Metropolitan area is expected to grow by more than 30 percent within 20 years. The Two Forks EIS in 1988 projected a water supply shortfall of approximately 98,000 acre-feet by the year 2010, and a shortfall of approximately 163,000 acre-feet by the year 2035. Although these projections may change over time, we have every reason to believe that additional water supplies will be needed.

Since the EPA veto of Two Forks, water supply planning efforts for the metro Front Range communities have proceeded in a piecemeal fashion, with little direction or momentum. This is unfortunate because it will require more cooperation, not less, to assure that adequate water supplies are maintained through other alternatives.

The Denver Water Board has decided it will no longer play the lead role in securing water supplies for the Metropolitan area. Some of the suburban water agencies have formed the Metropolitan Denver Water Authority; others have formed the Front Range Water Authority. Still others are independently pursuing new water sources to enhance existing supplies.

In addition to these efforts by government, many controversial efforts by private entrepreneurs have been launched: American Water Development in the San Luis Valley; Union Park in the Gunnison; the Colorado Water Supply Company proposal in the Lower Arkansas River; and several others.

Tens of millions of dollars have been spent on legal and engineering fees. And, in the final analysis, very little has been accomplished to meet the needs of the Front Range.

Our water wars have focused attention on the potential economic and environmental impacts associated with the transfer of water from one area of the state to another. Some have even proposed legislation or constitutional amendments to restrict such transfers.

But we must ask ourselves whether the real solution to these

"area-of-origin" concerns might be found in addressing the way we plan for and develop future water supplies along the Front Range.

SOME ISSUES OF STATEWIDE CONCERN

Waste of Public and Private Funds: It is clear that our independent efforts to secure individual water supplies is wasteful and counterproductive. The institutional independence of water supplies throughout the Denver Metropolitan Area causes isolated surplus and shortage of water, and a premature need for additional water supplies. This was demonstrated in the Two Forks EIS and became a part of the permitting controversy.

Furthermore, our individual approaches have magnified the complexity and expense of competition for our water resources, assuring that every new appropriation or "change of use" will be challenged by many other parties.

What did we spend for Two Forks? -- \$40 million?

What about AWDI? -- \$30 million?

And another \$15 million or so on Gunnison? We are approaching \$100 million in expenditures on water planning and not a drop to show for it.

Dry Up of Agricultural Lands: A second issue of statewide concern which has intensified these confrontations is the potential dry-up of some of our most productive agricultural lands. Over the years, thousands of acres of agricultural land have been dried up as irrigation rights are sold and transferred to municipal water use.

Rural economics have been hurt. The local property tax base in rural communities has contracted. Financing for schools, fire protection, libraries, trash disposal, and many other community services have suffered. As agricultural production in a community is reduced, many related businesses also suffer -- from retailers to seed suppliers to clothing and hardware stores, restaurants and movie theaters. In the long run, this may threaten the integrity of Colorado's rural communities and agricultural economy.

And these impacts may be contrary to the desires of most Coloradans. Colorado State University conducted a poll last summer which suggested that 73 percent of Coloradans would give highest priority to water uses that sustain agriculture. Only 10 percent would give highest priority to growing cities.

Environmental Consequences: Environmental Consequences are also often associated with water transfers, and federal and state law precludes us from ignoring these consequences. These concerns were not anticipated a century ago when we set out to "fully develop" our water resources. Now, however, these concerns impose new challenges on our ability to use Colorado's water where it is most needed. Unfortunately, environmental consequences are very difficult to measure or predict, and that makes them very easy to fight over in the government bureaucracies and in the courts.

Extensive Lead Time Needed to Produce New Supplies: Also, it takes a long time to deliver new or transferred water supplies to meet our future needs. The time and expense of engineering studies, environmental studies, and public participation make the decision process so complicated that the development or transfer of new water supplies must be initiated long before the need for them actually arises. Without a crystal ball or a better way of making these decisions, we may be forced to prepare for major shortages and to entrust our future to luck and litigation.

Impact on Future Development in Other Parts of the State: Finally, extensive transfers of water from any given area may preclude future growth in that area. We have seen this happen in parts of the Fraser River basin. The recent agreement between Denver, the Colorado River Water Conservation District and others appears to have solved that particular problem, and I applaud such efforts, but we know that this risk is a real one.

NEW DIRECTIONS AND ALTERNATIVES

I know we can find solutions to these issues. There are many options available to us as we seek effective and cooperative ways to assure adequate water supplies, and protect our agricultural communities, our environment, and our economy.

As we look at some alternative strategies for resolving these concerns, I don't think we are talking about a fundamental change in our water rights system -- and I understand that there may be some nervousness about that in this room.

We don't need to introduce fundamental change into our water rights system, but we should not be afraid to explore a more productive and less divisive approach to problem solving. And as we examine these approaches, perhaps it is time for the State to play an enhanced role in these matters.

I say this with some reluctance, because clearly, the people of Colorado are demanding smaller, less expensive government. But it is equally clear that the divisiveness, lack of cooperative planning and endless litigation we have experienced carries its own price tag.

We have many options to consider:

A Regional Water Coordinating Organization: We may want the State to organize the many independent water providers along the Front Range into an association which could soften the institutional boundaries that currently isolate and divide our Front Range communities. By doing so, we may be able to reduce or eliminate existing water supply shortages, reduce competition and increase support for new sources of supply, and develop a cohesive regional plan which assures adequate water supplies throughout the Front Range.

State Incentives: We may also want to use state resources such as money from our Construction Fund or Water and Power Authority as incentives to promote more coordinated and comprehensive planning and management of our water resources. This might be accomplished by

attaching conditions to state assistance for the construction or enhancement of water infrastructure.

State Water Project: Some have suggested that state government play a more active role in facilitating the development of our compact entitlements as the need for larger water supplies for the Front Range materializes. Some have even suggested that Colorado develop a "State Water Project," as was built in California. I don't know if this is a viable idea, but we should not be afraid of discussing ideas like this.

Cooperation with Agricultural Water Users: We may also want to explore ways to minimize impacts to rural Colorado as Front Range municipalities purchase or appropriate water resources for trans-basin diversion. For example, in response to the proposal to transfer water from the Fort Lyon Canal in the Arkansas River Valley, I asked the Water Conservation Board to take a hard look at the dry-year lease or interruptible supply arrangements. I am fully supportive of their careful examination of these options since we want to minimize adverse impacts to our agricultural economy and communities.

A similar alternative might be for the state to promote an experimental land fallowing program similar to the one Southern California is undertaking.

At noon, you will hear about this program which will allow California farmers using irrigation water to set aside up to 25 percent of their productive lands in order to make additional water resources available from the Colorado River for municipal and industrial uses in Los Angeles. Perhaps a short-term experiment of this nature would be worthwhile in Colorado as well.

Enhanced Information System: We might also consider increasing the ability of our state agencies to coordinate water resources data, information management systems, and decision support systems. This might facilitate the analysis of a wide variety of proposed actions and their impacts on water rights, compact obligations, instream flows, and the environment.

Assuming these systems would be available to all interested parties, the engineering and legal costs related to water resource projects could be reduced substantially. Also, access to better information might help us develop consensus for those projects that optimize the use of water and have the least impact on the environment.

CONCLUSION

At my request the Departments of Natural Resources and Local Affairs have contracted for a study on options for Front Range water supplies. That draft study will be described for you in just a few hours.

Essentially, it proposes a more detailed investigation of a comprehensive system for water resource management throughout the Front Range urban corridor. If we decide that this alternative is the

wisest way to proceed, it could be organized in several different ways, but the support of Front Range communities, rural communities, the environmental community, and other interests throughout the state would be essential.

I think you all agree that the expense and frustration of doing business as usual cannot continue. As you absorb the information presented over the next two days, I ask you to consider whether it would be helpful to establish a more active state role in moving forward on these issues.

While several legislative and administrative options are available to us, I am also quite aware that many Coloradans want a smaller and less expensive government. I also know that we should not and cannot force any resolution of these issues that does not work reasonably well for all of us.

As I look at this audience, it is clear to me that you have sufficient knowledge, wisdom and leadership to address these questions and I am anxious to hear your views.

Thank you.

Written questions and comments for Governor Romer

1. Given that agriculture uses the vast majority of the state's water (and pesticides), isn't there a conflict between agricultural use of water and the state's environmental and tourism interests?
2. The state often speaks with multiple voices on water transfers and water development. Why cannot the state (and especially the Dept. of Natural Resources divisions) resolve internally its conflicts and then speak with a single voice? That alone would smooth the water planning and development process. (P.S. -- Ideally the U.S. should do likewise.)
3. Why hasn't the state taken a leadership role in planning for the interbasin allocation of water in Colorado?
 - a. No authority
 - b. Low priority
 - c. Both of the above
 - d. Something else?
4. What is the state doing now to help Front Range communities obtain dependable water supplies?
5. How can we move to a "new direction" without putting current water rights investments at risk?
6. "Cooperation" among water providers might be seen as an agreement in restraint of trade. One way the State could help water planning would be to express a "clearly articulated State policy to replace competition with regulation or monopoly public service" in the acquisition of water rights and provision of water service. This would bring such cooperative agreements within the Parker or state action exception to antitrust liability.

7. Won't protection or basin-of-origin legislation cause more waste of public and private monies, as Front Range cities scramble to find "politically acceptable" water supplies?

8. (Also addressed to Mayor Carpenter) Economic vitality is the focus for the Front Range while environmental protection and basin-of-origin protection is the focus for everywhere else (rural eastern Colorado and Western Slope). Economic development (i.e., water development) must be looked at for the Western Slope. Telecommunications, etc. will make rural economic development very possible within "basins of origin." Where does rural economic development (real development) come in, in lieu of buy-offs, etc.

9. Does your remark concerning more involvement by the state in Front Range water needs mean your support to dismantle the Counties 1041 powers?

10. Would the state support stream-lining the legal system by limiting the "can and will" doctrine? That doctrine is being used by opposers to litigate every issue which could affect water projects, not just those relating to the water right which system is intended for?

11. Would state support reasonable limits on HB1041 so that local governments in "basins of origin" can't veto water transfers, or impose unreasonable mitigation costs?

12. What steps will your administration take to stop and clean up water pollution from industry (e.g., cyanide toxins from mining) to protect rural aquifer and surface streams from ruin?

13. Do you see any chance of public funding for water rights purchases to provide supplies for the instream flows, habitat and other public trust uses?

14. How serious is the CWCB (state) in using their funds for other areas of water development rather than specific dam projects? These smaller, more individual rehabilitation projects often create more water quicker and more efficiently.

15. How can the state help individual water users (cities, irrigation companies, etc.) fight the federal bureaucratic red tape such as the Forest Service, EPA, etc. in a more effective manner? The federal government seems to ignore our state rights in water matters more and more.

16. Colorado needs to educate its residents especially the "transplants" to what made and will continue to make Colorado, WATER! Storage and water management are a must in this state, and they need to hear it day in and day out until they understand. We in the water community hear it all the time, but we understand the issues. Get the press, TV, radio involved more as "part of their community service." They also need to realize where their food comes from, and it is the American farmer, and water is the key to food production.

17. What is your position on the recently proposed "Water Salvage Bill"?

18. The Denver Metropolitan Water Development Agreement between Denver and 46 other providers was a landmark agreement in 1982. Some 10 years later, after the demise of Two Forks, the fate of that agreement is moot. How could water providers count on anything that says: "Big brother would protect you" -- when the first obstacle occurs, big brother runs.

19. What kind of constructive precautions is the state implementing to guarantee that we will never again throw \$100M down a black hole for water planning studies?

20. Is it feasible to develop a statewide water project given the differing and competing interests (and tax bases) of various political subdivisions?

21. What role will any state agency play to develop Colorado's compact entitlements? (The agencies, including CWCB, have generally opposed all attempts to initiate new water rights to consumptively use water in the Colorado River Basin.)

22. How do you accommodate "dry year leasing" or "municipal drought protection through periodic dry-up" if the water is not in storage from prior wet years and infrastructure is not in place to deliver that water?

23. Isn't it more productive for the state to spend its time developing a "state Water Plan" rather than interfere with years of planning entities have done to date?

1993 Colorado Water Convention

**OPPORTUNITIES FOR FUTURE WATER SUPPLY FOR THE SUBURBS -
THORNTON'S PERSPECTIVE**

Mayor Margaret Carpenter
Thornton

Good morning. Let me first congratulate Governor Romer, the Colorado Water Conservation Board, Ken Salazar, and each of you who worked on putting together this Water Conference. In speaking with Ken several days ago, I was told the objective of these two days is to conduct a thorough, lively discussion of key water issues in Colorado. Judging from the agenda, as well as from the distinguished nature of the assembled participants, I would say that your objective will certainly be met.

As I sat down to prepare my remarks for this session ... my mind recalled more than a dozen years of experiences and discussions ... endless meetings ... committees .. councils ... workshops that have been devoted to this topic. For all of us in this room, the subject of water resources is exhilarating in its importance, and yet exhausting in its lack of conclusive resolution.

Looking over the agenda, does anyone else get the feeling that we have been here before?

- I'm reminded of the endless hours and the millions of dollars spent pursuing Two Forks ... the one water project that Metro Denver "had to have" for its future ... but which is apparently not to be.
- I'm further reminded of Governor Lamm's Water Roundtable, which precipitated numerous discussions among East and West Slope interests and among water officials and the environmental community, but didn't resolve the outstanding issues even though it appeared resolution was close following the Boulder lock-in meetings.
- More recently, I remember the efforts of the so-called "Gang of Ten," who agonized over the elusive topics of "metropolitan cooperation" including "Front-Range water issues" for at least five years with, I'm sure most participants would agree, minimal success.

When I think about what it takes to develop long-term water supplies, the word "challenging" readily comes to mind. If time, dedication, and money produced water ... the Front Range would definitely be flooded.

Unfortunately these distinguished efforts, in which I have been a proud participant, have failed to produce a single drop of water. Before I talk about why I think these efforts have failed, I'd like to talk about the successes that Thornton and others have achieved.

First, the

- Standley Lake Operating Committee (fondly known as SLOC). Challenged to resolve issues relating to condemnation actions over water storage in Standley Lake, the Cities of Thornton, Westminster, Northglenn, and the Farmers Reservoir and Irrigation Company (FRICO) created SLOC to determine allocation of storage rights, and sharing of operation and maintenance costs and capital improvement expenditures for Standley Lake and its associated facilities. Its deliberations have not always gone smoothly, but it works.

Next, the

- COSMIC Agreement. Prompted by severe water quality problems, years of squabbling and untold dollars spent on litigation on Clear Creek, the Cities of Thornton, Westminster, Golden and the Coors Company reached a comprehensive agreement on the use of effluent bypasses and exchanges to protect the water quality of Clear Creek.

And finally

- Thornton's Northern Project. Frustrated by the ever increasing roadblocks, to say nothing of the escalating costs of the Two Forks project, the city searched for an alternative that would meet Thornton's future water needs. The resultant Northern Project is a cooperative effort which accommodates both municipal and agricultural needs for water. It also includes an agreement between Thornton and the Water Supply and Storage Company which addresses a multitude of water quality and quantity issues. While the Court's decision has not yet been handed down, the city is confident that this project will be successfully completed.

I think you will hear Chips Barry and Rollie Fischer this afternoon describe some other successes involving creative solutions to Denver and West Slope entities have fashioned.

These experiences, SLOC, the COSMIC Agreement, and the Northern Project have also been difficult and challenging, but they all have, or will, result in water for the future. It seems to me that the difference between these successes and the efforts that have achieved no resolution is that the successes focused on solving discrete problems rather than focusing on broad, philosophical issues.

When I was first elected Mayor in 1979, I automatically became a member of the Thornton Utility Board, the first woman, incidentally. At that time, my knowledge of water acquisition, development and distribution might have filled a teaspoon. Today, 13 years later, my knowledge of the subject has increased dramatically. In fact, on a good day it might fill a soup ladle.

Therefore, I come to the podium this morning a product of my experience, as one who has championed Metro cooperation in water matters ... and one who has also had to stand before my City Council and the Thornton citizens who elected me, to explain why today's utility users should finance tomorrow's water projects. I have to admit that one of the greatest successes of my political career has been the willingness of the Thornton City Council and the citizens of

Thornton to spend over 50 million dollars initially to assure the City's future water supply ... understanding that not one drop of water would be available within Thornton before the year 2000. Those expressions of confidence are why I personally spent much of the last 16 months attending water court in Greeley.

It strikes me that perhaps the greatest service I can offer this Conference would be to distill my experiences ... and to offer my observations about some of the myths surrounding the "Front Range Water Problem."

Let me offer five observations:

OBSERVATION #1 -- Bigger is not always better. A centralized, interdependent, and fully integrated Front Range water system is not in the best interests of most area water providers.

In fact, I would go further and say that while such a system may appeal to one's intellectual and philosophical tendencies ... it is impractical and may even be dangerous. There is no evidence that a unified, interdependent system would be more efficient than individual, independent water systems. To the contrary, there is evidence that an interdependent system can, and probably will, generate conflicts among the participants on issues related to growth, land use, tap allocation, planning and cost.

While, in my opinion, a centralized water system is not needed, the participation in forums, such as the Front Range Water Authority, which help facilitate cooperation, coordination and most importantly, communication, should be strongly encouraged. The Front Range Water Authority not only provides a forum for communication, it also provides a legal vehicle for the execution of joint water projects. Creating legal alliances in those cases where a clear and limited objective can be identified changes the term "cooperation" from a cosmic idea to a realistic practice. Lee Rozaklis's draft report identifies some of these opportunities for voluntary alliances which can stretch present supplies and create new ones.

As individual local governments and districts continue to meet the needs of their constituents, I foresee more cooperative ventures among providers instead of the development of a Front Range authority. Those of us who have the unique responsibility of providing water for our citizens' futures cannot wait for the development of a centralized approach.

OBSERVATION #2 -- Basin-of-Origin legislation is unnecessary and would inhibit creative resolutions.

The only transfer legislation necessary at this point is legislation to facilitate, rather than further impede, transfers. Further, any basin-of-origin legislation is premature at least until we have the guidance of a state-wide water plan. In other words, a set of political decisions needs to be made regarding the internal allocations of Colorado waters and how those allocations would affect Colorado's ability to protect its interstate compact entitlements.

Transferring water from one basin to another has been, and will continue to be, a source of political controversy. As legal as it may be, nobody likes to see water diverted from their region to another region.

There has been a clamor for "basin-of-Origin" legislation for many years. Some bills proposed have been honest attempts to address this problem ... others appear to be thinly disguised attempts to stop water diversions period.

I think we all recognize by now that legislation designed to merely stop diversion will be unsuccessful because growth, even at modest levels, requires adequate water. What can be done is to provide protection and equity for those areas that have water available.

Water providers understand very well that, in this day and age, a project will succeed only when there is a fair accommodation with in-basin interests. Protecting basins of origin is an important responsibility, which should be executed on a "case-by-case basis" ... between and among the parties at interest. This will allow for the fashioning of creative, flexible resolutions of the individual issues raised by that particular transfer. Protection of basin of origin does not lend itself to a prescriptive, cut and dried state-wide doctrine.

As a component of our Northern Project, Thornton has been voluntarily providing payment in lieu of taxes to Northern Colorado entities for over five years. The City has also agreed to contribute financing for new projects with the Water Supply and Storage Ditch Company. Thornton, of course, benefits from the company's new projects, but the point is that water providers can and do act responsibly without statutory prescriptions when these situations are handled in a positive, forward looking manner.

OBSERVATION #3 -- Water conservation isn't just low-flow toilets.

Everyone is in agreement as to the importance of water conservation. The City and County of Denver should obviously be applauded for bringing its metering program on-line faster than expected. While a great deal of attention has been given to metering, building codes, retrofit devices, and xeriscaping, I believe we also need to focus on "supply-side" conservation. By "supply-side" conservation, I'm referring to water reuse and raw water exchanges. These mechanisms have the potential of making major supplies of water available to the Front Range and, therefore, should be aggressively pursued.

The ways in which we can get the most out of municipal water supplies, giving special attention to cooperative efforts between municipalities and the agricultural sector -- such as those John Akolt will probably describe this afternoon -- must be carefully explored and, where feasible, promptly implemented. Again, Lee Rozaklis's draft report catalogues some of these opportunities and identifies issues to be further addressed.

OBSERVATION #4 -- The current system of permitting, adjudication, and development is too costly and is inefficient.

Our current system for developing water is simply too inefficient. While the past decade has produced vast improvements in water resource technology, modeling, and efficiency, the legal system for perfecting our rights and obtaining necessary permits is increasingly used by opponents of water transfers to make water developments nearly impossible, and extremely costly.

The standards and accountability of water law must be preserved (I am not suggesting otherwise). Our efforts, however, today and throughout 1993, must be devoted to streamlining the legal process and making it less cumbersome, not more cumbersome and difficult to provide water for the Front Range.

I personally find it offensive that such a large portion of my City's water budget must be spent on the non-productive activities of litigation, rather than on developing water resources for my citizens' future. This is particularly worrisome to the Thornton Council and myself in light of Amendment #1. And speaking of Amendment 1...

OBSERVATION #5 -- The uncertain task of developing Front Range water has become all the more uncertain with the passage of Amendment 1.

If this Conference had been held last October, the most critical issues we would have discussed are water authorities, basin-of-origin concepts, and many other familiar topics.

But, November 3, 1992 changed all of that. As a municipal officer, I now have new marching orders. My orders are to deliver necessary services to my constituents under the constraints of tax spending limitations. None of us are sure what all of the ramifications of this "new order" will be for the water utility programs. But needless to say, the level of uncertainty in Front Range water development has increased!

In conclusion, Thornton and its fellow cities in the Front Range face many serious challenges to the fulfillment of our sworn duty to provide sufficient water to meet future demands. As we welcome 1993, Thornton, and I believe the majority of front-range municipalities, also welcome efforts to help each of us address those challenges. If I can be slightly facetious, let's not shoot ourselves in the acre-foot in our efforts to precipitously address a very complex and extremely emotional issue.

Thank you.

Written questions and comments for Mayor Carpenter

1. What assistance from the state did Thornton receive in pursuing its Northern Project?
2. There has been virtually no environmental opposition to Thornton's Northern Project; why is that? Same question regarding the state Engineer.

3. Is it true that Thornton has been unwilling to negotiate with major opponents to the Northern Project, e.g., NCWCD.
4. Is the dry-up of irrigated land by Thornton in northern Colorado going to be a permanent or temporary dry-up?
5. ? encourage Front Range water authority YET says integration is impractical...?
6. Can you describe or conceive of any circumstances where Thornton might benefit from an integration of water supplies among Denver area suppliers?
7. You stated that there is no evidence that a large central water project would be more efficient. I agree that bigger is not better and not more efficient. It appears that the need to create a buffer for each utility and the competition can lead to overdevelopment and add costs. If there is not to be a central system, how can these inefficiencies be avoided?
8. If Thornton had it to do over, would you choose a less confrontive approach, a more cooperative approach, to secure Northern Colorado water rights? Or do you feel your secretive approach was the only way you could have secured the water you need? Same question phrased differently: Since cooperation is essential, does the City of Thornton regret its secretive approach in securing Northern Colorado water rights -- an approach which seems to have taken away any cooperative spirit Northern Colorado users might have had?
9. How would you make the water permitting system more efficient, i.e., what would your recommended system be?
10. You spoke of the need to "streamline" the existing legal system. Can you give us some examples of what you have in mind?
11. Does Thornton have any place to clean up and return to the agricultural areas some of the water which it hopes to remove therefrom? If so, what is that place?
12. Thank you. Your speech was both informative and encouraging. Who do you think best represents the opposite point of view on basin-of-origin legislation?
13. How can construction and maintenance of golf courses be made consistent with the need for water conservation? Must one simply decide that this is an amenity which outweighs the need for water conservation, or can they be reconciled?
14. What was your impression of the RMN article on the Hydrosphere report -- how did it differ from your reading of the report?
15. Please tell the Mayors Carpenter, Webb and Lopez that the word is Xeriscape NOT Xeroscape. There is a major difference.

1993 Colorado Water Convention

**DENVER'S ROLE IN DEVELOPING FUTURE WATER SUPPLIES FOR THE
Front Range AREA IN THE POST-TWO FORKS ERA**

Mayor Wellington E. Webb
Denver

INTRODUCTION

I appreciate the opportunity to speak to all of you about Denver's role in developing future water supplies for the Front Range. I believe that a conference such as this is helpful in understanding the myriad of issues involved in providing water to the Front Range. This conference offers a neutral forum for the many parties to discuss their various objectives, plans, and proposals.

In a spirit of cooperation rather than confrontation, it is my hope that through this conference an open and frank exchange of ideas will help us mutually find solutions to present and future water problems. I hope that the Metro area can move ahead as one cohesive, economically-integrated Metropolitan community. I will suggest how Denver can assist in reaching this objective. I will talk about Denver's historic role, how external events have changed that role, how we can cooperate in the future, and steps we are taking in the area of water conservation, which I view as an integral part of our water supply system.

HISTORIC ROLE OF DENVER

In 1918, the citizens of Denver purchased a private water company and created the Denver Water Board. Its primary purpose has always been to meet the water needs of the City and County of Denver. Denver acquired water rights, designed and built storage transmission and treatment facilities, and negotiated arrangements to divert from other basins, augmenting the natural but limited supplies available from the South Platte Basin. Denver residents and ratepayers have stood behind the general obligation bonds that financed those expansions.

Denver citizens gave their Water Board the authority to sell surplus water outside the boundaries of the City and County from its very inception. After World War II, when suburban communities began to grow at a much faster pace, the authority to sell water outside of the City and County was amended to allow multi-year contracts. With the construction of Dillon Dam in the early '60s, Denver had a large amount of water surplus and marketed that water freely throughout the Metro area.

However, neither the Water Board nor Denver citizens ever forgot that its primary obligation and reason for existence is to serve the water needs of the City and County. Our contracts with suburban distributors all reflect that obligation and provide for preferential treatment of inside Denver customers. The sheer size and magnitude of the Denver water system may have caused some observers to believe that Denver had accepted a mission or received a mandate to become the

water supplier for the entire metropolitan area. That has never been so. And the Poundstone Amendment passed in the mid 70's clearly brought that fact home.

After Poundstone, the Denver Water Board stopped adding new distributors. That step was not vindictive; rather it was necessary because of City charter requirements. The Poundstone Amendment took away much of the Water Board's rationale for further expansion of its service area.

However, even after Poundstone, Denver did not retreat from acting on water development problems. It took a leadership role in negotiating the Metropolitan Water Development Agreement, an agreement through which others in the Metropolitan area could participate in a joint venture format in future Denver water projects. That agreement, signed by the Denver Water Board and 47 suburban entities, indicated that Denver would not be the water supplier for Metropolitan area, but that we would cooperate and share some major water opportunities with others who would share financial and political risks.

The foundation block of that agreement -- understood by all the signatories at the time -- was Two Forks Dam and Reservoir.

TWO FORKS AND MOVING BEYOND THE PAST

In November 1990, the Environmental Protection Agency vetoed Denver's application for a permit to construct the Two Forks Reservoir southwest of Denver. Although the legality and propriety of that veto is now being litigated by some of the providers, there is no question that the Two Forks veto permanently altered all assumptions and planning for the construction of large water development projects designed to serve the Metropolitan area.

I do not intend to rehash the Two Forks saga here. I understand that a lot of communities had pinned their hopes on Two Forks. I know that many cities and districts, including Denver, spent a lot of money on the studies that preceded the EPA veto. But this is a new era for water project development and the environmental rules that apply.

Not only has the rate of growth changed and the demographics that had led to the Two Forks application no longer valid, but, I believe, public values have also changed. The public, whose love of the great Colorado outdoors showed in overwhelming passage of Amendment 8, is voicing its concern for in-stream flow protection, river-based recreation, and water conservation. Most importantly, the general public will soon tire of watching the Metropolitan partnership that had banded together to plan and finance Two Forks spend a lot of time bickering among themselves. We need to get beyond the bickering.

LOOKING TO THE FUTURE

For Denver's part, we hold out to the Metropolitan community and our Western Slope and Eastern Plains neighbors, a single commitment to working together in a new partnership. Here is what I expect of the current members of the Denver Water Board, as well of those I will appoint in the future:

1. Denver will continue to meet its charter obligation of providing water to the citizens of the City and County. However -- and this is an important change -- Denver will also extend the same commitments of reliability and service to those suburban distributors that it had previously contracted to serve. The Water Board has offered to renegotiate contracts and expects that the first of those new contracts will be executed within the next few weeks.
2. Denver will turn its attention first to a plan that will address the water needs of its defined service area. That is a significant challenge and that is its primary responsibility. But it is different from the historic role of water service for an ever-expanding City of Denver.
3. As it moves to meet its own service needs, Denver will remain open to possibilities for cooperation and maximizing efficiency of water delivery and development in the Metropolitan area. We can and will allow Denver's water system to work for the benefit of others, so long as Denver's existing rights and abilities to develop and deliver water to its customers are not impaired.
4. Finally, Denver will assist in planning for the development of water supplies to serve the entire Metropolitan area. Denver has a reservoir of data and expertise not available elsewhere. Over the next several years, we will work with others to see where system efficiencies can be enhanced and basin-wide water administration improved. In cooperation with others, we will seek ways to make more water available from the existing overlapping or duplicate water supply systems. We will not presume to plan for others, but we will participate in representing the interests of our customers and search for solutions that can meet our needs while meeting those of our neighbors.

CLINTON/WOLFORD IS AN EXAMPLE OF THIS POLICY

Denver has recently completed 18 months of negotiations with Grand County, Summit County, the Northern Colorado Conservancy District, AMAX, and the Colorado River Water Conservation District, which may in part illustrate our future role. Although these arrangements are enormously complicated, in essence, the deal just completed makes additional water available to Summit County and to Grand County, finances the Wolford Mountain Water Storage Project for the Colorado River Water Conservation District, and makes 12,000 acre-feet of additional water available to Denver on an annual basis. The underlying assumption behind the many months of negotiation was that detailed and technical analysis of the water rights and water systems of the negotiating parties would ultimately yield better understanding and workable concepts to increase yield for everyone concerned. All parties had either a water supply problem or a financial problem, or both. In the end, all the problems were dealt with, and almost all resolved completely:

1. AMAX sold its small reservoir to Summit County, which uses that water to repay Denver for the consumptive use of Denver water

utilized by Summit County residents and ski areas.

2. Denver makes water available to the upper reaches of Grand County, and is repaid in water from the River District's Wolford Mountain Project.
3. The River District obtained financing for its project from Denver, rather than from the more expensive and difficult bond market.
4. Denver obtained a permanent supply of water from the Wolford Mountain Project, rather than a lease which would have expired in 25 years. Everyone involved got a much better understanding of the other parties' political, economic, and operational issues and concerns. Denver participated in these negotiations not out of some altruistic motive, but because all of us have to look to the long term to best meet our future water needs.

In the end, it may be enlightened self-interest that will guide Denver in its future role in supplying water to the Metropolitan area. I suggest that enlightened self-interest is an appropriate guide for all entities in the Metro area.

But enlightened self-interest includes the interest of our children and grandchildren in continuing to have beautiful wilderness areas and free flowing streams. And the more we can use water conservation as an alternative future water source, the better we will have served the interests of future generations.

WATER CONSERVATION AS PART OF OUR WATER SUPPLY SYSTEM

To be honest, I think Denver simply paid lip service to the need to conserve water until the latter half of the 1980's and we were, probably, not alone. However, we have finally gotten serious about water conservation.

--The Denver Water Board completed the metering of all Denver residences two years ahead of schedule and has adopted its first rate structure change which does not reward increased water usage by residential consumers.

--The Board also adopted a successful rebate program to encourage the installation of low-flow toilets.

--I am pleased to announce that I will soon be signing an executive order promoting water conservation which will include, for the first time, landscaping standards to apply to all city improvements to parks and other public outdoor spaces. It will require annual revisions so Denver will continue to find better ways to conserve.

--At the new Denver International Airport, in cooperation with the Environmental Protection Agency, we have incorporated low-flow toilets, xeriscaping, water recycling and other features to save millions of gallons of water in the future.

--In Denver's gateway area to the new airport, the Denver Planning

Commission has adopted zoning standards which requires or rewards water conservation by private developers. We will soon be asking the City Council to adopt those standards.

--And we now require all new commercial and residential structures to use low-flow toilets, showers, and faucets.

With cooperation, creativity and commitment to conservation, I believe we can find answers to the water supply needs of the Denver Metro area while respecting the needs of our neighbors on the Western Slope and Eastern Plains.

Written questions and comments for Mayor Webb

1. [also addressed to Mayor Carpenter] What steps, if any, will be taken to clean up the polluted aquifers under the metro area?

2. [also addressed to Mayor Carpenter] In addition to the need for a Front Range Water Authority, it would appear that additional metropolitan area "integrated planning" is necessary to also address water and air quality, transportation and similar issues. Is there a better way to provide multi-media analyses of Front-Range growth scenarios and to fully involve all potential stakeholders?

1993 Colorado Water Convention

IN SEARCH OF OPTIONS

Mayor Greg Lopez
Parker

As you can see on your agenda, my presentation this morning is entitled, "In Search of Options." When I was asked to speak at this convention and was informed of what my topic would be, I'll be honest -- I was somewhat concerned.

The first thought that ran through my mind was, I sure hope they aren't expecting me to provide a list of options on water management for people to take home and decide upon! Looking out into the room, I can see that you probably know as much or more than I do about water. And, if I did have a list of options, you probably have the same list back at your office.

So, you're probably sitting back in your chairs asking yourself, who is this speaker, why was he asked to speak today, and by the way, where is Parker, Colorado?

I'll answer the first question with another question. Am I a water expert? No, I am not. Do I have anything new or exciting to share with you today? Well, it's interesting, and I hope much of it is new. Where is Parker? Raise your hand if you know where the Town of Parker is. Good! Whether you've visited Parker, or whether you thought it was just a road and not a town, I'd like to give you some more information about it, and more importantly, I'd like to share with you why thinking about and planning for water sources is essential to our region.

Parker is on the northeastern corner of Douglas County, and we have some interesting facts about our town:

- 1) Did you know that the Town of Parker is the only other municipality besides Denver that has the strong mayor form of government?
- 2) Did you know that Parker was incorporated in 1982? That's right -- we are only 10 years old.
- 3) Did you know that Parker does not provide water service to its citizens, but rather a water district -- Parker Water and Sanitation District -- does?
- 4) Were you aware that Parker issued over 400 single-family building permits in 1992? Can you believe it -- over 400 single-family building permits, and our population is just over 7,000 people. Would you say that the town is experiencing a growing trend? I'd say yes.

But what about the county? Do you remember what county I said Parker was in? That's right -- Douglas County. And, Douglas County has issued over 1800 single-family building permits in 1992. Would

you say the county is growing, also? Did you know that Douglas County has been bestowed with the honor of "Fastest Growing County in the Nation"? . . . The fastest growing county in the nation. Water concerns? You bet. We're concerned about our resources and supply of water in the entire region. And, as the state continues to grow, and other States continue to put demands on our water supply, we will have even more about which to be concerned.

Options for water? We have no options. This may surprise you, but when you think about it, it's clear -- either you have water or you don't. It's that simple. Water is the most precious natural resource available to humankind. We can't live without it -- our bodies physically need it to function. We don't have a choice -- without it, we're nothing. And yet, we take water for granted. And, we not only take it for granted, but sadly, we also waste it.

Did you know that most of the demand in a municipal water system is for the outside uses and not human consumption? We use it for the nice green lawns that surround our houses and our lush green parks. We like to wash our cars, take long showers, use dishwashers, use clothes washers, fill swimming pools, and the list goes on and on. One thing is very clear -- we need to educate more people about water conservation and usage.

Our mission, and it is a mission, is to assure the people in our towns, cities, counties, and State that we will provide water resources that possess attributes of permanence, renewability, and reliability; most importantly, we need to make water affordable.

Ladies and gentlemen, this is our mission. Now, what are Douglas County, the Town of Parker, and the rest of the communities within the county doing to reach this end?

As you may know, Douglas County finds itself in a very difficult position. There are only two sources of water: groundwater and surface water. Douglas County has little surface water of which to speak. We have surface water resources such as Plum Creek and Cherry Creek, but they vary yearly in their flows and may be over-appropriated. So, we rely exclusively on groundwater. I'm sure that you are all aware of the high costs involved when using groundwater as your only supply source. And remember once again, Douglas County is the fastest growing county in the nation.

Our demand for water is increasing daily, and we are currently supplying it from a non-renewable source -- the Denver Basin bedrock aquifers. The county currently has planned and zoned enough land to accommodate a population of 500,000 people; however, the County has failed to plan and provide for an adequate supply of water for that population. I have another interesting fact I want to share with you. Did you know that studies taken for the Denver Systemwide Environmental Impact Statement indicate that the future water demand in the Denver metropolitan area is expected to be about 208 gallons per person per day? . . . Two hundred and eight gallons of water per person per day.

In Douglas County, we know that Colorado water law is not designed to assist in controlling or directing growth. That responsibility belongs to the individual governments through their elected officials. However, we do believe that it is time to re-evaluate our current water laws and guidelines to see if they are appropriate for these times. Times change, and we should be able to adjust to those times. We recently held a water conference in Douglas County similar to this one today, and we came up with nine recommendations that should help with the supply and demand of water in Douglas County. They are as follows:

- 1) Water must be addressed at every step of the planning process.
- 2) A Master Plan for water must be developed from a data base and model that addresses cooperation between water providers, availability, demand, incentives, conjunctive use, and conservation from an urban and non-urban land use standpoint in Douglas County.
- 3) Governments should define "adequacy" when reviewing water supply plans, since the State Engineer's Office review of applications during the subdivision process does not address this subject. Often submitted are augmentation plans that propose to augment resources with nontributary supplies. These plans are only evaluated under current legal requirements, and there may be a difference between what is considered a legal supply and a adequate supply (e.g., what is considered a paper water right and a wet water right?).
- 4) Require, as part of the homebuilding process, that wells be drilled to the base of the aquifers, thereby reducing the cost of having to continually redrill wells. This has been a problem for certain large lot developments, including residential development in the Chatfield Valley.
- 5) The county should develop a long-term supply plan. A 100-year life is too short a time frame for evaluating supply needs. Supply plans should include renewable supplies.
- 6) The county should play a mediation role for development that needs water. This can be of particular help where urban density developments are proposed adjacent to rural developments, potentially affecting their supply needs.
- 7) Institute mandatory landscaping requirements that conserve water. Promote xeriscape, look at instituting an incentive program, with a goal to conserving the resources we have in hand, and lengthening out the time frame for using our nonrenewable resources.
- 8) Institute a ranking program for homes in Douglas County such as the Ideal Energy Home, whereby a ranking of 1 might be a water-waster, and a ranking of 5 might be a water-conserving home. This would allow prospective buyers to know what they are buying into and provide more incentive to use water conserving practices.

- 9) Suggest that homebuilders have landscape and interior "upgrades" available to consumers that conserve water, i.e. a xeriscape alternative.

As you can see, we are addressing the issues of preservation of current resources as well as conservation in Douglas County. However, we are still in need of renewable water resources. Did you know that most residential water supplies in the United States are obtained from renewable sources of supply (such as reservoirs filled by annual precipitation runoff and wells in alluvium that are recharged annually)? And, every major water project in Colorado has taken 30 to 40 years or more from concept to realization, and, that has only occurred when the source of supply was initially available to the end users.

We all know that renewable water resources are expensive to develop and involve all kinds of legal, political, and environmental considerations, but we have an obligation to explore these types of resources. Remember, we have a mission to complete, and we must not fail. We cannot afford to fail.

"In Search of Options"? You decide what your options are. Maybe, we should be in search of more "cooperation and understanding" . . . cooperation and understanding from all parties that have a stake in water in Colorado. With such efforts, we can achieve far greater rewards for all.

Questions for Mayor Lopez

Q: How can you plan for a population of 500,000 people without a known source of water to support that population?

A: That's a good question. I have been asking that for the last eight months. The other statement was maybe Parker and Douglas County should not be the fastest-growing in the United States. One of the things that I have learned is that growth is part of the problem when it comes to water, but it is also part of the solution for many other issues. When we talk about growth and we look at the necessity of growth, we have to really look at the entire picture. The Governor talked about creating more jobs, education, etc. for the state of Colorado. Well, with a population of 7,000 people in the Town of Parker, what do you think these people are moving to? Where do you think they are building? We are getting a lot of people, not only from instate, but people moving in from out of state -- mostly people from California that like the open space that Douglas County offers. A lot of this zoning occurred in the early '80s, when, with the vision in the growth of Colorado, everyone was fully excited. I can't answer for the previous administrations or the previous commissions for Douglas County. I can only enlighten you on some of the problems that we are facing and some of the things that we need to be addressing.

The other question that was asked is, are we doing anything now to plan for adequate water supply? The answer is yes. If you remember, earlier I mentioned that not too long ago we had a water conference in Douglas County to discuss that issue and to come up with a plan. Unfortunately it happened in the middle of a snowstorm on a

Saturday morning. Ken Salazar was supposed to be one of our guest speakers. He was unable to make it because of the weather. But we did talk about those issues and we are aware of what is going on. What we are looking to do is be involved and perhaps learn a little bit more about what we need to correct the mistakes that were made in the past. To be quite honest with you, we're right behind you. Nothing has changed; we don't have the solutions either.

**DEPARTMENT OF NATURAL RESOURCES -- SURVEY OF OPTIONS FOR
FUTURE FRONT RANGE METROPOLITAN WATER SUPPLY**

Lee Rozaklis
Hydrosphere

Last night I got a call from a friend of mine. I had just returned from being out of town visiting family, and he asked if I had seen the article in the *Rocky Mountain News*. I said no, I haven't, and I ran out and got a copy of it and looked it over, and thought to myself, I'm not sure why I have to go to this conference. It sounds like all the answers have been found -- we have enough water; all we have to do is implement certain recommendations and we are on our way. I got so excited I picked up my report and reread it. I wasn't sure that I had said all those things in there. In a way that article is quite overstating what is in the draft report, and I hope all of you will get a chance to see it and read it. But a lot of what is in that article is dead accurate.

Let me give you some background, first of all, about the report that we did, and I will then summarize the report itself, and close with a few observations regarding where we seem to be now and where we, I think, should be going.

We were contacted by the Department of Natural Resources in late 1991 to prepare a survey of Front Range water supply alternatives. This was not to be an engineering report. It was to simply articulate what we call a systems integration approach to water supply. What do we mean by systems integration? Very briefly, it is the use, management and operation of our water rights systems in a way that involves cooperation of individual suppliers and intergovernmental planning in a way to make all the pieces come together to yield more than just the sum of their parts. The paper was to be a survey of options available in the context of this systems integration concept. The purpose of the paper was to generate discussion among the water community and to see whether there was interest on the part of water suppliers and water planners for further exploration of systems integration.

What is systems integration and what is it not? It is not a model-controlled, lock-step supersystem owned by the state of Colorado that takes over everyone's water supplies and water rights. On the other hand, it is not what we have today, where we have large, involved, highly developed systems that all compete with one another in a piecemeal fashion and don't really interact with each other except in this competitive manner.

The scope of the study was conceptual in nature. There are no final answers in the report, only ideas presented, with the possibilities related to those ideas as well as issues and problems that would have to be addressed. It was not exhaustive; it was meant to list examples only of various types of water supply development, projects or concepts. It did not dwell on specific, institutional and legal issues in great detail. Any new idea, anything you want to build or put together or advance in Colorado bears with it inevitably a large number of institutional issues and problems that have to be

addressed. That was beyond the scope of the study. At this point it was in draft form only. It was only rather recently that I heard that it would be distributed, and you've got it warts and all. There are some rather embarrassing and somewhat humorous typos here and there, which I am sure we will correct.

We began on it in late 1991 but had an interruption due to a serious illness of mine, and then began again in 1992, and then submitted a draft to the DNR and the Water Conservation Board in September of 1992. One thing that was frustrating, entertaining and almost assuring during that time was that a number of ideas that we thought of as great new ideas that were included in this report began to be implemented out there among various water providers as we were in the process of developing this report. We couldn't keep up with a lot of the ideas that were being suggested in the report. In fact, the report has no new ideas in it. If there is a new idea in the report, it is the idea that we can take all these interesting concepts for gathering water -- new structural projects, water conservation, exchanges, reuse agreements, first-use agreements, water sharing, cooperative operation, coordinated operation of reservoirs -- and lump them together into a system that operates more efficiently overall and provides more yield to the Front Range -- more resiliency and more flexibility at a lower cost.

The report itself began with some initial sections describing the status of current water supply planning in the Front Range, prospects for the future, and the interest and potential role of the state. It also included a standard listing of the goals that should be addressed whenever you are involved in water supply planning; that is, additional water supply, cost efficiency, flexibility with respect to timing, resiliency against drought or facilities failure, environmental protection, etc.

The next portion of the report covered a survey of water supply options that are available to the Front Range. The report is some 33 pages long -- I won't get into detail -- but I want to just summarize them briefly for you.

First, there are new, major water supply projects, and Two Forks was probably the paramount example of such projects. Other projects have been explored and remain under consideration by various providers and are potentially viable, if not in the near-term then in the long-term. A smaller Two Forks, for example; possibly enlargement of Cheesman Dam owned by Denver; Clear Creek Reservoir, which was examined by the Colorado Water Resources and Power Development Authority; the Union Park project or some configuration thereof in the Gunnison basin; the Green Mountain pump-back project, something all have discussed between Denver and West Slope interests in the Colorado basin; even possibly the Poudre project considered by Northern as a potential supply that could be of use to the Front Range.

All of these projects have several problematical aspects. Number one, they're very expensive, and in post-Amendment One that is going to be an additional burden that they will have to bear. Number two, they involve a host of environmental impacts and socio-economic impacts that we're all aware of here. Third, they currently bear the

burden of being considered by many both inside and outside the state of Colorado as not yet needed, and that more acceptable, practical projects can be built to provide yield with less impact. And that is one of the major messages that was in the Two Forks veto.

In addition to new major projects, there are smaller projects that people are considering building and are building that add on to the existing system or connect pieces to the existing system. They, again, bear a lot of cost, environmental impact, institutional problems that may ultimately be solvable, but you couldn't categorize them as easy to solve.

Besides new projects, there are four other major categories that we looked at in the report. One involved the use of water between agriculture and municipalities -- municipal use of agricultural water -- and this, I think, is an enormously important area for the state and for the Front Range. Agriculture in Colorado, in fact, is in a very tough position right now. Real prices for agricultural crops have continued to decline, the federal government is beginning to scrutinize more and more crop commodity prices, and at the same time farmers face increased capital costs for new technology for meeting environmental rules and regulations. As a result, one of the most important assets that irrigated agriculture has is its water supply. That creates a pressure for the potential sale and transfer of that supply to municipal use. And it is a vast supply. There is over two-million acre-feet of water diverted annually to agriculture in the South Platte basin.

There are several ways that agricultural water can be used for municipal water supply. Conventionally and historically, cities have simply purchased farms and dried them up or simply grown into farm areas and acquired agricultural water rights and changed them to municipal use. There are not very many cities in Colorado that don't have, as part of their water supply portfolio, water rights that were at one time agricultural. And that continues to go on today. One of the problems is that it does impact irrigated agriculture. It reduces the amount of land irrigated; it does not necessarily address the change of water rights and the no-injury provisions added on to those decrees in water court. It does not necessarily protect against all the injury in the local regional economies. There are socio-economic impacts, tax-based impacts, and Mayor Carpenter talked about some of those.

A second approach, and one that we have been intrigued with, is the notion of going a little bit less than permanent purchase and dry-up of agricultural land. That is what we have called interruptible supply arrangements under which cities would come to agreements with groups of farmers or ditch companies that would let them interrupt and use that agricultural water supply in specified, critical dry years in exchange for payment to those farmers for the water used. There are a lot of issues involved with that, but we see that as a potentially very interesting prospect that could provide additional water in dry-year periods and have the additional benefit of being essentially supportive of agriculture. It does not result in a net reduction or a net loss of irrigated agriculture. It could be done in a way that the interruptible supply burden could actually be shared among several

farmers within the basin so that no one farmer has to put up with that burden for an extended period of time.

In addition, there can be municipal first-use agreements. The proposal has been forwarded recently by the Barr lake ditch companies that their facilities be somehow incorporated into the South Platte municipal water supply system as an example of a municipal first-use system. That is a third category of municipal-agricultural use that we feel has an enormous potential to benefit both the agricultural sector and the municipal sector.

Water use efficiency -- we have talked about this before. Municipal water conservation is certainly something every individual community is looking at. It has an additional value if you consider it from an integrated system concept; if through cooperation and integration of water supply systems individual communities could have an opportunity to sell any excess water that they may have through conservation or, conversely, buy any additional water supplies they need that may be gained through municipal conservation. That would provide more of a market which may provide additional incentive for communities to look at water conservation.

Agricultural conservation -- certainly another area -- when you have more than two million acre-feet a year being diverted, small savings in the amount diverted and the amount consumed in certain circumstances can result in significant savings to municipalities.

The fourth category is what I call the actual integration of existing systems. It can take place in several ways. You can link existing water supply systems and thereby gain certain benefits. The proposed gravity pipeline from Carter Lake to the northern Denver Metro area is an example of such a linkage. What can it do? It can provide a way of moving available water that may be for sale in one area into another area of the Front Range. It can provide an alternate path of diversion for a portion of Denver's West Slope water rights. Through the Windy Gap portion of Denver's Moffat and Frasier Valley water rights could, with minor facility modifications, be diverted down at the Windy Gap diversion facility and then back into the northern metro area via the Carter Lake pipeline. That could have the benefit of allowing better management of water on the Frasier basin, increased yields to the East Slope, better instream flow protection to the West Slope, and increased energy production through the Colorado-Big Thompson hydropower facilities.

Coordination of existing systems -- Coordinated operation of reservoir systems is another example of integrating existing systems; for example, Aurora's Spiney Mountain Reservoir currently planned to store water diverted under Aurora's Homestake projects, those existing and those proposed, and in addition storage space to occasionally capture South Platte flood flows. The full yield of the Spiney Mountain project could be realized at an earlier point by changing a portion of Denver's Two Forks rights so that they can be stored in Spiney Mountain. That would increase the yield of this project not over and above what it would eventually get when Homestake is fully built out, but would provide for an earlier attainment of that portion of the yield without significant facilities construction.

On the West Slope -- coordinated operation of the over one-million acre-feet of storage that is controlled by the Bureau of Reclamation, Denver or the River District, so that instream flow needs can be better met, and downstream calls can be better met in a way as to increase the net divertible supply to the East Slope and the net water available to West Slope users. Right now those reservoirs are operated by separate entities, and full coordination of their operations doesn't yet occur.

Optimized use of flood control reservoirs -- In the '60s the Corps of Engineers built three reservoirs in the South Platte Basin -- Bear Creek, Cherry Creek and Chatfield Reservoirs -- to protect the region from catastrophic floods that occur in the late spring and summer months in this area. Recently the Corps has determined that not all the capacity of those reservoirs is needed for flood protection. There may be some 40,000-41,000 acre-feet of space within those reservoirs that may not be needed for flood control. In addition, there is space above that 41,000 that may be available on a seasonal basis. Using that flood control space to help achieve our water supply goals through long-term carryover or seasonal carryover of water can be a major part of system integration, and that has to be looked at.

Conjunctive use of surface water and groundwater systems -- Right now we have the majority of the region getting its water exclusively from surface water systems -- diversions and storage reservoirs. You have another significant portion of the region getting its water primarily from groundwater systems. I don't know of any examples right now where the two are used in a conjunctive manner in a way to conserve groundwater and to supplement surface water during dry years. That is a concept that, if implemented on a large scale, could significantly increase the supply available to the Front Range. You have the Denver Basin Aquifer underlying most of the Denver region with vast amounts of nontributary water. Most people are reluctant to rely on that as an exclusive source of supply because it is thought to be finite, and that might be a wise policy decision. But there has not been enough examination made of using that vast, immense nontributary source as a dry-year standby supply. It could be used in conjunction with surface water supplies in a way to increase the overall yield of the municipal system.

All of these ideas will require the final element that we talked about in our report -- advanced information-based solutions. We have now developed our river systems with innumerable diversions, wells, reservoirs, and treatment plants to where the integrated, coordinated and optimal management of them will require more advanced information systems than we have available to us now. The Water Conservation Board and the Legislature have moved in the direction of developing such an advanced decision support system in the Colorado River Basin to help the state look at both inter- and intra-state water management issues on that side. I would suggest that there is as much need, if not more need, for such a system in the South Platte basin to look at management of water systems on this side.

Those are basically the points that are covered in the study. As I said, it was meant as a discussion piece to present ideas on a

conceptual level. It had a very modest level of effort and budget associated with it, but it was meant to catalyze discussion and to illustrate an approach to water supply that may be of value to the region -- that I think will be of value to the region in the future. Where do we go from here? None of these are radical new ideas. Most other water providers, the technical people involved in water utilities, recognize a number of these ideas and are actively implementing a number of them. The question is, what level of cooperative planning might be needed to recognize these ideas and decide which ones we might want to do together and which ones we might want to wait and do later? Which ones might involve 15 or 20 providers, and which ones might be appropriate for only one or two? Taken together, all these ideas have considerable potential.

We did not provide any numbers in the report as to how much water is available to the Front Range under these ideas. The headline in the article saying the region has enough water, everybody relax and go home, you don't have to be at this conference, wasn't quite right. There is certainly the potential for enough water out there to be sufficient to meet our needs for the next 40 years if we were to implement a number of these projects and concepts; if we were to build enough additional structural projects that would be needed to fit in the holes to allow for systems integration. We are not there yet -- the potential exists.

They all imply coordination. They all imply cooperation. That is the essence of what can be gained through systems integration. That involves the active participation by individual water providers and, I believe, by the state as well. Most of the technical information and the understanding of these systems exists in the hands and the minds of the people that operate the water systems. I would look toward people like the Denver Water Department with their excellent technical planning staff, and the Northern Colorado Water Conservancy District as the equivalent in the northern part of the Front Range, to become actively involved in a cooperative planning process that would allow for people to leave their knives and grenades at home and come together and talk about what might work better on a cooperative basis, and do it in a nonhurried, nonstructured approach.

I was talking to Ed Pokorney about this the other day and he said an interesting thing -- Denver was busy building Dillon Reservoir in the '50s and '60s; then we were immediately busy building Foothills and Strontia Springs in the '70s; then we were up to our ears trying to get Two Forks in the '80s; maybe the '90s is a time for us to sit down and examine how we might get some of these other ideas working that involve our system and may involve other systems as well. I found that very encouraging. I don't know what sort of vehicle is needed. I don't think it needs to be a largely political one. I think time is needed so that technical people can begin to explore opportunities. There is a lot of information and knowledge and ideas out there. I think there needs to be something convened, facilitated, possibly hosted by some of the more major water providers in their facilities, to allow for an exchange of ideas and development of possibilities that may then merit further study.

This doesn't mean there needs to be no political homework done. The institutional implications of combining systems to any degree, of changing the rules, are enormous. I think there needs to be homework done there, but I would suggest that the actual technical possibilities be allowed to take the lead, and some of the people within the staffs of Denver, Northern and individual providers out there get together on a cooperative basis.

Questions for Lee Rozaklis

Q: LARRY SIMPSON: I have two questions, both related to your two million acre-feet of agricultural diversion. (1) How much of this is original, since it is diverted water, and how much of it is reuse of return flows? (2) What percentage of this is stored water useable by a city and how much of it is direct-flow spring diversion or opportunity water which is unusable for drought protection without additional storage facilities?

A: I can always rely on Larry to ask a few easy questions. We looked at irrigation water in the South Platte, and let me refer to actual numbers. Of the two million acre-feet we spoke about, about a million acre-feet of that is what I will call first-use water. It is water that is being diverted, high-quality mountain water, and about 70 percent of that is native and about 30 percent of that is transbasin water. You probably have around 300,000 acre-feet of transbasin and about 700,000 acre-feet of first-use water, and the additional million plus is water that has been used once and will be reused again. I don't think we actually categorized in the report what fraction of that might be storage and what fraction of that might be direct flow. I don't see that distinction as being something that limits its potential use under a cooperative arrangement between agriculture and municipalities. Obviously, the more of that water you have stored and regulated, the more useful it would be to either agriculture or municipalities. I wouldn't preclude in any larger-scale implementation of agricultural-municipal sharing the need for some additional storage to make that concept work better, given the fact that a significant amount of that water is probably direct-flow water that is not easily regulatable.

Q: MESA CITY WATER ASSOCIATION: Why did not your report consider tertiary treatment of sewage and direct delivery to municipal water intakes? Wouldn't this approach be cost-effective in the near future, especially in view of stronger water quality standards for both publicly owned treatment works discharges and drinking water standards?

A: We did not look at that. As I said at the beginning, the report was not meant to be exhaustive. That is certainly a viable option for water supply. There are cities in this country that are coming very close to doing that as an exclusive basis of water supply, but you can understand the obvious public reluctance to do that. I think the people who are looking at that are looking at it more in the context of blending those sources with other supplies. Many municipalities in this country drink treated effluent directly or indirectly because of their location on river systems. But we did not look at that exactly simply because the report was not meant to be exhaustive. We

certainly should have said something about that. It is a potential additional source of supply. Let me say one thing regarding the treating of metro effluent to a point of being potable; a less costly option may be the upgrading of treatment of that water to a degree where some of the Barr Lake plan water exchange concepts could be implemented. That is something I think bears examination.

Q: You said that some perceive water projects are not needed; that there are other means available to develop water. I think this "some" is the environmental community. How does the environmental community help to create solutions?

A: Is there anyone here from the environmental community who would care to answer that? I once worked for the environmental community as a consultant and now people assume that I know what they are doing. Let me try and guess an answer for that from them. I think they, in general, would be supportive of a lot of the nonstructural projects that would be involved. I think they would probably be, if not openly supportive, then not getting in the way of building some of the structural projects that will help increase system integration that will allow water to flow from where it might be in excess to where it might be more needed. I think they have always held the philosophy that the larger development projects that have extensive environmental impacts, while they may have merit someday, shouldn't be done until some of these more easily attainable, less impacting projects are first examined.

I think the environmental community has been working actively in the area of promoting water conservation. They have remained active in discussions with Denver regarding water conservation elements that Denver has been pursuing. I can't say too much beyond that. I don't see anyone I can single out and embarrass and ask them to answer that question. The environmental community remains active. I think they would have a role in helping to identify and maybe resolve a lot of the political and institutional problems that might be associated with some of these ideas.

Q: What is the definition of the Colorado Front Range? Is it only the South Platte basin or does it include south of the Palmer Divide?

A: It certainly should include south of the Palmer Divide. In the interests of getting something done and not being at this forever and going broke and running out of money, we inadvertently snubbed those south of the Palmer Divide by not addressing them in this study, except to the degree that we did look at some of the options involving municipal and agricultural transfers that involve the Arkansas. All these concepts are not meant to be location-specific. These are concepts and ideas that could be applied to the Arkansas basin as well the South Platte basin. We just didn't have the resources -- and frankly, the familiarity, at least within our firm, to be able to apply these examples. This paper is meant to be a discussion piece, a catalyst, and we welcome any ideas that people may have that may incorporate the Arkansas basin.

Q: What legal framework exists that would support interruptible supplies and the resulting change in use with interrupted return flows other than injurious impacts?

A: If you were to interrupt the diversion by a ditch company and allow that water to be taken by a city elsewhere for one year or two years out of 20, it is no different in some respects than simply drying up that land. There would be an interruption in the return flow regime associated with that agricultural land. And it would have to be dealt with in a water rights change case. I suspect the problematical difficulty of that interruption of return flow would be less severe and more easily accommodated if you were doing it on an interruptible basis that was less frequent. The City of Boulder, one of our clients, has been exploring the interruptible supply concept with a couple of ditch companies in the Boulder Creek basin. That is one issue that has come up. It does not appear to be an insurmountable one. Legally, it would have to be addressed in the same context as the water rights change that would allow you to take that water permanently off the land.

Q: To what degree does your study define policies of others such as adjacent states, federal -- both Bureau of Reclamation and Bureau of Land Management -- or compact entitlements?

A: We did not look at other states or the federal government with respect to policies except in our assessment of where water supply planning has been and where it is going in Colorado, in which we acknowledged there seem to be certain directions where the federal is going in its permitting. Those directions are strongly aimed at minimizing environmental impact, forcing or trying to encourage states to use other available alternatives that have less environmental impact. But we did not categorize them in our study. That would be a very valuable addition to any sort of assessment like this.

Q: Use of nontributary Denver Basin aquifers as a dry-year source: is this at odds with existing Senate Bill 5 legislation that has already allowed for mining of this source which is not specific to dry-year supply water? How would you suggest changing this legislation since the barn door has already been left open to the appropriation of this source.

A: Senate Bill 5 has allowed for appropriation of nontributary groundwater. It does not necessarily address nor does it preclude the use of that water as a dry-year supply except that it does have an annual limitation for diversion equal to an estimated total capacity in that aquifer. The way nontributary water might work as a dry-year supply would be that you wouldn't pump more than a nominal, standby amount, just enough to keep the well machinery working in 19 out of 20 years, but maybe one out of 20 years you would have to pump it quite intensively. There may need to be some modifications to the legislation to allow for that flexibility. I think the result would be you would have much less average depletion of groundwater if you did it under a dry-year standby basis than if you used it under an exclusive supply basis.

So, Senate Bill 5 may pose some problems. I don't recall enough at this moment to know whether I would say it allows for the flexibility to pump heavily once every 20 years and then not pump at all for 19 out of 20 years. There may need to be some modification made to that.

Q: Can the assets of those who have rights storage and delivery systems be optimized through integration, i.e., Northern and Denver? Can the sovereignty over water supplies and rights in the future be protected?

A: That is one of the most challenging institutional aspects of integrating any group of water supply systems. I think from an engineering perspective you can take five different systems, determine their individual yields, and then operate them in an integrated fashion with a few minor additions for facilities and come up with a greater yield than the sum of those five. A very interesting institutional question is who retains ownership over what? How do you protect each player in the game so that player keeps as much yield as he would have had to begin with? Who gets call to the synergy, if any, that is generated in those yields? Those are questions that we wisely left for the political scientists to try and answer. We know they exist. We left them in the report as concerns, major concerns, to integrating any systems. Again, it was beyond the scope of our study, and frankly beyond my expertise, to address that.

One of our suggestions to the Water Conservation Board and DNR would be that people with understanding and knowledge of the institutional dimension of this address those sorts of questions, because they would have to be answered. Mayor Carpenter evinced a certain reluctance, I think, to be involved in a system that would essentially confiscate everyone's water rights and then turn around and say, OK, here is your share of what we think you get. That is not what we are talking about. We are talking about a system where everyone retains ownership and control of their assets, cooperatively manages those assets and those facilities so as to not diminish their own yield, but provide for additional yield to the group as a whole. How do you slice up that windfall? Who pays? Who gets it? Very interesting questions.

Q: (1) You and the other speakers have talked about the competition between Front Range municipal water systems. Would you please describe two or three instances of such competition. (2) Don't the interruptible supply or first-use agreements require the same type of burdensome water court proceedings as a requirement for straightforward change proceedings?

A: Competition among water systems -- well, the competition exists in an operational sense in that we allocate our water rights according to the Prior Appropriation Doctrine. One city having more senior water rights can call water out past another city that may have junior water rights. It happens every day in every stretch of the river. In that sense, there is competition. With respect to procuring additional supplies, thankfully we are more cooperative than we are competitive now. Ever since the South Platte participation agreement and storage agreement there has been an amazing amount of cooperation among water

providers. With the Front Range Water Authority and the Metropolitan Water Authority, the spirit of that cooperation continues to exist. In the northern communities, under the auspices of the Northern Conservancy District, a fair amount of cooperation exists and an actual market exists for water to be shared, bought and sold. The northern cities cooperated to develop the Windy Gap project, so I think the competition that we were talking about refers mainly to how the water systems operate in their competition for water. The resulting competition, which is what the Prior Appropriation Doctrine requires as a minimum, may not necessarily lead to the most optimum allocation of that water for everyone's benefit.

Written questions and comments for Lee Rozaklis

1. How can water planning move beyond the "technocratic water policy echelon" into full integration of all affected stakeholders (agriculture, M and I, environmental, legal, recreational, etc.)? Can the "dis-information" cloud be removed?
2. Will subsequent drafts of your report include a description of successful cooperation by entities along the Front Range, such as those mentioned by Mayor Carpenter and others? (COSMIC, SLOC, Thornton/WSSC, NWCD/CRWCD Windy Gap, Blue River, etc.) Wouldn't your document be more complete if it also included the successful implementation of cooperative agents?
3. (1) Can the assets of those who have rights, storage and delivery systems be optimized through integration? (i.e. Northern, DWD) (2) Can the sovereignty over water supplies and rights for the future be protected?
4. (1) You and other speakers have talked about the "competition" between Front Range municipal water systems. Would you please describe two or three instances of such competition? (2) Don't the "interruptible supply" or "first use" agreements require the same type of burdensome water court proceedings as are required of the straight-forward change proceedings?
5. Could the "emergency loan statute" be invoked through the State Engineer's Office as an alternative way as against a more costly "change in water right case" through the courts to provide the framework to effect an interruptible supply?
6. Comment: the plan for urban use of ag. water during drought years through a "lease" type process with farmers would not be practical or feasible for irrigated farmers with livestock operations. These farmers need water to produce feed for their operations and are not in a situation to "turn on or off" their water at the request of urban users. It would also create crop rotation problems and the agri-business impacts would be extremely great. Agriculture is simply not a business that can start and stop without creating costs that the cities simply couldn't afford.

7. Two million acre-feet agriculture diversion: (1) How much is original and how much is reuse of return flows? (2) What percentage is stored water usable by a city and how much is direct-flow spring diversion (i.e., "opportunity water") which is unusable as drought protection without storage?

8. To what degree do Bureau of Reclamation rules and regulations inhibit the transfer of agricultural water rights? How did you incorporate the restrictions imposed by other federal agencies to Front Range water planning in your study? Aside from environmental protection, what are the significant federal questions?

9. In the development of a computer DSS or model; do you feel that water quality modeling of data should be included?

(Note: A copy of the draft prepared by Hydrosphere Resource Consultants for the Colorado Department of Natural Resources is available from the Colorado Water Resources Research Institute. The title of the report is, "Systems Integration as a Water Supply Source for the Denver Metropolitan Area." Please include prepayment of \$4.00 for handling and mailing. Send to: Colorado Water Resources Research Institute, 410N University Services Center, Colorado State University, Fort Collins, CO 80523.)

1993 Colorado Water Convention

SECTION II

ABSTRACTS OF PRESENTATIONS WITH PARTICIPANT QUESTIONS

**Luncheon Panel: Alternative Institutional Approaches
to Metropolitan Water Planning**

Moderator: John Buechner, Chancellor, University of Colorado Denver
[A transcript of John Buechner's remarks was not available for this report]

Panel Members: Duane Georgeson, Metropolitan Water District of
Southern California
Marshall Kaplan, Graduate School of Public Affairs,
University of Colorado at Denver

KEN SALAZAR: Before we have this panel, I would like to introduce members of the General Assembly who are with us here today. May I have the members of the Senate and the House who are here please stand up. State Representative Tony Hernandez, who represents the southwest part of the city and county of Denver; Representative Mike Salaz from Las Animas County in southeastern Colorado; Representative Bob Eisenach from Fort Morgan, Representative Bud Moellenberg, who represents the district Doug Lutz used to represent; Jack Taylor, just elected to the House of Representatives; Senator Don Ament, Chairman of the Senate Ag. Committee; Senator Pat Pascoe, who represents a piece of the City and County of Denver; Senator Linda Powers from southwestern Colorado who lives in Crested Butte and is a member of the Senate Ag. Committee; Representative Lewis Entz from the San Luis Valley; re-elected Representative Bob Shoemaker from the Canon City area. Lets give them all a strong round of applause.

This next panel was put together with John Buechner, Chancellor of the University of Colorado at Denver and Marshall Kaplan, Dean of the Graduate School of Public Affairs at UCD. As we put together the panel, one of the suggestions in the early agendas was that it was important that we hear experiences from out of state, and it so happened that we had been in California with a group of people touring the lower Colorado River. The Metropolitan Water District of Southern California is doing some very inventive things in terms of how they have been working with agriculture in the Palo Verde irrigation district as well as the Imperial Irrigation District. I thought that it was important for all of us to hear about cooperative arrangements between municipal water providers and agricultural water users that have the consent of the agricultural community and at the same time are enhancing the water supply for the metropolitan area. At the same time I thought it would be important for us to hear the history of how the Metropolitan Water district of Southern California was organized, and how they worked with some of their member entities. John Buechner and Marshall Kaplan have been involved in metropolitan cooperation issues for a long time and are some of the key leaders within our community. So help me welcome John Buechner who will moderate this panel.

Duane Georgeson
Metropolitan Water District of Southern California

Thank you very much John. I'm going to switch immediately to some slides. The Metropolitan Water District of southern California -- lest you get carried away that something like this might be the solution to your problems in the Denver area or in Colorado -- our law has been on the books for 66 years and we're still the first and only district in California that has taken advantage of that law. A quick review of California: most of our water occurs in the form of rain and snow in the north and also along the eastern Sierra, and most of the demand is along the coast, San Francisco to southern California, and also the Great Central Valley of California. The Metropolitan Water District is an area of about 5200 square miles. Our district was organized under the State Legislature in 1928. In 1930, we signed a contract with the Secretary of Interior to get Colorado River water. By 1941, we took first delivery. In 1960 we passed a bond issue in California to build the State Water Project. Metropolitan signed a contract with the State of California to take half of the water from the State Water Project and we took first delivery in 1972.

What were the circumstances when MWD was formed? Back in 1931, the leadership actually came from the city of Los Angeles and twelve other relatively small cities in Orange County. Los Angeles comprised about 85 percent of the population and assessed valuation. Over the intervening 40 years, '31 to '71, we annexed a lot of additional territory, one additional city, and twelve municipal water districts down in Orange, Riverside, San Bernardino, and throughout San Diego County. San Diego County came in as the San Diego county water authority. There are 27 member agencies. Los Angeles County with the city of Los Angeles' 3.5 million population comprises a little over 20 percent of the assessed valuation and population. San Diego has about 15 percent, and small cities like Beverly Hills, Santa Monica and San Fernando have less than one percent of the population and assessed valuation.

We have a very large board of directors and that's because every one of our 27 member agencies is allowed at least one representative, and then depending on assessed valuation, you get additional members, up to a maximum at the present time of eight for the City of Los Angeles, six for the San Diego Water Authority. Voting is based on assessed valuation, which turns out to be a pretty good approximation of population within the member agencies.

Our board looks a little like the United Nations General Assembly. One of the downsides of this kind of a district is the necessity of finding a big enough board room to accommodate the representatives! The member agencies appoint their members to our board, although perhaps in half of the cases they are elected officials either within their water district or occasionally within their city. The mayor of Santa Anna is on our Board. An ex-mayor of Santa Monica is on our board. But it is an appointed Board of 51 members.

Recently our board worked very hard in developing a mission statement. I think you might equate this to identifying the problem.

The mission of the District is to provide its service area with adequate and reliable supplies of high quality water to meet present and future needs in an environmentally and economically responsible way.

Let me tell you, our Board struggled over each and every one of those words for a period of about six months, but members seem to be pretty comfortable with them today.

A quick overview: we have not only 27 member agencies, but as I mentioned quite a few of those are districts. We have 250 incorporated cities and other communities, 15 million people, about half the state's population, half the state's gross product. We use 10 percent of the developed water being used in California. We've had very high reliability in supplies up until a couple of years ago. Our forecast for the future is for a relatively unreliable supply unless we are able to dramatically change how we do business.

There are the three aqueducts to southern California. The first, built right after the turn of the century by the Los Angeles Department of Water Power, delivered half a million acre-feet of water a year between 1970 and 1988. Until 1988, Los Angeles was getting less than 10 percent of its water from Metropolitan. The Colorado River Aqueduct is a little over twice the capacity of the Owens Valley Aqueduct: 1.2 million acre-feet. Metropolitan has a contract for two million acre-feet of water a year, and as a matter of fact, two years ago, we took delivery of about 75 percent of that contract, and then we had local supplies, primarily groundwater, of 1.4 million acre-feet. You add all those numbers up, you get something like five and a half million acre-feet. Our recent water use was about four million acre-feet. Ten years or so ago, we looked fat and happy in terms of future water supply.

What's changed? Well, we know we live on borrowed time on the Colorado River; we have less than a half million acre-feet assured supply from the Colorado. The Los Angeles Aqueduct, which I mentioned delivered half a million acre-feet from '70 to '88, delivered an average of less than 40 percent of that figure during the drought years of '89, '90 and '91. In one of those years it delivered less than 100,000 acre-feet. So, sometimes the past is not always a good predictor of the future. Los Angeles is having some problems with environmental issues, drought and the like.

State Water Project: we have a contract for two million acre-feet. The State tells us they can give us about half of that, a million acre-feet, although in 1991 we got about half a million acre-feet. For that reason, we imposed rationing for the first time in the District's history; a 31 percent reduction in water use.

Southern California is blessed with water in its groundwater basin. The problem is, that's the good news. The bad news is we have water quality problems: organic contamination; nitrate problems in some of the interior basins where agriculture has been around for a

hundred years; and along the coast and some inland areas we have high dissolved solids. Nevertheless, we have a strong commitment to make use of those groundwater basins. Keep in mind: Metropolitan has no rights to the groundwater basin. When Metropolitan was formed some people called it "disjointed incrementalism." In other words, when Metropolitan was being formed, no one gave up any of their authority within their city or within their water district. Metropolitan was formed to create a new district, build new facilities, and develop a supplemental supply for the area with no direct authority regarding water use or water supply within our service area.

Statewide, agriculture uses almost 85 percent of the water. Urban use is about 15 percent. Within the Metropolitan service area, because our water is very expensive, we carefully sell the water for a little over an average cost of \$300 an acre-foot. The average agricultural water use in California is probably more like \$15 an acre-foot. So within our service area, only high value agriculture survives, and only 10 percent of our water is sold for agricultural use.

We've tried to deal with the unreliability of our supply. We've developed in the last few years what we call an integrated strategy or solution. It gets into demand management, conservation, water pricing, and strong use of wastewater reclamation. In that regard, Metropolitan has recently implemented a program of subsidizing our member agencies to the tune of \$154 per acre-foot for every acre-foot of water reclaimed in our service area, and a new program of \$250 an acre-foot subsidy for member agencies using desalination technology for cleaning up contaminated ground water. We've gotten into water transfers (particularly in the last five or six years), primarily from agriculture, and we have a large infrastructure program in order to make our existing system more flexible to deal with the uncertainty of all of our sources of supply. We're building an 800,000 acre-foot reservoir. We've completed the environmental documentation, and in the area of environmental commitment, we have strong support from the State and Federal Fish and Wildlife agencies, the Nature Conservancy, and we're through the permitting process. I should hasten to add, it wasn't cheap.

Future utilization of Colorado River water: for the last ten years we have been working on programs for storing groundwater in the Coachella Irrigation District near Palm Springs, the Imperial Irrigation District conservation program, the land fallowing demonstration program in the Palo Verde Valley, and a new program whereby we're storing water today in the groundwater basin of central Arizona.

The Palo Verde Irrigation District, a district of 100,000 acres, has senior rights on the river in California -- they get water first. There is another area that I don't have time to talk about -- the Imperial Irrigation District. I'm going to talk about the land fallowing program in that Palo Verde district, about 100 miles south of Lake Mead on the Colorado River. It is a two-year program, a demonstration program, that turned out to be a key concession in terms of putting this together with the local farmer group. It had to be approved by the other irrigation districts of California and the

Bureau of Reclamation. We signed 63 land fallowing agreements, totalling 20,200 acres, about 22 percent of the land in the district. The program was oversubscribed; I suspect we could have doubled that amount of land fallowing. We get an average of 4.6 acre-feet per acre from that area, which uses water for multi-crop or several crops in the course of the year. We had a very tight program to ensure that the water was so-called "wet water" -- had to be a history of farming, etc.

The manner in which we put the program together ensured that the impact was spread relatively uniformly throughout the district. The local farmers get \$620 per acre-foot each year, a total \$1240 over the two-year period. There are requirements that they carefully control weeds on the property. The program was extremely well received locally because the farming economy wasn't doing so great between farm prices for the crops that they grow out there -- alfalfa and cotton -- and the fact that the white fly was also adversely impacting the local farming economy. What crops came out of production? Well, the first three groups: forage crops like alfalfa or sorghum, wheat, and cotton, contributed 89 percent of the land put into the fallowing program. And only 11 percent came from other crops like vegetables. An important point to keep in mind for those who raise the issue of third party impacts is that those are the relatively low-value crops that tend to be non-labor intensive and so a relatively minor impact on farming job market.

Future programs that we're working on: We're working on a similar fallowing program in the Imperial Irrigation District. We have legislation from Congress that permits us to pay the federal government to line the All-American Canal through the sand dunes along the Mexican border. In return we get 100,000 acre-feet of water somewhere in the Coachella canal. We're working on a second phase conservation program with Imperial and also some opportunities for groundwater storage.

I would like to emphasize four or five points that seem to be important in terms of how Metropolitan works. First, I think you would say it is relatively non-threatening to the members, because we have no regulatory authority. We have to rely almost exclusively on market pressures and pricing. Secondly, we've had almost universal participation by the member agencies, many of which did not choose to join originally, but now we have probably 95 percent of the population in our service areas, within the boundaries. We have what appears to be equitable voting and financing support. We generate over 80 percent of our revenues from water rates. There is strong commitment to environment protection, conservation and reuse, and that's made it easier for us to work with the regulatory groups at the local, state, and federal levels, and also the environmental groups. I think it is important that we have a relatively large diverse board that is strongly committed to meeting its mission statement. Thank you.

Questions for Duane Georgeson

Q: How costly is the storage in Arizona?

A: GEORGESON: For the arrangement that we just put together to store up to 100,000 acre-feet, we pay the Central Arizona Water Conservation District about \$70 an acre-foot, which is their pumping cost and some additional costs to get that water. The idea was to move in the direction of providing some assurance to the state of Arizona, that as we pull the reservoir from the Colorado River down during dry years, there would be some risk insurance to the Central Arizona Project if the drought continues.

Q: Give us some details about the reservoir you have completed the EIR (Environmental Impact Report) on.

A: GEORGESON: It's the Domenigoni Valley Reservoir (referred to as the East Side Reservoir), about 20 miles south of Riverside. We started the environmental studies about six years ago, went through a fairly elaborate process looking at a lot of different sites, and we completed the EIR about a year ago, although the last threat to our EIR was settled only a couple of months ago. So it took six years, but it also took about \$60 million to complete the EIR and to buy mitigation lands. We had really good support from the Nature Conservancy and the Fish and Wildlife organization. It is important to keep in mind that it is an off-stream reservoir, it's an expensive site because it's an off-stream reservoir, takes 80 million yards of material to get 800,000 acre-feet. The engineers in the crowd will appreciate that's a lot of dirt you've got to stack up. And most importantly, we avoided a 404 permit and any possibility of EPA veto by finding a site where we were able to prove there were no waters of the United States. (laughter)

Q: untranscribable

A: GEORGESON: The question had to do with wastewater reclamation. We're very proud of the leadership that is coming out of southern California with wastewater reclamation. At the present time we have over 200,000 acre-feet of water per year -- that's about two and half times the water use by the city of San Francisco and criticism in this regard frequently comes from where there is no wastewater reclamation. Our program subsidizes wastewater reclamation to the tune of \$154 an acre-foot -- we hope to double that 200,000 acre-feet up to 400,000 to 500,000 acre-feet over the next ten to fifteen years. We're confident we're going to make it because about 150,000 feet of new reclamation is already under contract.

Q: untranscribable

A. My own view is that in a room like this there are a lot of knowledgeable people who understand that in the years ahead, and not very far ahead, there will be some dramatic changes in terms of the rules and regulations that will apply not only to new projects but to existing projects. Keep in mind that the city of Los Angeles, between 1972 and 1988, delivered an average of 500,000 acre-feet a year through their aqueduct system. The first one that went into operation in 1913 can deliver 300,000 acre-feet per year. In 1989, '90, and '91, that aqueduct delivered less than 200,000 acre-feet, less than 40 percent of capacity, and in one of those years, it delivered 120,000 acre-feet, less than one-third the capacity it had been built to

supply back in 1913. So people in the water business who think that the future is going to be a lot like the past -- I think you are either living in vastly different political and regulatory circumstances than we are in California, or you must have some tricks up your sleeve that we didn't think that we had in California.

Q: How much are you paying the farmers in Palo Verde Valley?

A: GEORGESON: We're paying them \$620 per acre per year, figuring they use 4.6 acre-feet per acre, so we're paying them about \$120 an acre-foot, and they get the water free, essentially, out of the river. It might cost them a dollar or two for their gravity diversion. I think that is a pretty good price, from our stand point, when you look at the cost of developing alternative sources of supply or when you look at the alternative. What we are looking at in that situation is not just a two-year program but an opportunity to convert that into seven or eight years of supply with a contract with Bureau of Reclamation to store that 200,000 acre-feet in Lake Mead for use any time between now and the year 2000, recognizing that if Lake Mead spills, our water is the first to go over the spillway.

Q: What keeps us from vastly expanding our land fallowing program in California?

A: GEORGESON: I think what we're looking to is utilizing a variety of strategies of meeting our water needs, and we think it is very short sighted to look only to land fallowing, or to agricultural water transfers even if they are voluntary, because of the political price that you pay if you don't clean up your conservation and your efficiency in your own backyard before you go out to the Colorado River or northern California and start to have some impacts. We think the impacts, as I mentioned in the case of Palo Verde, are small, but we think in order to have credibility, we've got to be doing everything that is reasonably possible in terms of conservation. We are spending \$21 million this year, a lot of it for ultra-low flush toilet retrofits at \$100 a throw. We are spending a lot of money. We expect to be spending, our district alone, \$35 million in subsidized wastewater reclamation in ten years, about \$35 million in groundwater desalting, and a lot of money in groundwater conjunctive use. The point I am making is that I think the water is available. With political assistance at the state and federal level, water for urban needs is available from agricultural areas, providing you're doing a respectable job managing the water resources within your service area so that you are not relying exclusively on agricultural water transfers to meet your future needs.

Q: Do you consider the land fallowing as a short-term or long-term program?

A: GEORGESON: I guess in a sense we've given up in California trying to find-long term solutions. Jerry Brown had a guru, and one of his sayings, I think fits the water business, at least in California: "Life is not a problem to be solved, it is a mystery to be lived." That certainly fit California during the Jerry Brown years and I think it's a pretty good rallying cry for trying to plan urban water supplies in California.

**Water and Metropolitan Cooperation: The Search for
Peace, Love and Happiness in This, Not the Next, Life
Some Random Thoughts**

Marshall Kaplan, Dean
Graduate School of Public Affairs
University of Colorado at Denver

I am here for what must be my 55th speech on water since the beginning of my own professional efforts to find a solution to the ostensible water problems facing the Denver area began about six years ago. Many of you in the audience probably can count an equal number of conferences where you listened to or made speeches on water. To some it is frustrating; you ask why can't we make a breakthrough; to others it is democracy; you indicate that as long as we are talking it is healthy and good. Your faith in person-kind or God suggests that where there is life or dialogue there is hope.

Searching for a water solution in the Denver Metro area resembles the knights of old searching for the Holy Grail or Diogenes searching for truth. The closer we seem to get, the more ephemeral our search seems to be. We don't really know what we are looking for. Put two or three of us concerned about water in a room and you will get a dozen or more proposals concerning how to get there and what we should get once we get there. Minimal consensus. But we continue based almost on a theological premise. Like William James said about God, a solution, even if we don't know quite what the problem is, is good based on faith. If we get one, we will be better off. If we don't, it won't matter very much to many because we never reached real consensus on what the problem is.

Today I am supposed to focus on metropolitan cooperation as a way to solve the metro water problem. I will.

I want to begin by asking you to dwell with me for a minute on why our efforts to cooperate on water have generated such meager results. I will then, on a leap of faith -- see, religion is still important -- ask you to consider the benefits and costs of certain options. I will then at least offer a tilt of my hat toward a number of options for reasons I think obvious, but you may not.

Impediments to Metro Cooperation on Water

What is the problem? It is tough to secure meaningful cooperation -- whether formal or informal, structural or procedural -- unless your marginalizing what you are about, if you don't know what the problem is or what you are trying to use cooperation to respond to. As you know, the water problem has been described in many and varied ways.

- Problem One: We have been told that we have a need for new water. Do we? Are we about to become a desert?

Let's talk a minute about supply and demand. Here there are many complex combinations and permutations. I read at least one report or

newsletter a month that suggests we have too little water; too little water without new storage facilities -- dams and reservoirs; too little water with storage and conservation; too little water without conservation, but sufficient with conservation.

Obviously supply relates to anticipated population growth -- aggregate and location. Put two demographers in a room and you will once again get many combinations and permutations concerning economic and population growth. Those who feel we will return to the boom period of the late '70s -- early '80s feel water may be a problem and/or limiting factor; those who feel population growth will not reach the so-called halcyon days feel water is either a manageable problem or not a problem at all.

Recent studies don't help us refine our estimates of supply or demand. The process surrounding Two Forks suggests how the numbers mean different things to different people and the fallibility of experts -- millions of dollars on research, the creation of a whole new industry of water consultants, and yet no consensus on water needs. Studies since then and studies before then seem to be all over the place. I believe the headlines in one of our local papers this week suggested no water problems based on a study; I fully expect a headline of a different type soon from another study. Water consultation has become part of our full-employment strategy. Kidding aside, our methodologies related to projecting water need and water demand are weak. They relate to variables that are often the subject more of clairvoyance than rigorous analysis. They also often relate more to exogenous national and now international events than local events.

As I implied earlier, our ability to measure available supply is complicated by several factors, among them: politics; water law; pricing; location; the cost of new, smaller-than-Two Forks projects; impact of non-governmental or private-sector projects; impact of a real effort at conservation; managing the conversion of agricultural to water to urban use, etc. While I am not suggesting that the feds do so, we need only note that if Washington reduces the federal subsidy on agriculture and/or asks farmers to pay the full market price of water, assumed urban shortages will look different.

Local communities do strange things to assure their supply of water. They will go long distances to secure the precious stuff and they will allocate often unheard of resources on a bet their economy will grow sufficient to pay for it. Water availability in this context is subject to many variables.

My and (what should be) your bottom line is, despite advocates and ideologues on the water issue, we don't really have a firm fix on the relationship between supply and demand or real needs. We need to do better.

I suspect that we will grow in the Metro area by between 25-35 percent over the next 20 or so years. Our population could move from about 1,700,000 now to well over 2,250,000 by 2010 leaving us with a manageable (nearly 100,000 acre-feet) shortfall.

The EIS associated with Two Forks indicated, after a review of existing supplies and projected needs through the year 2035 of approximately 50 water suppliers, that without conservation or development of new supplies, shortfalls will occur in some areas soon, and within the whole area within ten years. But notice I said without conservation and development of new supplies. We can expect both. We also can expect different population and economic projections.

- Problem Two: We do not have sufficient distribution and storage capacity. Is this true?

It depends. As noted earlier, the relevance of storage capacity depends on estimates of need for new water which in turn depends on population projections. Denver's distribution system and its potential and existing linkages to suburban systems seem to offer a base upon which to develop a cohesive system covering most of the Metro area as we know it today.

However, there is no certainty that will satisfy communities struggling for "control" over their own destiny and independence. And will it satisfy providers/distributors not connected to Denver or suburban systems?

Aurora and Thornton, during the '80s, chose, for perhaps legitimate reasons, to invest heavily in their own systems. Were they right or wrong? Their political leaders may soon be called heroes or the contrary, depending on their cities' overall economic and population growth.

- Problem Three: The competition for water rights is costly.

During the '80s, the frenzied search for water rights (we were constantly told) seemed to benefit only the farmer, water lawyers and water consultants. Cities, districts and counties paid a premium resulting from the bidding process, or so it seemed. Resources were shifted from here to the Western Slope and/or Northern Colorado.

I have seen no solid studies that confirm the concerns about the higher cost for water caused by the ostensible competition between jurisdictions for rights. Nor have I seen good studies concerning the so-called shift in resources to those wealthy farmers.

What we can say is that the absence of the ability of the Metro area to get its act together has likely cost some cities more than they would have paid had there been coordination. Some cities, however, may have paid less. Coordinated strategies could well have generated limited competition and prevented the "wily," smart cities from securing the best price. There are arguments on both sides of the coordination/market-based price for water approach.

We probably can point to examples where competition impeded efforts to develop sound conservation, environmental strategies, and may have impeded development of regional and local water plans; ones cognizant of public-interest issues beyond water. In any case, the

frenzy is over. I have been told that most of the available supply of significant water rights appears to have been purchased or acquired.

- Problem Four: If only we had more cooperation, access to water could be used to guide land use decisions. We would have better planning and better land development.

Really. Colorado, and indeed most states, have found it difficult to link infrastructure planning to land use planning. Generally in this state infrastructure has been responsive to development pressures not proactive with respect to influencing and defining the boundaries of such pressures. We are the "noble" individualists. Our culture does not readily admit that interdisciplinary planning may be a value and/or that the use of land is part of our stewardship to future generations. COG's transportation plan and the Denver Water Board's water plans, generally, say very little about land use objectives, particularly at the micro level. Area-wide land use planning is generally off-limits to infrastructure planning and vice versa.

Is this a real problem? There are arguments, to the contrary, which at least need to be debated before we fine-tune water policy and attempt to link it to detailed, area-wide land use planning. Charlie Tiebault's (a noted economist) provocative argument for sprawl and/or for maximizing choice among consumers concerning housing location have relevance. If, in a tight market particularly, we ration land through water planning in order to secure ostensibly better area-wide land development, we may be limiting housing choices, unless we subsidize the cost of housing. I suspect not many of you in this audience are willing to extend already existing housing programs.

- Problem Five: What would a rational person from Mars think if he or she came here and saw the hodgepodge of often conflict-prone districts, providers and distributors?

Star Trek is faddish.

We do have a complicated mosaic when it comes to identifying relevant water actors-distributors, providers, special districts, private entrepreneurs. Getting them in Bronco stadium might be difficult; getting them to agree on concerted action is often difficult but not impossible, witness Two Forks.

I believe an argument can be made that the present system or non-system is inefficient and not in the public interest. We have too many examples of failed districts or almost-failed districts and too much conflict concerning water rates, water access, etc. to make the present scene other than a tableaux that water lawyers like.

What we now have, however, does extend choices. Making more sense of it need not mean structural consolidation. It could mean a better state policy framework. It could mean better Metro planning. The answers are not easy to come by. The analyses of benefits and costs sometimes used by would-be reformers resembles more advocacy than hard numbers.

- Problem Six: Without more cooperation, those Western Slope people are taking us for our jewels.

A variation on the competition-raises-price problem. Maybe the absence of coordinated Metro-area water policy allows Western Slope leaders to divide and conquer and to avoid a response to Denver Metro-area needs. But I am not sure.

I would rather put it another way. Absence of a coordinated Metro-area policy may cause Western slope leaders to throw up their hands. What do we really want? If we can't get our act together, what is their obligation to respond? What is the fairest, most efficient way they can respond?

Back to Disconsensus: Muddling Through

Well, as you see, there is no real consensus on water or so-called water problems. Lacking consensus, and more relevant, lacking a crisis, we muddle through. We illustrate willingness to cooperate at the margin -- deals between two or more jurisdictions; water forums like this.

Most of our water initiatives, to date, have been at best incremental. We fit the political scientists' paradigm. No big policy changes unless there is a crisis or unless everyone wins or the losers only lose marginally. We may be doomed to incrementalism and muddling. Not knowing what is best in relationship to still-undefined problems, however, may make both incrementalism and muddling wise strategies. Make a big mistake with big policy changes and we all could suffer.

Alternative "Reforms"

Let me review what has been on the reform table. (Recognize that reforms for one may become tax burdens for another. The term is artful, strategic, wholesome, lovable. Often used to advocate more than educate.)

Bigger State Role

The State has asked the Metro area to get its act together. But what about the state? Numerous state agencies exist concerning the water problem, but they talk to each other rarely. There is no overarching state water policy; one that places water at the core of the state's development concerns. As many have suggested and as the Governor has indicated is his preference, why not develop a coordinated state planning apparatus? Maybe, as some have argued, we should go even further: ration water rights; coordinate project planning; develop integrated conservation and environmental policy concerning water; regulate use, trading of agriculture water, etc.

Nice, but a tough, prescriptive state water policy is unlikely in my lifetime or yours. Fear of state intervention by cities and counties is politically incendiary. Fear of intervention by competing parts of the state and competing public-private sector groups is also difficult to respond to. A state plan with teeth will probably not

occur, except in crisis; that is, except if we are faced with severe water shortages or drought.

Metro Government and variations on a theme

Coordinated delivery of services including water has been advocated in the Metro area. Why not move toward some form of Metro government? Big Bang. Good luck.

I suspect that Metro government, even if it were appropriate, is not on the horizon. Again, we have no pending crisis. Most local jurisdictions don't want to give up independence. As I will come back to later, we would have to work out inordinately difficult policy problems if water were to be included in any Metro government scheme. Without a rigorous, politically-oriented benefits/costs analysis by local political and business leaders, Metro government will remain more a dream of academics than reality.

Recently, a state-defined and state legislature-created Metro water authority or an intergovernmental agreement among the area's communities to create such an authority has won media and leadership attention. Ostensibly such an authority, if created, would use the Denver Water Board's facilities or water as its base.

Perhaps the most dramatic headline-catching "big bang" concept related to creation of some sort of comprehensive metro solution involved trading Denver's water for suburban social/fiscal services and resources to Denver. The so-called Pascoe/Ferdinanson option would have Denver agree to provide its water to the suburbs for suburban help to Denver concerning social services or fiscal resources. Generally, the Pascoe/ Ferdinanson idea assumes (by implication) some sort of Metro-wide organization -- a Southern California-type water authority. It would buy Denver's water at the gateway to the Metro area or it could buy the system. Rather than an impossible lump-sum payment for the water or the system, the suburban participants would grant Denver relief regarding its central city status (fiscal/social service relief).

A nice big solution to an as-yet undefined problem. But let us assume for a minute that we/you buy into the assumed Pascoe/Ferdinanson problem analysis concerning water. Put another way, let's assume that the present way we secure water in the Metro area is inefficient and inequitable (Rich and Monte differ as to where the inequities lie).

Why haven't we moved forward on the great trade? Having been in the middle of the debate, I would suggest that it hasn't occurred because of the difficulty of:

- Setting a value on the Denver system -- replacement, market, depreciation. I am a good facilitator, but when the gap between value estimates ranges from 400,000,000 to two-four billion, it cannot be resolved by facilitation. God, maybe; a Dean or mediator no.

- Similar problems exist with respect to determining the kinds of social service and fiscal relief that would pay for the value of the water system, once it is determined -- dispersed housing, integrated schools, higher rates for suburban users, health care for the indigent. What, when, at what price. A political nightmare lending itself to green eyeshade political calculations and repetitive recall elections.
- There are also a number of technical problems relating to the legal status of existing contracts and obligations.
- Many suburbs, as noted earlier, have developed or are striving to develop water investments. At best, they will be hesitant to place their water future in the hands of an authority.

A tough set of problems to resolve that are as much political as they are methodological and economic. There are no easy formulas. Further, the different water situation of cities in the Metro area makes it difficult to win consensus on a big bang solution -- Littleton is different than Aurora; Thornton from Lakewood. Some are nearly independent concerning water; some are wholly dependent on Denver.

As the years go by, the megasolution involving any trade between Denver and the suburbs will be even more difficult to secure. Denver now supplies about 60 percent of the water in the metro area; down quite considerably from what it was years ago. Denver's water leverage, once considerable, is weakening.

Again, we may need a water crisis to move toward anything like a Metro authority capable of coordinated delivery of water. Many of the political and technical difficulties associated with a Denver/suburb trade would be reflected in any effort to move toward a Metro-wide authority. Denver is not going to put its water into any system without exacting a price; the suburbs feel in part that they have already paid the price in rates, and acknowledging the difficulty of paying too high a political price, will not readily join any comprehensive authority.

Metro Planning and New Water (A more modest beginning):

Wouldn't it be great, or so the argument goes, if Metro jurisdictions could get together and form a limited authority. An intergovernmental agreement could/would be used to provide the basis for the authority, whose prime role would be planning and, perhaps, the distribution of new water.

An authority that deals only with new water and planning could avoid many of the problems that inure to a full-blown comprehensive water authority. Its advocates suggest that it would build trust. It could assume more functions over time. It would not be pure or give the purists what they want, but it would be a start. Simultaneous with its creation, you could continue to try to resolve the contract and rate-setting problems facing Denver and its suburbs. You would reduce competition for water rights. You could try to link general

land use planning to infrastructure development to the extent consensus was achieved among involved political leaders.

A limited authority could be formed by intergovernmental agreement. The new Front Range Authority that recently evolved from the Metro Coop. Group is a good example of this approach. Four municipalities: Thornton, Westminster, Arvada and Aurora created the new authority. Jefferson County has just joined the group. Other jurisdictions may follow. Ultimately the Front Range Authority could well evolve into a full-fledged Metro authority with planning and development powers regarding both new and old water involved. Right now, it primarily provides a mini water forum and the opportunity for participants to work together on projects they believe are in their own best interest.

Expand Contracts with Denver

The Denver Water Board now contracts with many jurisdictions to provide water. Some have suggested that it could remain the primary water supplier and in effect become a Metro agency by expanding its contractual relationships.

But contract disputes, uncertainty over water supply, rate disputes, and obligations to Denver residents has made this a difficult option. Indeed, the Denver Board, perhaps understandably, has taken the position that its ability to share surplus supply and water from interim sources is limited because it must reserve adequate water supply for the buildout of the city and county and to fulfill present contract requirements. The option also fails to acknowledge the fact that many of the larger cities in the Metro area, particularly, have begun to develop their own supplies. They do not want to be dependent on Denver.

Reliance on Private Providers

The recent growth of entrepreneurial efforts (e.g., American Water Development) to find and supply water have led some to believe that we can look to the private sector to generate a Metro water solution. Unlikely! Most of the private-sector efforts to date remain on the drawing boards. Privately supplied and distributed water has had (and will likely have) only a marginal impact. Capital needs and political problems make this an option at the margin.

Conferences and Forums: Informal and Formal Networking

Groups like this are important. They permit jurisdiction with and jurisdictions without water to come together to forge new and sometimes innovative arrangements. They don't look like a solution. But until the problems are better defined, they are useful as an idea and project catalyst.

Prescriptions: No Absolute Wisdom. Better Policy; Better Plans and Projects.

What should happen? How can we develop a more cohesive Metro posture concerning water?

First of all, we should focus our policy agenda on the achievable. The conditions are not ripe nor can the benefits and costs clearly be established concerning creation of a comprehensive regional service authority or even a comprehensive water authority that deals with existing as well as new water. This conclusion may frustrate our desire for neatness and our textbook paradigms, but if we value our time, allocating time to the impossible is an exercise in futility.

I suggest that what we need now is a better handle on a post-Two Forks water environment. We need to revisit the water situation and see the new environment of the '90s -- less prone to the highs and lows of growth; more prone to sharing scarce public goods -- if we can agree on the dimensions of needs-demand, supply distribution. The state is best equipped to lead us through this effort. It should do so.

The state is also best equipped to foster an overall statewide water policy and planning process. The process could/should involve the public and private sector. The policy should speak to regional allocations and utilization, pricing, water rights, use and cost of agricultural water, etc. It should relate water to other state responsibilities (e.g., transportation).

Simultaneously, I think conditions, if not the stars, are right for more meaningful efforts at Metro cooperation. Several ideas in this regard. Colorado has much to learn from Florida's concurrent requirement. It premises growth on available infrastructure including water. Sounds rational to say the least. It fits our post-Amendment One environment. It lends greater credence to public/private-sector partnerships concerning water.

In a similar vein, the Metro area has much to learn from experiments now underway across the nation to strengthen or restructure COGs so they can become more meaningful, area-wide comprehensive planning agencies. We have a long way to go before our COG provides even threshold policy planning above and beyond the "I scratch your back you scratch mine" variety. If structure and ground rules of COGs could be changed (e.g., eliminating or reducing the impact of one jurisdiction, one vote procedures), similar in manner to COGs in other Metro areas, they could become effective planning organizations. Subsequently, if they added water to their agenda, the COGs could provide area-wide policy guidance concerning water needs and priorities.

Finally, jurisdictions in this area have much to learn from the Front Range Water Authority's efforts. It exists, and the invitation is there to join. It doesn't cost very much; at worst it provides a sustained forum and at best it provides an opportunity to define and carry out joint projects and joint investments. Mayor Carpenter is here with membership applications.

Let me conclude by indicating that whatever we do in the water area should be aimed at perfectibility, not perfection. Galsworthy's wheels of justice...grinding slowly...is likely to be more our model and guide our time frame than any quick, ready-made comprehensive

plans and projects. While prayer and penitence need not structure our behavior, a little bit of both would be helpful as we continue to engage one another over assumed water problems and solutions. Thank you.

**Panel: Potential Alternative Ventures for
Front Range Water Supply**

Moderator: Hal Simpson, State Engineer

[A transcript of Hal Simpson's remarks was not available for this report.]

Panel Members: Chips Barry, Denver Water Board
John Akolt, Farmers Reservoir and Irrigation Co.
Chris Bridges, Colorado Office of Water Conservation,
Colorado Water Conservation Board
Rollie Fisher, Colorado River Water Conservation
District
Tom Griswold, City of Aurora Utilities Department
Larry Simpson, Northern Colorado Water Conservation
District

Denver Water Board Efforts

Chips Barry, Denver Water Board

It's a pleasure to be here at the first and what I assume may be a continuing series of convocations brought together by the Governor and state officials who want to talk about water. I'm going to talk a little about what Denver's doing. This morning we heard a little bit about what was in the paper last Saturday, from Lee Rozaklis. He talked about the headlines and the perception that the newspaper gave that the problems were solved. I want to call your attention to another little problem in the newspaper last Saturday on page ten, which reported that the Forest Service was delaying for a month the issuance of Forest Service permits for Ft. Collins, Greeley, Loveland, and Boulder. That is, in fact, a much more significant water issue than what was reported on page 3 or 4 about the completion of Lee's plan. Lee's plan is conceptual and theoretical, and I applaud it for its ideas.

The problems on page ten dealt with what is going on with the Forest Service, and the problems of by-pass flows. What I want to strike first this morning is the note that I think the problems for many of us in the room are perhaps less how we're going to develop new water in the future and more how we're going to hold on to what we've already got. And part of that has to do with the Forest Service and by-pass flows, and part of that has to do with the Fish and Wildlife Service and endangered fish and whether or not historic depletions, which we've relied on for 20 or 30 years, are going to be required to ante-up for the benefit of the fish. I think both those questions are very much in the minds of many of us who operate water systems around the state on a daily basis, and if they're not on your mind I suggest that they should be. I think that a good deal of the challenge in the future will be in part simply maintaining what we have as viable water

projects into the future. We do have to talk about how we get new water supplies, but we also need to talk about those problems.

And we need to talk about retaining what we've got in the context of changing social values. The mayor reflected on it this morning. Social values about water and in-stream flow have changed, and the water community has to pay attention to that. I don't want to stand here and say we have to fight for every acre-foot that we've always had. We have to make intelligent decisions about how we manage our water, given some of those changes in public value.

Now, having said all that as a prelude, let me talk a little bit about what Denver has done and will do about the metropolitan area water supply situation. Since before EPA vetoed Two-Forks, Denver has looked for alternatives for water supply in the area including exchanges and transfers, small-scale projects, groundwater, conjunctive use, etc. Since the veto was put in place, those efforts have intensified. Our first commitment, as you heard the mayor mention this morning, is to serve the build-out of the city and our contract service area. But our present firm annual yield, even without any additional requirements for the Forest Service or the Fish and Wildlife Service, will not be sufficient to meet our long-term demands.

We need to look for additional water supplies as well. The mayor this morning reaffirmed our commitment to serve the build-out of the city and its service area, and our board has indicated that in pursuing supplies for demand outside the area we will cooperate to the extent that cooperation will not detract from our primary role. The board indicated, and the mayor indicated again this morning, that the board -- the water department -- will probably not take the lead as perhaps as it always did in the past, or at least as it did sometimes in the past, in searching out large new water supply projects for the area. But we're not going to be silent on the issue of water supply, and we are going to help and cooperate. Having seen this coming some years ago, the board invited proposals from others as to how they might be able to use our system for their benefit. I don't think we knew what we were going to get; maybe it was like Amendment 2. But in any event, we got a flood of proposals, more than 100 different proposals for how Denver's water system should be used to augment supplies in the metropolitan area. The interesting thing is that after we got all those proposals, we realized we had no system for prioritizing how we would analyze them.

There were basically three methods suggested for how those things should be analyzed. One was, "Take me first because my idea is better than everybody else's." The second one was, "Take me because I got here first." And the third one is, "I know the manager." Needless to say we need to rationalize our process for looking at all those proposals. We haven't done that yet. We're going to take a couple of years and do a very careful job at looking at all those different proposals and what makes sense. Part of what you heard about today was the Clinton Reservoir/Grand County/Summit County/River District deal which we put together over the last 18 months. If there is a message in that, it is that it was a technical and detailed discussion; it wasn't a political negotiation; it wasn't sitting down

at the table and saying, "What can I get out of the guys across the table?" It was sitting down in a very systematic, careful way and understanding what the other guy's system yielded, and understanding your own system.

Some of you may find it surprising to know that while we wrote the Summit County agreement from 1986 or 1987, we didn't understand it. None of us understood what we had written or understood how it would work. And part of the message from what we've recently done is that everybody thinks they understand more than they do. We didn't understand our own system well enough. It took enormous effort and an enormous amount of time and energy to understand the hard details of how the Denver system works. It's a very complicated system, and we were working on only a small portion of it. What we are proposing to do in the next three to five years is to take a very hard look at all elements of the Denver system in a systematic way -- integrated systems. Systems integration, excuse me.

When I look back, I think that is what we did in Clinton and Woford and Summit and Grand County. We're going to do more of that in the future than we've done in the past. We are going to take a very careful look at how we do that. There are a couple of caveats as we do that. First, any commitment to explore one or another alternative water supply source entails a commitment to obligate significant staff resources, and therefore can't be made lightly. In other words, if you come to us with a proposal to look at something, and if we make a commitment to look at it, we're going to be committing people, time and money, and we're not going to do that lightly. Second, any commitment to explore alternative water sources requires Denver to reexamine its own water supply assumptions and assets and to make a determination as to how those assets can best be utilized to provide for Denver and its service area. We are going to be in the process of doing that over the next couple of years.

Let me give you one example of the kind thing we'll look at. Among those 100 proposals we received, probably 30 or 40 of them offered in some way or another to make use of Denver's so-called spillwater; water which we cannot use in a wet year and sometimes not even in a normal year because it is more than we need. A lot of people propose to sell us back the spillwater we already own, and you know that falls into the smoke and mirrors category. We could look at those pretty quickly and decide we probably don't want to pursue them. But there are other proposals that will effectively make good use of Denver's water. One of those might be conjunctive use of Denver's spillwater. Maybe Denver can provide water which we have available in a wet year. In a dry year that water is provided by groundwater. Now we're going to have to take a good hard look at that. To answer the spillwater question is in itself a major undertaking. It raises companion questions about Denver's firm yield, the operation of its water supply system, its water rights, its distribution capacity, the inter-relationships of Denver's system with others in the metro area, the potential role of groundwater in the Denver system, potential financial and legal obstacles and a host of other concerns. Add to this mix the large number of other water supply players, proposals, and issues, and you begin to get a flavor for the mammoth nature of the water supply picture.

Over the next three to five years, Denver will take pieces of its system -- we will sit down and work with anybody who wants to sit down with us -- and examine how our systems work, how they could work together, and how they might be made to work better. When we're finished with that process we'll be in a much better position to make some rational decisions about the proposals that are going to come in the door. We'll be in a better position to make some judgements about what we should do and what we should not do, about what it will cost us in terms of dollars, and in terms of lost opportunities. Until we do that, we're not going to be able to spend a lot of time working on individual proposals you all are going to bring to us, or on perhaps some larger statewide kind of a project. We're going to want to cooperate with that if that's part of what comes out of this convention, but at the same time we have some concerns. We need to understand how our system works.

Somebody I think said, quoting Ed Pokorney, "In the '60s we built Dillon, in the '70s we built Foothills, in the '80s we got ready to build Two-Forks, and now is the time to go back and see what we've got and how it works." We're committed to doing that in a very rational and detailed manner, and primarily in a non-political manner. It's not a political exercise; it's a hydrology, it's a modeling exercise, and we're going to go through and re-do all our hydrology models and make that information available to anybody who wants it. You know, the old Denver Water Board said that's a proprietary model; nobody can see it. I don't think that furthers the way we should make decisions. We're going to make that information available to people; we're going to share the information with everybody who wants to see it. We'll see if we can make better decisions together. That's really what we're proposing to do, to sit down with anybody who wants to sit down with us and talk through these issues. I think we can find some better ways to do some things. I don't promise that we will solve all the problems, or that process will solve all the problems. It won't replace lost Two Forks, but it will make some progress toward systems integration -- which, as I say, is a new term that I hadn't heard until this morning. I want to reiterate what I heard the mayor say this morning, which is that enlightened self interest is what will guide Denver. We need to do this for our own purposes, but in the process we think we can help some other people as well. Thank you.

Cooperative Use of Agricultural Rights at Barr Lake

John Akolt, Farmers Reservoir and Irrigation Co.

As I was listening to Mayor Carpenter from the City of Thornton this morning relay some of her experiences in concluding the Standley Lake operating committee agreement back in 1979, I was reminded that I spent the first seven years of my practice defending the Farmers Company from the condemnation proceeding that Thornton had brought against the Standley Lake division of the Farmers Company. As a matter of fact, we go by the acronym of FRICO only because we were christened that by Thornton's counsel during the course of that litigation. My grandfather, who was not one to easily concede a point, spent most of that seven years injecting "Who?" whenever he heard the term FRICO, but we have long since started to utilize that term ourselves. We have ingrained not only the term but the concept

that was ultimately concluded in that Standley Lake operating committee agreement. That has, in fact, been an example of cooperation and coordination between the Farmers Company -- or I can now call it FRICO -- Thornton, Northglenn, and Westminster, which has had the result for my client of reducing its annual expenditures by nearly a fourth, allowing us to rehabilitate every major structure in the organization during the past ten years. It has allowed us to maintain our assessments at the same level since 1979, and it has probably provided us with the ability to continue as a viable organization in the face of rapidly expanding urbanization, which I doubt would have occurred in the absence of that process. I think what it shows is that a process that began decidedly in confrontational terms ultimately was concluded in a manner which benefitted not only the municipalities but decidedly benefitted the agricultural users as well.

The Barr Lake Plan, which I'll outline simply in some aspects of it, draws from that experience and the experience in dealing between agricultural and municipal users over the past 15 or 20 years. And as I think will become readily apparent, it is dependent upon the cooperation and coordination, not only of the parties between whom the use of the water and the reuse of the water by the farmers is directly dependent, but also upon multiple other players that have various aspects of a piece of the plan which are essential to integrate into any overall plan for integrating agricultural water rights into the Metro area.

The goals we were looking for in the Barr Lake Plan were to increase municipal water supplies without resulting in the dry up of irrigation use. It was to maximize the use of existing facilities for the use and reuse of municipal wastewater which can be reclaimed and reutilized for agricultural purposes. It was to enhance water quality to get it to a stage in which we believe it would be truly adequate for the reuses of the water which we make of it immediately below the downstream metro area. And it was to provide a reduction of the incentive for the individual farmers to sell out their irrigation water for economic reasons by passing through much of the value of the fair use of the facilities and the water rights. This would leave them in a position where, having received municipal value for their rights and the ability to continue using them for agricultural uses, would allow that water to regain its agricultural value and to continue to be traded as part of the agricultural lands for as long as those owners wanted to stay in production.

Those are the overall aims of the plan, and I want to briefly describe the facilities which are applicable not only to our particular plan, but that various other aspects of it may be utilized in another basin throughout this state. Indeed, various aspects of the plan continued to show up this morning and through the noon presentations with conjunctive use of groundwater storage, exchanges, and other incentives between the various entities at one place to another.

Basically, Barr Lake is part of the system of the Farmers Reservoir and Irrigation Company, as well as the Burlington Ditch, Reservoir, and Land Company, and the Henrylyn Irrigation District, all

of which utilize and cooperate in the same facilities, which divert through the Burlington Canal, directly below Denver Metro. Then the water is taken about 18 miles east of Denver to a location about 2 miles north of the new airport, where it is stored in Barr Lake, which has a capacity of 30,000 acre-feet. It is then taken further east to the Henry Lane Irrigation District with another 20,000 acre-feet of storage capacity. The Burlington Ditch has a capacity of approximately 2,000 acre-feet per day.

In addition to the surface water resources, the Farmers Company has adjudicated an alluvial storage plan utilizing the groundwater aquifer below Barr Lake, with an additional usable capacity of about 100,000 acre-feet. That is conditional; it has not yet been fully developed either for the company or for parties that might contract with it. The plan is dependent, essentially, on the way in which our system already integrates and responds to the water rights and needs of others. Our system is junior in priority, which means that for about 80 percent of the year our canal is operating at about 10 percent capacity. For about 20 percent of the year, we are operating at full capacity. We have a great deal of opportunity in the reuse of water that comes through sporadically; for instance, to allow upstream storage, because while we divert water at high capacity or at the time of the year when our users do not need it, that water can be retained or stored upstream until it is used municipally, passed back through to us, taken back out to the same location at which it was historically used, supplemented only by the depletion from non-renewable or consumable water sources so that the full amount of the water is returned back to the farmers. Essentially, what we are dealing with is a plan of administration together with the facilities in which our shareholders and the companies involved would permit other users the first use of the water.

Or, for instance, it may permit alluvial depletion by groundwater pumping from the Cherry Creek or Plum Creek alluvium during that period of time in which the company is the calling priority against each of those small streams without the necessity of immediate payback. If we have a secure source of supply from usable municipal wastewater sources, we do not need that water until our shareholders start using it for irrigation the following June or July. Indeed, in many years we have significant carryover in the system, and it may be that carryover can be deferred from year to year and the alluvial aquifer could be utilized for either post-payment or pre-payment of obligations, permitting people to deplete against us in a dry year without any need for payback and not resulting in even a dry-year dry up for our existing farmers. It is a plan of administration in which the Farmers Company water that would otherwise go to Barr Lake might be retained in Cherry Creek or Chatfield Reservoir and be released to us at a rate downstream, in which it would not only benefit the reach of the South Platte River from Chatfield to Barr Lake, but it would indirectly have the capacity to accommodate recreational uses, environmental uses, exchanges in the reach of the stream between Chatfield and the Burlington headworks.

There are a multitude of interests that could be accommodated other than simply the use and reuse of water in the Barr Lake system. If, in fact, we are able to utilize the municipal reuse wastewater,

which would meet Title 22 California Standards either by tertiary treatment at the existing central plant or by land treatment out near the Barr Lake area (either of which would be acceptable to us, either of which, we believe, can provide fully acceptable water) we may even be able to free up the entire storage space of Barr Lake by taking our re-use water around, infiltrating it into the augmentation system in the draw, thus freeing up the 30,000 acre-feet of Barr Lake for first municipal uses.

Barr Lake could also be utilized for storing the reuse and reclaimable effluent out of Denver metro, permitting the various entities to reclaim, exchange or reuse for non-potable municipal purposes out of Barr Lake in the rapidly expanding northeast quadrant. Through exchange, through contract, through administration, by utilizing increased water quality coming out of an improved Denver metro system or by allowing improvements in the treatment of wastewater in our own area, the system has the prospect of providing up to 100,000 acre-feet of water per year that we currently divert through the system, 45,000 acre-feet dry-year yield, and for developing some additional 50,000 acre-feet of storage space, without the construction of any single new reservoir and without the need to develop any other resource except cooperation and coordination on an administration basis.

The problem, as I have simply outlined, involves not only the companies and interested participants. It also involves Denver metro for wastewater quality treatment; it involves the state in administration matters; it involves numerous other municipal entities that might have the domestic municipal distribution system to get water from one place to another throughout the system. Water can be taken from Barr Lake, 20 miles north of Denver, to the City of Parker, 20 miles south of Denver, if the water would be placed through the municipal pipeline south of Denver and then the repayment made at Denver metro. It doesn't have to go in a pipeline, but there are a multitude of coordinated, independent agencies that such a plan requires. The benefit of being able to address and present such a plan to a conference of this type is that the various entities that are all involved in looking forward to creating future municipal water rights are here, and we would like to work with you in the future as the plan continues to be formulated, developed, and ultimately, we believe, to be implemented.

Questions for John Akolt

Q: I wonder if you have gotten any estimate of what it would cost to have an administrative tracking system that would track that water into those two booking fee entries?

JOHN AKOLT: The question was whether we have any estimate of the cost of administration of such a water rights system. We do not have any direct estimate of the costs. We have been a partial participant in a program up at CU through CADSWES, which is a computerized administration system of all the aspects of the plan, which we think will be a minor percentage of the overall costs involved. The administration and the hardware and software necessary are probably the least of the concerns. Technology exists, computer programmers

exist, the system exists; it is a matter of implementing that. That is not one of our impediments.

Water Efficiency

Chris Bridges

Colorado Office of Water Conservation

I must say that you are a formidable group, but I am happy to be here. I really appreciate the opportunity to address you today and give you the perspective of the state Office of Water Conservation regarding water efficiency for the State of Colorado. The people of Colorado realize the benefit of the quality of life that they receive from our water resources. The expectations of the future are being shaped by our use of water in this state. I realize that the water problems are difficult. The solutions, to the degree that they exist, take a great deal of hard work. Nonetheless, there are many communities throughout the State that are already working to save water and have implemented successful programs.

Water conservation can do more than reduce demand. It can also give communities an opportunity to delay the need to seek new water supplies. During these tight budget times, water conservation is doubly attractive. Through a mixture of planning and acknowledging the benefits and limitations of our current system, change can take place in order to protect our most valuable resource.

As demands on this limited resource, from urban, industrial, agricultural, recreational and environmental interests continue to rise, new and innovative solutions will be needed to balance these demands. That is where the Colorado Office of Water Conservation comes in. We are housed in the Colorado Water Conservation Board. Our primary task is to help Colorado communities and water users become more water efficient. We do this in several ways:

1) We are a role model. Our own state buildings are subject to water audits if a local water supplier provides the audit service. In a cooperative effort with the Denver Water Department, the audit of the State buildings in the capitol complex area should be concluded by noon. I want to thank the Denver Water Department for helping us achieve that goal. These audits include inventories of our building's water uses, the amount of water consumed, what needs to be changed, and what the expected payback of such efforts would be over a period of time.

We understand that educating the public on residential conservation is important. We also understand that conserving water in a commercial setting can enhance a community's efforts in water conservation. Therefore, we have water efficiency plans that are required of our state agencies for the construction or renovation of facilities. Along with these plans, plumbing specifications were required for state building construction or renovation. We are responsible for being the model that other public agencies throughout Colorado can follow. As these plans are developed and implemented, we will not forget the tools needed to monitor and evaluate those water

savings. This information will be shared with other communities as it becomes available.

2) A second part we play involves information and education. We have established an Information Clearinghouse and Repository complete with copies of nationwide programs and material on all available water conservation measures and current technology. This clearinghouse of information is open to the public. We have a State Water Conservation Coordinator's Group that meets quarterly to exchange information and technology that other agencies are implementing across the state and the nation.

The Department of Natural Resources has committed to facilitate the National Project WET in Colorado through the efforts of the Colorado Water Conservation Board and other state agencies. Project WET is an interdisciplinary water education program intended to supplement a school's existing curriculum. The goal of Project WET is to facilitate and promote the awareness, appreciation, knowledge and stewardship of water resources through the development and dissemination of classroom ready teaching aids. We hope to bring various State agencies, non-profit agencies and private enterprise together in our efforts to better educate the people of Colorado on water.

3) We also provide assistance. That assistance comes in technical and financial forms. Water efficiency plans are required of all communities that serve an excess of 2,000 acre-feet annually. Even on the Front Range, there are many communities that do not have the technical expertise or the money to employ a water conservation plan. We will make information pertaining to the range of possible water efficiency measures available to the water providers. We will also provide assistance to ensure that water providers implement water efficiency measures. We are promoting sound measures to enhance water use efficiency. We know that there are a great deal of ideas for conserving water in Colorado that could easily become realities with some financial assistance.

The Office has implemented a grant program through a one-time allocation of \$500,000 from the construction fund. The program awards grants up to \$50,000 for pilot projects designed to demonstrate water conservation. Not only will these projects demonstrate water savings and promote water conservation locally, but the results of each of these projects will be made available for use in other communities statewide through the Office of Water Conservation. In 1992, the office received 63 grant applications that totalled an amount of nearly \$1,200,000. During the 1992 grant cycle we awarded grants ranging from \$2,500 to \$38,400 to 14 different communities throughout the state totalling over \$200,000. Each one of these grants included a work plan so that the agency could monitor and evaluate their water conservation efforts. We have doubled our outreach efforts this year and are anticipating an increase in grant applications. These projects will be used as models by other communities and will increase public awareness statewide about new ways to save water.

Agriculture uses the vast majority of our state's water and the potential for savings is high. Senate Bill 87 approved an allocation

of \$500,000 for a matching grant program for water conservation pilot demonstration projects related to agricultural and multi-purpose use water systems. The guidelines and criteria for this matching grants program are currently being developed.

It is clear that to build a new water project in the 1990's you must show that the water is currently being used as efficiently as possible. We have seen an increase in public interest in water conservation. It is this interest that can increase the efficiency of our urban water users. The trend of issues lending support for water conservation is likely to continue. Many water suppliers will need encouragement and justification to comfortably incorporate water conservation into water resource management. It will also be increasingly important that providers not only encourage water conservation through public education and through programs like rebates and price incentives, but that monitoring programs are put into place to document the water savings that result from these efforts. It is through evaluating these efforts that we can show the public the real results of water conservation. Many of our Front Range communities that have instituted such programs are showing positive results in their water conservation efforts. We should encourage research and new technology, whether it is in the form of reuse, reclamation or new devices. We have an opportunity to be proactive instead of reactive in water conservation. Opportunities should be identified to work with all agencies to ensure a consist approach to Colorado's water efficiency efforts throughout the State, including the Front Range. These challenges require our best creative thinking and unfailing work. Thank you for allowing me to share these thoughts.

Questions for Chris Bridges

Q: What is your telephone number?

CHRIS BRIDGES: (303) 866-3441, ext. 311.

Front Range/West Slope Cooperation

Eric Kuhn

Colorado River Water Conservation District

Our Wolford Mountain Project sets an example of both the pitfalls and the reasons that East Slope-West Slope cooperative projects can proceed. Let me give you a little bit of the history and I will also go into why the project has been successful, at least to date.

First, on the history of the Wolford Mountain Project, it is the outcome of three separate parallel processes. First there was the Azure-Windy Gap Agreement. To make a very long story short, the Colorado Supreme Court gave the West Slope a victory in the late 1970's, when it ruled that the sponsors of the Windy Gap Project had to come up with a mitigation under the Conservancy District Act. The negotiations that followed led to the Azure-Windy Gap Agreement, in 1980. The Azure-Windy Gap Agreement envisioned the construction of Azure Reservoir. Azure is on the mainstem of the Colorado River, just

downstream from the town of Kremmling. By the early 1980's it became very clear that Azure had serious environmental and economic problems. This is the first real key point: rather than litigate the issue, which we could have done, both the municipal subdistrict and the River District Board of Directors chose to renegotiate the agreement and to put Azure behind them and to develop something that would work. I might mention that I think the key figure in those successful renegotiations was the late John Carlson. Larry Simpson, Greg Hobbs and others were also very key to that. Instead of building Azure, the municipal subdistrict contributed \$10.2 million as seed money to construct a reservoir in the vicinity of Azure. I want to clear up one misconception. We never believed that we could build a 60,000 acre-foot reservoir with \$10.2 million and its proceeds -- perhaps a much smaller reservoir at that site or at a different site, but never the kind of project that we have today.

The second parallel process was the Governor's Metropolitan Water Roundtable. The so-called Boulder Summit that Mayor Carpenter referred to developed a concept called the joint-use reservoir. The River District Board of Directors looked at the joint-use reservoir but rejected it for a number of reasons that I will not go into. In rejecting the concept of the joint-use reservoir, they agreed in principle to work toward an effort in developing a cooperative project with the Front Range. One thing that I might point out in hindsight is that the concept of the joint-use reservoir was that it was to be built simultaneously with the construction of Two Forks. Therefore, in hindsight, it appears that it was a pretty good decision not to proceed down that path.

The third parallel process was that the River District and Denver were locked in very complicated, perhaps even futile litigation. In the 1960's and 1970's Denver undertook a path to attempt to adjudicate water rights for Straight Creek, East Gore Canal, the Piney portion of the Eagle-Piney Project, and the Eagle Colorado Project. These were all post-Two Forks projects. Again, to make a very long story short, the River District had won the first several rounds of litigation but the Supreme Court reversed, in part, a part of our victory and remanded it back to the District Court.

At that point, both Denver and the district were faced with some very critical decisions. If the River District were to continue with that litigation, we think that we could have won, but our strengths were procedural and that told us that if we were to win, that victory might last a week before Denver analyzed why they had lost, corrected their mistakes and resubmitted another case. Then we would face 10-15 more years of litigation.

That, obviously was not a solution. Putting words in Denver's mouth, they could have won that case, but had they won they would not have been any closer to developing any real water for the Denver area. In fact, they probably would have strengthened the West Slope's resolve to fight not only those projects but other projects in all arenas.

Consequently, in December 1986, the River District, Denver, the Northern Conservancy District and its municipal subdistrict signed our

'86 Memorandum of Agreement. That agreement settled the above-mentioned litigation and provided for cooperation between Denver and Northern and provided what we then called for, which was the Rock Creek Lease. The Rock Creek Lease was intended to give Denver a water supply for a 25-year period. It was intended to cover the period of time between 1995 and 2020, or so, when Two Forks or its alternative would be in operation. The West Slope, or at least the River District Board, was open to longer terms than 25 years, but it was Denver that chose the 25-year period of that lease for very good reasons.

Why has the project been at least successful to date? The first point that I want to bring up is flexibility. The Northern Board, River District Board and the Denver Water Board all chose to be flexible enough to try some negotiations when historically it has always been litigation. That happened at several key points.

Secondly, we were flexible in what kind of project we would build. We didn't waste a lot of time chasing Azure after it became apparent that it had problems. I want to mention here that we called it the Rock Creek Lease because in 1983 when we were considering alternatives to Azure, I went to the Colorado Division of Wildlife in Grand Junction, explained to them what we were doing, said that we had some proposed reservoir sites in both Muddy Creek and Rock Creek and both of those creeks enter into the Colorado River, one upstream and one downstream of the Azure site. They said they thought the Rock Creek site was great. They said, "We the Division of Wildlife own 640 acres in the reservoir basin. We own that land because we were going to build a reservoir there."

Well, little did the people of Grand Junction know that this area was the somewhat secret and very coveted fly-fishing hole of their then executive director and one-half of the attorneys of a 17th Street law firm by the name of Kutak, Rock and Yuppie, and they vowed that they would fight that forever rather than lose their fly-fishing spot. Consequently, and with great intentions, we went into that analysis on the environmental level with eyes open toward either sites on Muddy Creek or Rock Creek. When it was all said and done, for various reasons the 60,000 acre-foot reservoir on Muddy Creek, which is closer to Kremmling, was preferred by the Department of Natural Resources, the Colorado Division of Wildlife and the River District in Grand County, so we were steered a little bit off but then we got back on course through the EIS process. We were flexible enough to say what we wanted was a reservoir but not this reservoir.

The third example of our flexibility is very recent. That is, after the demise of Two-Forks, obviously this 25-year concept caused problems with Denver. Other speakers have discussed it, but the only thing that I want to mention here is that what we did was to decide if we were going to build a project, we had to address what was going to happen in the post-25-year period. We do not change how the reservoir will operate in the first 25 years but recently we got together with Denver as a part of the Clinton deal but separate in terms of the paperwork and decided to put down on paper how the project would operate in those post-25-years.

A great deal has been mentioned about system integration. I want to point out how WOLFORD fits that concept. It has been pointed out previously that WOLFORD gives DENVER an additional yield of about 12,000 acre-feet per year. Yet, the average depletion to the Colorado River of the WOLFORD Mountain Project is around 4,000 acre-feet and perhaps even less. That is a very conservative number. How can you get 12,000 acre-feet of additional yield for 4,000 acre-feet of depletions? The reason is that it fits into the DENVER system and it provides some key storage in critical dry years when they do not have it. If we were to have put the WOLFORD Mountain Project in operation in 1950, in 6 out of the last 42 years they would have needed it. For those years that they needed the water, it was there. So, it increases their firm yield. That is the kind of approach that we are going to have to take. It is an efficiency kind of thing.

I might also mention that in terms of what it does to the Blue River. Theoretically, had WOLFORD Mountain been built in 1989 we would have done a substitution. We would have used it. It would have reduced the flows in the Blue River, below Green Mountain, from 950 in August to about 750 in August. That is a big reduction. But before Green Mountain and DILLON, the average flow in August, at that point, was about 300, and even after Green Mountain the average flow was about 450 or 500. We are reducing the delivery of large slugs of water that go down to meet the downstream demand and we are doing it in a way that is, in fact, helping the environment in terms of the stream because a large slug of water in the wrong month is not what the environment needs.

Finally, I want to say that as with all projects and all decisions, we cannot satisfy everyone. There are critics to the project. We have bid the project, but we have not yet issued a notice of award. We still have some issues that we have to work out with DENVER. Finally, the project was never intended as an alternative to Two Forks or any other big project. It is only one very small piece of what will have to be a much larger puzzle before this is all over.

Questions for Eric Kuhn

Q: Eric, can you provide precise instructions to get to the Rock Creek fishing hole?

ERIC KUHN: Yes I can, if you would like them.

Aurora's Efforts

Tom Griswold

City of Aurora Utilities Department

I think what I bring to this panel is a municipal perspective. That is a perspective that at times, when we are considering water resource decisions, we also need to look at the implications on the other urban services that we provide. I want to give a brief overview of the City of Aurora and what we are doing with water resource management. I want to describe some of the current practices that we are doing that I think fit into some of the discussion that has taken

place here today. Then I will speculate briefly on what I think future alternative supplies may be for the Front Range metropolitan area.

Aurora's population is approximately 250,000. The city has an independent water supply system. We are unique in Colorado in that we draw water from three separate major basins: the South Platte; the Arkansas and the Colorado. Water is the responsibility of the Utilities Department in Aurora, which is also responsible for storm drainage and wastewater. We integrate all three of these in a combined water resource management approach. Lawn irrigation return flows going through the drain system and wastewater effluent that returns to the system are both used to augment our existing supplies, both directly and through exchange. The city concentrates exclusively on renewable resources and has an extensive, deep groundwater reserve, which we are not using and it is not our policy to use. Water-related projects are planned and designed for multiple use and enhancement of the urban environment to the maximum extent practical.

During the last 10-15 years the city has aggressively acquired agricultural rights for conversion to municipal use. We have constructed the necessary facilities to store that water and deliver it to the city. We have acquired approximately 20,000 acre-feet from the headwaters of the South Platte and the South Park area. We have also acquired approximately 17,000 acre-feet of water previously used for irrigation in the Arkansas Valley. The water comes from the Colorado Canal, Rocky Ford and Bus Ivanhoe systems. In order to fully utilize this water, the city has constructed two reservoirs in the last 10 years, totalling 85,000 acre-feet. Permitting problems for these reservoirs were somewhat minimized, because they were built on private property and they were also in a location in which they were an obvious enhancement to the environment. Nevertheless, both projects required full environmental impact statements, payments and concessions for all sorts of issues including T and E and local government concerns.

The city either owns or has an interest in 9 reservoirs, totalling 136,000 acre-feet. We currently serve 55,000 customers. All of our customers are metered, and they are all within the City of Aurora. The current annual potable demand is approximately 45,000 acre-feet. As little as ten years ago, it was only 25,000 acre-feet. We have acquired resources and developed resources that will serve an additional 100,000 population over what we currently have.

Therefore, we are somewhat in a surplus position. The city is currently doing a number of things that are unique either in terms of scale or the practice itself. Some of these are done to supplement supply, and some are being done in response to changing attitudes, changing laws and changing public perceptions. Aurora's Arkansas Valley Project is an example. This is a revegetation project and it is believed to be the largest non-federally funded such project in the U.S. The city has committed to revegetating in native grasses 4,100 acres under the Rocky Ford ditch and 11,000 acres under the Colorado Canal. To date, Aurora has expended 3.5 million dollars on these revegetation projects, and we are budgeted to spend another 1.5 million dollars. The city is committed to achieving native grasses

that will exceed court requirements and will fully satisfy the concerns of local residents. In response to protestors' concerns, the city fully funds an independent panel of agronomists who review the revegetation project annually and make recommendations related to the project.

Reuse. Aurora's first water reuse plan was completed in 1971. It was expanded in 1982 to its current capacity of 2.5 mgd. Effluent from this plant is used to irrigate a golf course and adjacent parks. The Aurora City Council recently approved the planning, zoning and land acquisition for a future reuse plant on upper Sand Creek. This plan is scheduled to eventually be expanded to 40 million gallons per day. Reuse will continue to be an important component of our water resource program.

Lawn Irrigation Return Flows. Many entities are filing for these now. However, the three largest parks in Aurora are irrigated with lawn irrigation return flows and have been since they were constructed in the early 1970's. In these instances storm water detention-retention ponds create a central water feature for each of the parks. Drainage channels, which pass through the parks, now have a continuous base flow due to municipal lawn irrigation. The parks are irrigated by pumping from the small drainage ponds. It is a very practical alternative for urban irrigation water.

Dry-Year Leasing. Also called interruptible supplies, dry-year leasing of agricultural water for municipal purposes is often suggested as a viable urban water supply source. Unfortunately, the water infrastructure of the South Platte does not lend itself to this alternative. There are only two small reservoirs, Duck Lake and Wellington Lake, which are located above metropolitan Denver and serve irrigation demands below metropolitan Denver. It so happens that Aurora did lease water from those two lakes during the very dry year of 1980. In contrast, the Arkansas Valley utilizes a significant amount of supplemental irrigation water from upper basin reservoirs, Twin Lakes and Turquoise. Aurora has routinely leased this water to augment the city's supply. Because it is supplemental water located in storage, temporary use of this water does not require that land be taken out of production, nor does the use require a transfer decree. Here is a case that is ideal for the use of dry-year leasing.

Homestake Phase II is a proposed West Slope diversion project that would consist of an extension of the existing Phase I collection system. The Homestake project is jointly owned by Aurora and Colorado Springs. Phase I of the project was completed in 1967, prior to the National Environmental Protection Act and prior to existing public attitudes related to environmental preservation. It was almost prior to the town of Vail's existence. In fact, when the project construction started in 1963, Vail had not yet completed its first full year of operation. All the required federal permits for the Phase II project were issued in 1983. The lone remaining major permit is an Eagle County 1041 Land Use Permit. This permit has been denied by the Eagle County Commissioners largely because of intense, organized, local opposition to the project. The current process has both the cities and the county condemned to never ending litigation,

which, if ever decided, will only further alienate Front Range urban interests and the West Slope interests.

The City's policy related to Homestake and other sensitive projects continues to evolve. But today, it generally involves being more sensitive to the environment and to the concerns of the people who live around our projects or proposed projects. We are stepping forward to determine those concerns and respond to them. We have been and will continue to work at opening and maintaining channels of communication in hopes that our future activities will be more mutually advantageous. What's more, although there is no requirement to do so, we have begun a program over the last five years of improving the project features with an eye toward greater environmental compatibility, another benefit to the area-of-origin.

Briefly, what do I see as future alternative ventures for the Front Range? In the last several years we have seen an abundance of venture capitalist proposals. Private partnerships have been formed to either acquire and package water rights or to propose and market projects. AWDI is an example of that, but there are many others. There is a real role, I think, to be played by these venture capitalists in reducing the risk that municipalities are willing to take to bring projects on line. However, like many investments, it has been a matter of timing, some of these water rights were purchased during the end of the boom period and since have actually depreciated in value over what the speculators paid for them. It remains to be seen as to what extent these speculative ventures will come to fruition and supplement Front Range supplies. But, I believe, there is a real opportunity out there for some of these things to succeed in a very positive way.

Secondly, project sharing. The real challenge in getting a new project done is not what, but how. Every new project is going to receive opposition in the area-of-origin. The challenge is not only how to mitigate the actual impacts, be they economic or environmental, but how to quell local emotions and perceptions to a point where these impacts can receive a fair discussion and analysis. In any event, project proponents must devise a very real way to share project benefits with the area-of-origin for any project to succeed.

Number three, better use of existing resources and facilities is continuing to gain momentum as traditional water development alternatives have diminished. Water management of the South Platte River should be significantly enhanced with the CADSWES program that a number of us are working on out of Boulder. Conservation, reuse, and exchanges will play a role. The Colorado Springs effluent exchange program has nearly doubled their available resources, and that is just with an effluent exchange program.

Number four, water sharing. The Hydrosphere report places great emphasis on the need for metro entities which have excess supply to share with those which have a deficit supply. It is understandable that those with excess supply are reluctant to enter into long-term contracts. A more workable solution to facilitate sharing may be to establish a "spot market" for water on the South Platte. Such a program now essentially exists on the Arkansas and also exists, I

believe, in the Northern District for CBT water. Denver has a situation where Dillon Reservoir has spilled for six consecutive years even though we have had below average snowpack. Why shouldn't they have some return on that investment and have a spot market for that water?

Lastly, I would like to comment briefly on changing urban services. We in the municipal sector have endured and witnessed over the past five years increasing pressure for budget/expenditure reductions. This is especially true in traditional tax-funded services such as public safety, parks and public works. The Bruce amendment will only exacerbate this situation. As a consequence, those of us working with municipal, fee-funded enterprise funds, which we believe are exempt from the Bruce amendment, will be called upon to carry a heavier load related to urban services and enhancing the urban environment. We need to recognize that rather than being in the water business, we are now in the urban services business. This redefinition of our mission means that we will need to plan and design water-related facilities, be they reservoirs, drainage channels, or treatment plants, with a multi-use, maximum-public-benefit approach. The so-called natural environment has many crusaders, causes and organizations seeking preservation. However, it is the urban environment, where we live and work, that needs our attention. We in the water sector have much to offer to improve that very important environment. Thank you.

Northern Water Supply Pipeline

Larry Simpson

Northern Colorado Water Conservancy District

The Northern Colorado Water Conservancy District has for many years conducted long-range planning efforts in northern Colorado looking to the future water supplies for all uses within that region. To that end, and with the assistance of the Colorado Water Resources and Power Development Authority, we looked first at the supply side of the water equation by studying opportunities and the need for additional storage along the Front Range so that the clean water available out of the mountains could be first used over the next 100 years by the municipal-industrial complex along the Front Range. These studies determined that there was a need for additional storage in the Cache la Poudre River system and in the Little Thompson/St. Vrain River systems in order to adequately manage and conserve both unused water as well as presently developed water within the system.

In order to meet the needs of the Front Range over the next 100 years, there is a need to be able to better manage the agricultural supplies within the system and integrate that management with reuse plans and efficient conservation. Many of the conservation plans that have been put forward, including drought relief through dry-year leasing for municipalities and intricate exchange plans for farming, provide the reserves necessary for stable municipal supplies. However, these all rely upon the development of adequate storage above those municipal-industrial complexes so that the agricultural water will be available for use in these plans.

The majority of agricultural water that is frequently referred to by conservationists is water that is unavailable for municipal/industrial use without storage. It is what I call "opportunity water." It is direct-flow diversion from the streams during the spring snow melt. Without storage of that water supply for use later in the summer and throughout the winter periods, this water is unavailable for municipal use or for drought relief in any manner. If unused by agriculture during this direct-flow period, it would run out of the state into the Gulf of Mexico on the South Platte system and presently runs to the state of California on the Colorado River system. Mr. Rozakalis' studies, sponsored by the Colorado Water Conservation Board, also indicate that there are adequate water supplies along the Front Range for the foreseeable future if they are properly managed. In his speech earlier this morning he indicated that this will require additional storage, not only on the Cache la Poudre and the St. Vrain system, but also on Clear Creek and on the Upper South Platte.

Northern Colorado has also been looking at another part of the equation, the efficient and timely delivery of the clean water supplies to the municipal-industrial complex and to rural communities through the northern Colorado area. This delivery side of the equation is being met through present pipeline and canal delivery systems, and will be met in the future through a pipeline that is being constructed to meet the needs of rural communities in the eastern part of Morgan County and Weld County as well as the City of Broomfield and others within the Boulder/Weld County and Morgan County areas. This pipeline, however, is being built strictly to meet the specified needs of those communities which subscribe to participation in the pipeline at this time.

There is no excess capacity being built for future exchanges or integration south of the Boulder/Weld County line. If such integration is to occur in the future, it will necessitate the construction of additional infrastructure as well as the satisfaction of many institutional and political concerns with regard to the use of those water supplies. Cooperation will be the answer to the future, but it will have to be combined with a great deal of concern for the areas of origin as well as integration of systems in a way that no injury occurs to any party. Water transfers cannot occur to the economic detriment of the areas-of-origin. It makes no sense to provide economic stability through additional water supplies to one area at the expense of another area.

In December of 1992 the Northern Colorado Water Conservancy District filed for a new project called the South Platte Water Conservation Project. This project will make use of return flows in the South Platte downstream of Greeley by taking those return flows north into an agricultural area for groundwater recharge and surface storage so that the return flows from the municipalities can be made available to agriculture in an economic and efficient manner. The future of Colorado within the South Platte basin lies in the effort to make the clean water available to the municipalities along the Front Range and then, through very efficient and economic management techniques, to make those return flows available for agricultural purposes.

The agricultural economy of northern Colorado is a substantial part of the economy in the state of Colorado as well as providing tremendous wildlife habitat, environmental amenities and aesthetics. To lose such a vast asset of the state of Colorado in the interest of providing water to lawns, golf courses, and subdivisions in municipal areas makes little sense if it can be precluded by good management. Northern Colorado Water Conservancy District, through its long-range planning for storage, delivery, reuse and conservation of the water supplies of this region, is looking forward to preserving agriculture within northern Colorado as well as providing for the future of municipal/industrial development within the state.

1993 Colorado Water Convention

KEN SALAZAR: Today is the second day of this 1993 Water Convention that the Water Conservation Board has put together as a result of the legislature's funding for the basin-of-origin scoping study and that will be the focus of today's convention.

Welcome and Introduction

Leo Eisel, Vice Chairman
Colorado Water Conservation Board

Good morning. I'd like to welcome you to the second day of the Convention. This conference came from an idea which Ken Salazar put forth originally in a discussion with me and some of the other members of the Water Conservation Board. In this discussion I think we all realized in somewhat simultaneous fashion that a number of the present and future water problems in the state of Colorado come from the increasing demand that is occurring and will continue to occur in all likelihood in the Front Range area. The concept of this convention came about with the idea that one way to get at a number of water problems and water fights was to have a look at the water supply and the water demand here in the Front Range area. I am very pleased to see the large number of folks here from around the state to concentrate on this very important problem.

Without further ado, I would like to introduce James Lochhead, who is the moderator of this morning's panel.

Legislative Panel

Moderator: Jim Lochhead, Colorado Water Conservation Board Member
[A transcript of Jim Lochhead's remarks was not available for this report.]

Panel Members: Senator Tom Norton
Senator Tilman Bishop
Senator Don Ament
Senator Ruth Wright
Senator Jeannie Reeser

Senator Tom Norton

I would like to start off with something that reminded me of what we're talking about here today. As I was driving down from Greeley and listening to the radio, a reporter was explaining the situation in Somalia. He said a map of that country looked like a piece of shattered glass and wondered why the warlords had carved out such strange areas for themselves. In investigating, he found that those lines that the various warlords had used to carve out areas for themselves were lines that went around the waterholes of the country. Somalians were a nomad nation and the only thing of primary importance to them was the water. They fought their battles based on that. It reminded me, I think, of Colorado, only in a little different way. We're still fighting over waterholes and how and where water is going

to be used, how it can be used, and who has a right to it. That, I think, is what this meeting is all about.

I do believe that the legislature has a role in defining the policy of the state and in defining, to a degree, how we should utilize the water in the state. But I also believe that we have to follow the state constitution and preserve those property rights associated with land, water and minerals. We should be very, very careful in considering legislation so as not to infringe upon that constitutional right for water, and I think we have come very, very close to that in a lot of legislative approaches that we have seen in the past. Some of you who were at the hearings last year when we looked at basin of origin in the Senate Ag Committee could see that there was great concern from committee members as to whether or not we were infringing upon that right to divert and put to beneficial use water by some of the proposed legislation, and by some of the proposals you'll hear about later today from Senator Pastore about whether we should actually change the constitution. I, for one, think that we should not change the constitution. We ought to leave that water right the way it is, and we ought to figure out how to work within those constraints.

I talked with some people earlier this morning about how we do that with regard to water quality and water use, and the need for storage. I happen to disagree with a recent article in the *Denver Post* which said that we have plenty of water, and if we learned how to cooperate we wouldn't need more storage. I do not believe that's correct, because I think we have to be more futuristic in our thinking if we want to have enough water for a variety of uses in the next 50-100 years. I think that's what we need to be looking at.

I do believe that more cooperation is necessary. It is obviously necessary in the metropolitan area in the conservation and use of water as it relates to the area's functions and public uses, but we need very much to have more storage water to protect the water rights. Then, if we have those storage rights and we perfect those storage rights, we would be able to look at transfers that make sense, and actually transfer water that is futuristic water and not taken away from a present use, and not have to figure out mitigation. I believe mitigation is the one thing that we never will be able to resolve. I don't think we ever will be able to resolve it statutorily or to any individual area's satisfaction, because that mitigation is something that is in the future. If you try and mitigate a future damage, no one can define that. Whenever we get into a legislative process where we are trying to mitigate future damage, we always end up with failure legislatively, in my personal opinion. I believe that we need to have additional storage and look at transfers as they relate to that and not as related to a reduction of the water from a particular basin and its present uses.

The only way, then, that we can go further with a basin-of-origin transfer is to increase the amount of storage water that we can have in the state and then look at whether one basin has an excess of storage water that can be transferred. This is just a brief overview, and I think it's as important to hear from you and for us, as legislators, to get that input.

Questions for Senator Norton

Q: Several speakers have observed that, particularly in the water arena, change creates anxiety resulting from uncertainty. Shouldn't the legislature reduce or eliminate that uncertainty by adopting a state-wide water plan upon which we can all rely? Mayor Carpenter said this was an important and pressing political issues. Do you agree? Representative Reeser seems to....

Q: Where do you think storage should take place, and how would transfer of this water take place?

Q: [also addressed to Senator Ament and Representative Wright] Given that there are limits on just how much water can be developed and/or transferred from one basin to another without detrimental effects, what can or should the legislature do to impose some limits to growth and development to preserve and protect the environment and life style we all enjoy?

Senator Tilman Bishop

I appreciate the opportunity to be here and participate in this 1993 Colorado Water Convention. It seems that about every three to five years it is appropriate to hold a water convention, particularly in light of so many new people moving into Colorado, new issues that center around water, and the new players. This is an opportunity to see and visit with some of my old friends -- even those with whom I have disagreed on water issues. It's also nice to have the opportunity to meet new friends.

I want to thank Ken Salazar, his staff, and the people who were instrumental in putting this convention together. This is no easy task. Really, the only time we tend to get together on water matters is when we have a drought, or we need a drink, or we need it for agriculture. Then we seem to be able to get together or talk about water matters.

Let me say, in response to the question, "What is the role of the legislature in dealing with water matters," I think we have to recognize that by constitution we are the policymakers. We will be involved, and we will take input from our constituents, from those of you in the water communities, and we'll try to put it all together and place it on the table for discussion. We'll have forums -- we'll try to bring together the best water minds we can and formulate public policy in the best interests of the citizens of the State of Colorado.

We all know that we are dealing with a very complicated and complex system. We have let it become very complicated and complex, I think, far more so than we really needed, and we have become far too protective. We're afraid of change, and we're very protective of our turf. Change is threatening to us. There is the uncertainty, the unknowns about change, so therefore we resist it. I have watched that in the legislature for a number of years.

But can we continue to do business in the State of Colorado as we have as usual? I think not. I think we are a changing and growing state and will continue to grow along with the other western states. This means that we have to learn to tolerate and work with each other. We need to look for new directions. We need to make sure that when we get involved in the transfer of water from one basin to another that we look to those areas where damage may be caused -- and we know that transfer of water from one area to another does cause some damage. It is a matter of mitigating the difference, and as Senator Norton pointed out, this is a difficult area to put numbers on.

I think when we are talking about transferring water within a basin or outside of a basin that we are saying that we need to recognize that mitigation can be in the form of dollars -- which I don't think is what we are looking for -- or it could be in water compensation. I think we're looking for some access to water to be able to take care of growth and development as it comes to the various parts of the state. When we look at compensation, we don't always think of just dollars, although that might be the end result. How do we take care of the growth and development in Western Colorado? For those of you who haven't been over there recently, let me tell you it is alive, healthy and doing very well and will continue, whether it is in the area of agriculture, small businesses, education or tourism. We will be viable to the State of Colorado.

In order for us (Western Colorado) to be viable, we need to have access to water in order to take care of the growth and development as it comes. For those of you who haven't visited around Ridgeway, Telluride, Montrose, Grand Junction, and Delta, let me tell you the housing starts on a ratio basis are just as healthy as in any other part of the State of Colorado. The reason this is happening is because we are able to accommodate the influx of people, we have the infrastructure, and we have access to water, a very key ingredient.

Attending many of these meetings over the years, I have heard the words "cooperation" and "compromise," and I have learned that when it's a 60-40 percent split and I have the 60 percent, that's a compromise. Very seldom does anyone take a losing position of holding only 49 percent or less. The words that we use, I think are certainly appropriate, but I think that it is difficult to put them into practice so that we can do what is really best for the citizens of Colorado.

In Western Colorado, as you know, our concern is water. We are probably more paranoid than those of you on the Front Range. You have the numbers, but we feel that where necessary we will put up opposition until we have some assurance that whatever takes place does not squeeze us entirely out of the picture. It becomes very important that we be at the table on water discussions and that we be a major player in any of the decisions that are made.

There is a lot of concern that in the future, as new people move into Colorado, they will not have an institutional memory of Colorado's constitution as it pertains to water and the statutes as they pertain to water and case law. If you get enough misinformation about a ballot issue out there and people really don't know the

issues, they'll vote for it, especially if you can make it emotional. And water can be a very emotional issue. For those of you that have had a pitchfork, a shovel or a shotgun in your hands to protect your water, you know what I'm talking about.

I am always a little leery and a bit curious to see who attends these kinds of water meetings. I know lawyers are here to represent their clients, consultants representing their clients, engineers representing their clients, legislators representing their constituencies, and it is very difficult for any of us to put water issues on the table and talk about them without having some biases and prejudices and some protectionism. I think that along with what Representative Jim Dyer recently said, the legislature ought to look for ways to save money, and maybe a unicameral legislature is an answer to save money in the light of Amendment 1 -- indeed, we are going to have to make some changes. I say, as part of this Water Convention, let's put our water issues on the table and talk about them and see whether or not there is common ground we can stand on to move Colorado in the direction that we should be moving -- that we remain a progressive state, a good state, and a high-quality state in which to live.

Questions for Senator Bishop

Q: [also addressed to Senator Ament] The New Muddy Creek Reservoir provides substantial new supplies for West Slope development. This is in addition to the substantial amounts of marketable (but unsold) water in Green Mountain and Ruedi Reservoirs. Can you give any example on water acting as a limit on West Slope growth or any project which has failed for lack of a water supply?

Q: [also address to Senator Ament] In light of the changing demographic and political situation in Colorado, do you believe there is a need for a massive program of public education on basin-of-origin and other water issues, and are these specific legislative proposals toward that end?

Senator Don Ament

Let me tell you something that I think is appropriate to share with you this morning. When I was a little guy I used to spend a lot of time with my grandfather on the Western Slope. He was a state water commissioner. I would walk up and down those little streams and creeks in the Carbondale and Glenwood Springs area and marvel at how people had built ditches in the rocks and put little structures together to try and put water to beneficial use. I was also interested in the fact that headgates were always locked, and that he opened those headgates and would adjust that water.

In contrast, I spent a lot of time with another grandfather on the eastern plains on the North Sterling Irrigation District and listened to him tell how he had bonded his farm, and how in 1907 they had put together with horses an irrigation system that provided for irrigation with some 45,000 acre-feet of water -- about a foot to the acre in those ditches. There I watched an irrigation system of a

different sort come together, and a community pulled together to put water to beneficial use.

Now, you contrast this with a father who was president of Thompson Pipe and Steel Company in Denver. I traveled around with my father on the Western Slope and the Eastern Slope and watched how people put diversions together, put pipe lines together and put water to beneficial use. I saw in my youth a development of water within the State of Colorado, a state that was blessed because it was a headwater state and had water to put to beneficial use. I thought to myself, look at the foresight of these people that have put their all into developing a property right for the benefit of all of us. But I also had to think about all the things I used to hear when I walked around with these gentlemen. I used to hear about how "whiskey's for sippin' and water's for fightin'." I heard some others, too, that I wouldn't even bring forth today in this group. I watched people fight on ditch banks with shovels. You know, it seems unreal, doesn't it, that here in this modern day and age that this is what is going on?

Then, as I came to the legislature and as I saw people try to put water to beneficial use, I wondered if there could ever be a more contentious issue. As I brought issues of transfer before the Water Congress, as I brought issues of how do we best serve that poor individual at the end of the ditch and has his neighbor sell off the water, I found that instead of pulling the group together with water transfer issues and beneficial use issues, every time we put that on the table we polarized the group. It was a big shock in my life to step before the water user community and find agriculture here, find the city and municipal users there, to find recreational users, and so all of a sudden I began to wonder, "Is it possible to put this all together?"

Now we find ourselves in a new political climate where people would like to take these issues and get them on the ballot. Let the people decide. What background do the people have to decide, and how can we get that background to them? When asked the question, "What does the legislature do in this role," I think the legislature is bound to take this issue in hand and deal with it because they have the ability to put these people together and have the forum, if you will, to discuss this issue -- give and take, compromise, and input from each and every one of you and not just an emotional thing that's flung on the ballot to see how people vote. As we look to a new political climate, certainly the Legislature better take a more commanding role than providing the forum for these kinds of discussions.

I am very much concerned as we see new partners in water and water development, as we see the federal government assume different roles, as we see the environmental community assume different roles and expectations from our water system, as we have seen the growth that you've talked about here in the last day. It is amazing that we are growing at that kind of rate. All of these implications spell out the need for a new understanding of Colorado water policy.

Let me suggest that the paranoia that we find in the water community is certainly justified. Why wouldn't those in agriculture

be a little paranoid about their future as they see municipal use increase; as they see the federal government wanting to take on a new role in the Forest Service, the wilderness areas, as they see these transfers take place; as they see the operation of the Bureau of Reclamation projects change their focus to recreational uses, power requirements and increasing power rates? Certainly there should be a paranoia there. Certainly there should be a concern on the Western Slope about whether we are going to help them develop their water to the best use. Certainly as we see the communities grow, as we share in the tax base, and as we look for a prosperous future in the State of Colorado, we all have to be concerned about how we grow, how we handle our tax base, and how we provide those services that are expected.

The bottom line is that we have had a history of not cooperating. We have had a history, as you have heard today and will hear, that as we get down to the bottom line we tend to polarize and we tend, if we have the 60 percent as Senator Bishop said, to come to the table and talk about what we will and will not do. In this new political climate where we find ourselves, new development is imperative. I have to refer again to the article that said there is plenty of water if we can just learn to cooperate. Ladies and gentlemen, that is just not true. If that were true, you would not find headgates being locked around the State of Colorado. You would not find that, when major water projects are sidelined, new transfer methods are envisioned from the San Luis Valley, the Fort Lyon Canal, or any other transfers on the ditch. You would not find people trying to learn ways to move water around and to make different uses.

I am out there on an area of the South Platte where if we do not have a good year we cannot irrigate a crop, because we do not have enough water to finish it. We are in an area where we work all kinds of ways to try and conserve water so we can get through the year. I suggest, as we take an in-depth look at water across the State of Colorado, that there is a need to conserve and develop water to this day. There is not any wasted water in the State of Colorado, because we need to protect the quality of that water and have reuse. As you heard again yesterday, the South Platte utilizes two million acre-feet of water and our input is only one million acre-feet. So as we look at growth, as we look at development, as we look at the success of the State of Colorado and the lifestyle we have come to enjoy, it is imperative that we address these issues.

It is somewhat trite to say, I suppose, but we need to work together on these issues. We need to understand where everyone else is, and we need to do this in the community that bases its decision on fact rather than emotion. I suggest to you that is the legislative process.

Questions for Senator Ament

Q: You spoke of the common constituents' background and knowledge of water, yet we in this audience often wonder where the common legislators get their knowledge and information on water. Please be as specific as you can.

Q: You spoke to the salvage issue and framed an argument against citing the secondary benefits resulting from the primary use. Would not a salvage bill that addresses those potential injuries in a non-litigation manner provide better protection or approved to litigation through water court that cannot be paid for by small private users? The water will flow uphill to \$ or to the Feds.

Q: [Also addressed to Representative Reeser] (1) What is the boundary definition of the so-called "Front Range?" (2) Who is helping and speaking for the southeast quadrant (south of Pueblo -- Huerfano County) and north of Trinidad (Purgatoire River)?

Representative Ruth Wright

It is obvious from looking at the attendance here that we all realize that water is the lifeblood of the State of Colorado. Let me say first of all that I fully support Colorado's appropriation doctrine. I think it has done great things for Colorado in its early development and its present development; it has been exceedingly flexible to meet different and continuing demands from urbanization, mining, agriculture and industry. When necessary it has been amended, adapted, changed or brought up-to-date by the legislature. The question is whether or not the Legislature has a role. It definitely has a role, and let me just mention a few things. From surface water and then to groundwater, Colorado's water law has had input from all of the water users -- the citizens, the environmentalists and so forth, all through the ages when the Legislature has been amending the law. This includes augmentation plans, which increase the flexibility of what people can do on exchanges, and use of groundwater in conjunction with surface water. I was involved with one a few years back: Senate Bill 5, the final chunk of what do we do with a great water resource, which was the deep, nontributary groundwater law that we passed in the early '80s.

We definitely have a role, but there is more that is necessary. We talk a lot about East and West Slope, and yes, that is where the great transbasin diversions are going on and will go on in the future. But in the early '80s I took a trip down to the Arkansas Valley. I spent a weekend taking a lot of pictures when I found out that 35,000 acres of Crowley County were being dried up. It was pitiful going over the lands that formerly had been very productive in agriculture. They now were parched and dry -- cracking -- there was a dustbowl situation where a plot of ground that had formerly been in agriculture, now dried up, was blowing dirt onto the land of a farmer who still was irrigating. And there was a confrontation going on there. The little towns were dying on the vine because their economic base was drying up.

I proposed a bill that would have said, at least, that the entity (which is usually the municipality) that was removing water from irrigated land should, within the last two years before removal, attempt to establish some type of vegetation on that land which then could grow on its own once the water was gone. I realize this is not

an easy thing to do. The land has become far more saline than it was. You can't just take the irrigation water from the land and let it go back to its natural state. That is no longer possible -- it's far more saline. A different kind of vegetation is required. That issue went before the legislature and it died in its first committee, which was the agricultural committee, but it certainly is a subject of continuing interest. At one point a few years ago, I got a very nice letter from the City of Aurora saying that was exactly what they were doing. In updating that particular issue, I understand that Aurora is having a great deal of difficulty in revegetating those lands. Because of the salinity, they are spending up to \$1-2 million in trying to do that. That is a very commendable effort.

I think we have become far more conscious of the interdependency of urban-rural, West Slope-East Slope. I am very concerned about what's happening on the West Slope. It diminishes all of us if the West Slope loses its productivity, its tourism, the fishing and the beauty of its high-mountain streams -- not only for its economic life in tourism, but for all of us who have come here to Colorado because these are some of the amenities that we love and appreciate.

I think it diminishes all of us if we lose the wonderful agricultural products out of the Arkansas River and the kind of family farming that has been going on there for generations. It diminishes all of us if we lose the agriculture in Larimer and Weld Counties, which are two of the highest agricultural-producing counties in the country. We could just grow, ad nauseam, and lose those agricultural communities and the amenities on the West Slope unless we all come together.

While I feel that the legislature has a very important role in all this, I don't think it's the exclusive role. Sometimes we do things to push this kind of cooperation into happening, perhaps as with 1041, the land use bill that passed before I joined the legislature. It requires a permit from the county where a new water project is going to be located -- not that the county has a lot of control over that kind of a situation, but it gets the communications going. I think that a conference like this gets the communications going. Don't expect the Legislature to come up with the solution. I think it's a matter of entities working together, recognizing the interdependence that even though you have, as a home rule city, the power and money to buy the water, that you give up a little bit of the power. Instead of the 60-40 deal, we should try to make it 50-50.

Questions for Representative Wright

Q: Please explain why, as a leader in the legislature, you do not see the legislature in a leadership role for the citizens on water? Where is the leadership to come from?

Q: You have spoken (wisely, I believe) on the limited role of the legislature in solving 90s water problems. We desperately need to educate more of the public on water law, institutions, and distribution systems. How can the legislature support this educational process from K-12 to general public?

Q: Several water projects such as Two Forks, Union Park, Fort Lyon, AWDI have been killed by opposition forces recently, demonstrating that anti-project interest already have too much power. Shouldn't legislation be proposed to encourage water development rather than make it more difficult and costly?

Q: Why can't the Legislature pass a workable "salvaged water" bill which helps farmers stay farming while providing "new water" for other uses?

Q: In order to give counties more effective rights and ensure local voice will the legislature support 1041 Regulations, specifically utilization of municipal and industrial water projects?

Q: Have you been back to Crowley County in 1991 or 1992? It's better.

Q: Do you believe any changes in SB5 or other law is needed to implement and administer recharge storage in bedrock (nontributary) aquifers?

Representative Jeannie Reeser

I would like to thank Ken Salazar, the Department of Natural Resources, the Water Conservation Board and all those who worked so diligently to put this convention together. I am amazed it came together so rapidly and so well-done. I am very eager to work with each and every one of you this next session on areas of water or whatever your interests are in the areas that you represent.

When I heard from Ken Salazar, he asked us to try and cover three points: they were to provide an overview of the basin-of-origin scoping study currently being conducted by the Colorado Water Conservation Board and the Colorado Water Resources Research Institute; that we provide a legislative perspective on water transfers within Colorado; and discuss whether statutory limits on out-of-basin transfers are needed. I would like to address those points and also request input from this audience. I realize that many of you know a lot more about water than I, but I am always willing to learn, and we do have good staff in the City of Thornton that tries to keep me apprised of everything that concerns the city.

Last year, Senate Bill 87 authorized a scoping study for out-of-basin water transfer issues. The bill specified that the scoping process would consider the following: the determination of the adequacy of current water law to protect the holders of water rights affected by a water transfer; the consequences of establishing conditions on the right to sell and transfer water rights; the sustainability of agricultural water under conditions favoring transfers; the economic consequences on the basin-of-origin when existing water resources provide important recreational and economic benefits in the basin-of-origin; and the validity of distinguishing between consequences resulting from out-of-basin and intrabasin transfers.

This scope addresses critical issues that must be resolved if any legislation is to further regulate water transfers and is to be

successful and effective for all parties, not the least of which are the citizens of Colorado. It would appear prudent to wait for the results of this study before undertaking any legislation to address water transfer issues. A comprehensive analysis of the issues is needed before we can develop a bill that really works. I had the opportunity the last couple of days to read the draft on issues associated with out-of-basin water transfers, the scope analysis. I realize it was simply a draft. I would like to make some comments on that draft and perhaps have input.

First of all, the draft does not address the following considerations specified in Senate Bill 87: the determination of the adequacy of current water law to protect the holders of water rights affected by a water transfer. I see that rather than addressing the adequacy of current water law, it raises new questions and expands the concepts. In the area of consequences of establishing conditions on the right to sell and transfer water rights, again rather than addressing the issue the draft expands the concept and raises new questions. The sustainability of agriculture under conditions favoring transfers is another issue.

The draft report doesn't narrow the issues identified in Senate Bill 87. Rather, it expands the issues. Lastly, the draft spends too much time on peripheral issues. I realize it is simply a draft, but I think there are concerns that need to be addressed, and I would hope that those who are participating in this scoping analysis do a little bit more as per requested in Senate Bill 87. We spent an extensive amount of time making it clear what we wanted in Senate Bill 87, and a lot of parties worked together. I know that Senator Bishop and I, with the legislature, really worked to get that scoping study done properly, and we hope that those concerns are met.

As Colorado citizens, we all face the dilemma of how to provide water for future growth in all parts of the state including moving water to the place of use while leaving water in streams where appropriate to preserve the natural environment. The Colorado Water Conservation Board has done an exceptional job of implementing Colorado's minimum stream flow program and coordinating that program with federal reserved water rights and apportionments under interstate water compacts. At the same time, it has become more and more difficult to move water to new places of use. The state should avoid putting in place an additional layer of requirements to further impede transfers and economic growth. When water is moved from one basin to another, it should always be done with minimum adverse affects.

Project proponents have learned that a successful transfer requires some accommodation with in-basin interests. In-basin litigation is being negotiated on a transactional basis with some success. Before basin-of-origin legislation is considered, the state needs to set openly debated, political and economic judgments as to how much water should be allocated to future in-basin demands and how much water should remain available for appropriation for more immediate demands in other parts of the state. The state should consider whether a state water plan is the appropriate vehicle for making these political and economic judgments.

In addition to the economic ramifications of making a statewide allocation of water through basin-of-origin legislation, the state needs to carefully consider the impact of such an allocation on the state's minimum stream flow program and Colorado's ability to perfect its apportionments under various interstate stream compacts. One point of consideration that we must concern ourselves with is the cost involved with water transfers. The taxpayers of Colorado are footing the bill for years of litigation over water rights. Any legislation that complicates the issue and opens the door for additional litigation is a disservice to us all.

Questions for Representative Reeser

Q: What are the most critical issues that should be considered in a basin-of-origin bill?

Q: Should the legislature guide the results of the scoping study or merely focus the issues to be considered?

Q: You have made an important point concerning studies conducted on behalf of the state: what would you recommend to professionals and state staff as to your key needs in a study report, as you see it?

Q: What's the best way to provide input to the legislature on the scoping for SB 87?

Q: Inasmuch as we all may agree that added litigation is a disservice to all of us, how would you attempt to reduce that litigation while still adhering to the prior appropriation system?

Written questions and comments addressed to all of the legislators

1. Each Legislator said General Assembly should have an important role, but each appears to be waiting for some revelation before telling us which way Colorado should go. Do any of you have a clear idea about what we should do to address basin-of-origin issues?
2. Which of you is planning to introduce water legislation, and what will it propose?
3. Can the Water Power Authority broaden its scope to assistance for acquisition of water rights?
4. Do you think the spirit of cooperation and compromise would be fostered by allowing elections of conservancy district boards?
5. Why are state agencies intervening in court against Front Range use of surplus Gunnison waters, while encouraging more diversions from the overdepleted main-stem tributaries?
6. Would each of you comment on adding Colorado water history and Colorado water law as required curriculum in the public school systems to eliminate the excuse that the electorate isn't informed well enough to vote on water issues?

7. Will you amend the district laws to make it possible for them to be certain they are "Enterprises" under Amendment 1?

8. Will the word Enterprise as in Amendment 1 be looked at?

9. (1) Address concept of intra-state water compact(s) in light of population growth or projection extended to the logical conclusion that our water supplies are finite. (2) Address the public policy proposition that rural areas, especially those with a surplus of water, should be targeted for job growth to mitigate transfers of water.

10. Do the legislators, other than Representative Reeser, support the concept of an "intra-state" compact?

11. What is role of legislature in promoting and encouraging on farm efficiencies and allowing farmers to sell water that they "save?"

12. What is your position on need for a state-wide strategic water storage program for 20-year droughts and growth?

13. What kind of legislation do you perceive that would allow water to be used for agriculture, and municipal uses during dry years -- and what's your thought on passage of such legislation?

14. Are any of the legislators aware of the recent water court decisions that are limiting the benefits to those recharging tributary groundwater? Is policy and legislation needed to promote recharge of groundwater?

15. How will the legislature work to protect the state's water from industrial pollution which produces wastewater?

16. Since this is to be a "new era of cooperation," how can your efforts and those of the state water development interests best be integrated with the water use and instream flow requirements of the federal agencies -- Fish and Wildlife Service, Forest Service and National Park Service -- for management of the public lands?

17. What standards should be established to measure injury to social ideals like:

- a) family farms;
- b) individual subsistence agriculture;
- c) the existence of communities/towns/cities, or their decline?

18. It seems in out-of-basin transfers, there are three areas that seem to need to be addressed.

- a) Protection of Property rights -- both for seller and other users.
- b) Mitigation for current definable environmental sociological/economic impacts.
- c) Reservation of future water for unknown future needs. Colorado water law protects the first two today, but does not address reserved rights -- Should future reserved rights be included in basin-of-origin legislation?

19. Yesterday, Mayor Carpenter suggested that adopting a "basin-of-origin" bill before developing a state water plan is not good policy. What do you, as legislators, feel about this?

20. Is it possible for a basin of origin to preserve interstate Compact threats?

Oral questions for the Legislative Panel and their responses
transcribed from Convention recording

Q: The Colorado Water Congress this summer undertook a comprehensive attempt to come to grips with some of the issues associated with basin-of-origin legislation. Would the members of the panel address the Water Congress issue and specifically the issue of basin-of-origin legislation -- whether you anticipate a bill being introduced this coming session and what that bill if introduced might say.

A: DON AMENT -- At the end of last session I got involved in seeking a late bill to address a basin-of-origin bill after we had seen what had been brought before the Legislature. At that time, a number of the water buffaloes, the water users as we probably should call them, got together and tried to work through the stages of putting together a basin-of-origin bill that would accommodate the takings from these little communities and put together a reasonable way to transfer water within the State of Colorado both intrabasin and interbasin, because we knew it was going to happen. Ultimately, in my view, I didn't think we came to a sufficient enough agreement to bring forth a bill at that late time in the session, and thought we probably ought to go along with it.

I have to take my hat off to those people in the Water Congress and the water community who worked very diligently all summer -- West Slope, East Slope, municipal, agricultural -- those people worked very hard to come together on a way we could present a bill this time that had a lot of thought, a lot of compromise, and a reasonable chance to succeed. Right now I hold a bill title along those lines. I would have to tell you that, certainly at this point in time, we have made some agreements as to how you transfer water and how you mitigate the impacts on those communities. But I would have to say that we haven't gone very far. We started in an area where we're going to deal with the appropriated waters and the transfer of agricultural water to municipal use. But when we get to the area of unappropriated waters and how we're going to deal with those, it was a whole new issue.

We're able to deal with some of the issues of tax base loss, but we were unable to deal with the issues of sales tax base and extra-curricular, if you will, impacts of machinery dealers and farm implement dealers and farm ag-related business and how that impacts communities. Let me characterize it by saying again, as I said earlier, that what troubles me is when you bring these issues to a head and try to seek some agreements here, it seems to polarize the people of Colorado. Instead of pulling them together we separate them farther. I'll have to be frank with you -- at this point in time I wonder if this, in fact, is the way we really want to go. I think some might say, and with good reason, that our prior appropriation doctrine has served us well. We have been able to deal with these

issues up to now in a somewhat effective manner. The other side of that issue, though, is we're seeing a new political climate where people want to put these kinds of things on a ballot and bring an initiative forward. That worries me. The people who really have worked through all these issues and know the ins and outs and the facts, how well will they be able to say that to the voting public that votes more on emotions and, of course, are more moved by environmental concerns now that they are more aware. The thing that I want to point out, I guess, is that we have come to some agreements in basin-of-origin bills, but in my view we have barely scratched the surface.

Q: (Directed to Representative Reeser) What issues should be considered in basin-of-origin legislation?

A: JEANNIE REESER -- I'd like to think about that briefly, please, because there are a lot of things that have to be considered when you do basin-of-origin, and I know that I have been on the agricultural committee and we have had several pieces of legislation come before us. I would like to take time to think about that and maybe come back to that if possible. I don't know who asked that question, but if they would give me some time to think about that on how I would respond to what concerns we should have with basin-of-origin when we consider legislation.

Q: (Directed to panel). What types of water legislation are any of you planning to introduce in the upcoming session, do you anticipate being introduced, and what do you see as the issues surrounding that possible legislation?

A: TILMAN BISHOP -- I will be introducing a bill that is introduced each session authorizing projects that have been reviewed and recommended by the Colorado Water and Power Development Authority. The Conservation Board will have its annual bill introduced identifying projects that are amended, modified, or recommended new projects. There may be amendments made to Senate Bill 87 of last year. This legislation was a rather extensive piece of legislation changing the powers, duties, and authority of the Conservation Board would more than likely be a part of to the Board.

Then -- and this has been talked about -- when I made my comments earlier that doing business as usual is going to change because of Amendment 1. It means that we have to look for better ways -- more cost effective -- more efficient and better management of government. I'll be looking at legislation during this session that will propose to combine the Colorado Water and Power Development Authority and the Water Conservation Board into one unit. I know there are questions regarding the bonding authority and whether or not there is a conflict of interest of one body making a decision on whether a project should be built and also handling the bonding. There is a question of whether or not this authority can be given to the Conservation Board and the need for an arm's length distance from the State of Colorado as is created in the Water and Power Development Authority. These are some of the things that have to be looked at and ironed out.

These are three areas that I'll be working on. It's hard to judge what kind of legislation to anticipate with 24 new legislators and what they campaigned on. I doubt very seriously, although most of them probably put the importance of water in their campaign literature, that water was the highest in their priorities. More than likely it was education, taxes, taking care of the homeless, and dealing with social problems. So for us to try to guess what to anticipate would be like taking a shot in the dark and hoping we can hit something. We'll just have to wait and see what surfaces on a lot of these issues.

Q: Address the issue of the water salvage bill. There were a couple of questions on that -- whether it will come up again this year and what you see as happening there.

A: RUTH WRIGHT -- The basin-of-origin bill that the senator may or may not do again this year -- we tend to go with the pressures that are upon us. If people are very concerned that a constitutional amendment might be put on the ballot again, there may be an attempted preemptive strike to do something which may be more rational. On the basin-of-origin, of course, those of us who feel very strongly that there should be some protections are also bound by the constitution, where the right to divert the water shall never be denied. There is a very strong feeling, and I certainly agree with that, that we cannot restrict the transfer of water to the point where it's unconstitutional. Up until now, it has worked actually very well for us. I'll be interested to see what basin-of-origin bill comes up, if any.

I would assume that there will be another water salvage bill. I think this is another way of going. It in effect says if you truly salvage water you should be able to sell the right to the water you're not using. That may sound simple to do, but under our water law you cannot injure all other users including junior appropriators. So if by salvaging you have tightened up your ditches so that you no longer have the return flow to the stream that other water users have been using historically, you are in fact injuring them. It has to be done in such a way that it complies with the non-injury situation of our water rights. I thought the bill last year met those conditions, and I voted for it. I will be interested to see what comes up again this session.

DON AMENT -- As I pass this to the President of the Senate, I can't help but state that I have certainly been a part of that debate in the Senate Ag Committee numerous times. The problem is this, and I would like to explain this to you from my perspective on the South Platte River. I said earlier there is no wasted water in the State of Colorado, and I pointed to the fact that as we bring into our area a million acre-feet we effectively use it to the tune of two million acre-feet. The things that are going on are: first, the sooner we start using that water, and it's up in Senator Norton's District, the return flow goes back and we reuse it. We run it through canals and reservoir systems, and the return flow goes back and does a number of things. Among those things is keeping those little streams and creeks flowing. Wetlands -- something we hear a lot about -- wetlands are a result in the South Platte Valley because of irrigation; because

people put water to beneficial use, and the spinoff of that is creeks, draws and wetland areas, recharge of the underground aquifers, a whole number of things that people don't ever assess much importance to. They just accept it for its fact.

So, when we start, for instance, in the salvage situation and line canals out through that area, we would change the recharge pattern, the wetlands pattern, return flow patterns, beyond anyone's imagination. In my view, there is one water right, and that water right starts with that melting snow up in those high countries and goes to those people who have put that water to beneficial use. All the other spinoffs of that are secondary. The primary thing to me is the people that have started with that water and put it to use. So I think when we start to create another water right, if you will, within the State of Colorado that's contrary to the one in place, I think that is a mistake. It has been my view that we understand exactly what that prior appropriation law does and how you move water, how you obtain rights to the water, and we need to teach that lesson not only to the rest of our citizens within the State of Colorado, but to some extent the federal government. That's a role of educating people about how this system works, and I would tell you that I don't know all about it either. But I am saying that those who think a salvage water right is the answer to a lot of questions need to realize the impacts that a salvage water right can have on the rest of the State of Colorado.

TOM NORTON -- With regard to some of the issues on the legislative agenda, I might fill in a couple of the things that haven't been talked about. Amendment 1 will cause us some consternation with regard to the operation of water conservation in the water conservancy districts. Other local governments -- we will have to have some statutory changes with regard to those operations, so there will be some things that will affect the operation of water entities. The Water and Power Authority, again, will have to look at their method of operation in that light as well and how they spend money. Reserve accounts, such as the construction fund in the Water Conservation Board, are another area in which expenditures and how we implement that will be brought to the forefront. Those are fiscal and financial issues that no one else has talked about which will all affect how we operate in the future. I just want you to know that the way state government operates today is not the way it's going to operate after the legislature is done this year. Those fiscal matters are critically important.

One of the issues, even though it is more of a federal issue I think, still needs to be brought to the forefront -- the issue of federal reserved water rights and the municipalities along the Front Range that are presently dealing with the federal government with regard to the Forest Service federal reserved water rights. We did do last year not a bill, but a resolution, asking that those federal reserved water rights be left to the state constitution. Again, we have those issues still in the forefront. There probably will be some water quality issues in operation and NPDES permits and best management practices. Those areas I have heard some conversations about; I don't know about specific legislation at this point, but all

of those things will be in front of the legislature in the coming year.

TILMAN BISHOP -- I would like to make a brief response to some of Senator Ament's comments. It is quite evident that the agricultural community is here today as indicated by the applause to Senator Ament's remark; this is understandable. However, I think that not all basins are exactly the same. In some basins it might be appropriate for water salvage legislation to apply. I think that as long as you keep an open mind, and if we can find, for instance, that in the Colorado River Basin, the water salvage legislation is appropriate, we wouldn't be held hostage or stopped from being able to do what we think can be done without causing damage to the prior appropriation doctrine.

(Broad categories of questions are now put into a general question for response by the panel).

Q: There are a number of questions on the issue of leadership of the Legislature, and should the Legislature be out front in providing a leadership role in water issues or should it react to constituents. Also, there are a lot of questions about the issue of a strategic state water plan, water policy, however that might be defined. Also, a lot of questions about what your thoughts are on an intrastate compact between interests in the state that might be developed.

A: TILMAN BISHOP -- First of all, we have to recognize that Colorado's legislature is a citizens' legislature with most members depending on some other means to provide for themselves -- \$17,500 is just a couple of steps above poverty level, and almost qualifies us for food stamps. So, we have other outside employment, most of us, and I think that is the way you want it to be. When we start becoming professional legislators or politicians, you better hold onto your purse even moreso in light of Amendment 1.

Let me say that the legislature basically is a reactive body, unfortunately. We don't do very much proactively, and whether or not that can be turned around in light of some of the changes that took place during the last election, only time will tell. To get even a small part of government changed is very difficult. During the last session we tried to streamline part of the Department of Natural Resources. It becomes turf and personalities, and those people with personalities have influence within the grassroots of the State of Colorado. For us to make changes will not be the easiest thing to do.

It seems to me that as far as a water plan is concerned, this is no new proposal. This must be the third or fourth statewide water convention that I have attended where a statewide water plan is discussed. Not much has changed. We go away patting ourselves on the back saying, "Yea, we've got a direction. We're going to put together a water policy for the State of Colorado." You can do this in your own little groups as long as you're calling the shots. It's when you bring everyone together, put the issue on the table and try to make some determination, that you run into problems. As Senator Ament has alluded to on several occasions today, what we basically find

happening is that we are polarizing ourselves more than we are pulling ourselves together.

Once we get to a situation like we were in 1977 and like the drought situation in Southern California, where people are really pulling together and looking for every drop of water they can get -- there is no hesitating to beg, borrow, steal, or buy it -- that's when you can really get some issues resolved. Until then, it will be very difficult. We can talk about all these things, but there doesn't seem to be much that comes from a statewide water policy that is implemented. We're still piecemealing an awful lot in the State of Colorado.

TOM NORTON -- One of the items that you were talking about is, "Should the legislature provide leadership in this area?" I believe they should. I do not disagree with Senator Bishop's comments that the legislature is reactive and understand, even though as he said, that members have other jobs and try to make a living, I question whether that is really true anymore. The intent is certainly there, but the legislature does need to provide some leadership in the role of water and in the role of what legislation and how we should change that. It becomes difficult in bringing all of the various groups together, and I think a forum like this is a start. I hope the summary of what comes out of this meeting and the input from each of you is provided to all of the legislators so those interested can continue the input into the process.

One of the questions probably has more to do with my comments about Amendment 1 and asks, "Will you amend the district laws to make it possible to be certain that there are enterprises under Amendment 1?" Certainly in the legislative process it is sometimes questionable, but it would be our intent to make the definitions as clear as possible. There will be challenges; there is no question in my mind that that's what the courts are for, and we will go through those challenges in the courts as we try and define the enterprises under Amendment 1. But it is possible under that amendment for units of government to move in and out of the definition of enterprise. It will be local government's need to make sure that it is following that in developing standards within those definitions to be sure that can be accomplished.

JEANNIE REESER -- I'd like to just go back a little to the first question that was asked on the basin of origin. I'd like to respond to that just very briefly. I did make comments on basin-of-origin, and I want to make it clear that I believe the state needs to make a set of openly debated political/economic judgments as to how water should be allocated to future in-basin demands and how much water should remain available for appropriation on immediate demands in other parts of the state. Mitigation is one of those areas that I think needs to be considered and discussed, because one's loss is another's gain, and the economic ramifications could be taken into consideration in this matter on one person's loss of water. I think litigation has to be very clearly debated and how it is going to be addressed in the basin-of-origin legislation. I have not seen a bill as of today that I am in support of on basin-of-origin, so the debate is still open and I am willing to listen.

RUTH WRIGHT -- There was some comment about a state policy or water plan -- we have a state policy. The state policy is incorporated in the constitution and in the various laws and the case law that has come through that. It is essentially a marketplace philosophy that water flows uphill to where money is with certain mitigating aspects to it that you don't injure prior appropriators, even the junior appropriators, and incorporating groundwater, nontributary water and even minimum streamflow. That is our water policy. If you expect that there is somehow to be a master water plan for Colorado, this is simply not going to happen.

I was on the Water Quality Control Commission for six years, and the national act required us to do what was known as 208 plans. We didn't do the plans, but we approved the plans as a commission. The state was divided into a number of different 208 planning districts (208 is simply the section of the law). The best part of that was that the entities in that 208 planning area had to get together and communicate with each other. One of the best 208s, not because it was a good plan for water quality but because of the communication going on, was the 208 for the Denver Metro area, because it forced all of the municipalities in the area to say what their population projections were. Northglenn expected itself to grow to umpteen hundred thousands of people, and Thornton, etc., and you added it all up and you had eight times as many people as could possibly live in the Denver Metro area. So they had to cut it down so that in the construction grants for water treatment plants you had an actual, rational kind of population projection.

What about a type of 208 plan for the basins, where the people in the basins could get together and decide what they really want their water used for? Just as an example, in the metro area millions of dollars have been used for the greenway through Denver. That's based on having some water in that waterway, and yet knowing how the water rights system works, it could very well be all taken up above stream of Denver and not have the water flow through Denver. That is just a very minor example, but would it be possible for the basins to get together and decide what kind of water management they want so it is optimum for agriculture, municipalities, recreation, etc. I am throwing that out as a possibility.

Comments by Ken Salazar, Department of Natural Resources

Let me very briefly introduce some members of the Legislature who are here who may not have been here yesterday. I would like to have the members of the legislature who are out in the audience stand up: Lewis Entz, Bud Moellenberg, Tom Blickensderfer, Don Armstrong. Some of these members of the legislature are new, and I think it's important for all of you to know who they are: Ken Gordon, lawyer from Denver, elected to his first term in the House of Representatives; Representative Don Armstrong is also in his first term as a legislator from Brighton; Senator Pat Pascoe, representing Denver; Representative Bud Moellenberg, representing a good part of the Eastern Plains in the House; Senator Tom Blickensderfer, in his first year as a member of the Senate Ag Committee and representing

Arapahoe County; Senator Linda Powers from Gunnison, also newly elected and also serves on the Senate Ag Committee.

Thank you all very much for being here, and Senator Norton, who is new President of the Senate, is going to be a really key person in terms of all the issues that we work on.

One more thing before we adjourn: There are a lot of people who put a lot of time into this convention, but in particular I would like to point out Kathy Kanda and Jim Garcia. These people gave up a lot of their holidays to work on this convention.

1993 Colorado Water Convention

Basin-of-Origin Scoping Study

Basin-of-origin SCOPING ANALYSIS: CWRRI Review of Issues

Maureen Maxwell, Robert Ward, and Jud Harper

Section 12 in SB 87 (Colorado Water Conservation Board authorization) called for the CWCB to undertake, in consultation with CWRRI, a scoping analysis of the statewide consequences of the transfer of water resources from the basin-of-origin for use in another basin. CWCB, in performing the scoping analysis, is to determine, with public input, the extent of interest in and support for a subsequent thorough investigation.

The Colorado Water Resources Research Institute's (CWRRI) consultation took the form of a listing of the trends and concerns that the CWCB needs to consider in determining if a more thorough investigation is needed. The listing of trends and concerns was designed to facilitate public discussion and input to the CWCB as they decide whether to request a more thorough investigation.

"Scoping" was taken to mean determining boundaries on the issues to be considered when dealing with water transfers and the need to protect the basin-of-origin.

The report has two major parts: (1) A discussion of four trends that are adding pressure to basin-of-origin issues; and (2) a discussion of the basic principles, upon which Colorado's water management system is based, and their ability to incorporate the issues being raised by the trends. The evolving nature of Colorado's water law to meet changing needs of its citizens is recognized.

The four trends discussed are: (1) evolving values of Colorado citizens; (2) changing uses that reflect the evolving values; (3) increasing traditional uses to handle increasing population and economic activities; and (4) limits on the traditional means of meeting these new and increasing water needs.

Colorado's water management system consists of the fundamental principles of: (1) property rights; (2) jurisdiction of the water court; (3) injury; and (4) mitigation. Each of these principles is discussed in terms of attempting to incorporate the issues being raised by the above trends into the basic principles. This discussion, necessarily, raises many questions that may need more thorough investigation; however, the CWRRI consultation does not propose any solutions or limitations on the issues the CWCB needs to consider in its deliberations regarding a future investigation recommendation. The need for a widely available source of user friendly data, information and opinion on water issues became so overwhelmingly evident in the consultation that CWRRI does venture to highlight that need.

Written questions and comments on the CWRRI review of issues

1. Your "basin-of-origin" study seems to emphasize the need to make adjustments in order to serve new users -- essentially expanding urban populations and their need for water for domestic and industrial uses, and for recreation.

What about traditional users of water, such as ranchers in the high country and farmers on the Western Slope, miners, and the residents of rural headwaters counties: How does your study address their concerns? How does it address the concerns of the basin of origin?

2. Your report appears to have omitted concerns and issues of the water users and their needs in the Front Range. You mentioned, in your presentation, your assumption of the issues of various groups -- agricultural, etc.; but fail to mention Front Range municipal needs. Why? To what extent have you included these important needs and interests?

3. I appreciate your desire for better access to water data but I do not understand the correlation to a basin-or-origin scoping study?

Do you recommend a study?
What is the scope of the study?
How detailed is the study?
How long does the study take?
What are the products of the study?
Are alternative legislative proposals included?

Comment: A list of issues is not a scoping study.

4. Is there any prospect for getting mandatory recording and disclosure of prices on water transfers? Could this information be collected and distributed by the state?

5. Would it be possible for the state (or local water group of some form) to centralize a data bank and hydrologic system model which could be accepted and utilized to help resolve water rights and project development issues? Maybe a pilot effort should be tried.

6. You refer to the need for an "agreed-upon" source of unbiased water data. Given the contentiousness apparent in the water community, how do you propose to convince these disparate interests that one source is reliable and unbiased?

7. The issues of 1) expanding the basis for injury, 2) making water data publicly available, 3) taking public opinions all seem to run contrary to the notion of water rights as private property rights. Is there any real hope of addressing current water management issues without doing away with the prior appropriation doctrine?

8. If our water district pumps tributary water, we must have an augmentation plan in place. If water is used for rafting/fishing using stream flows (i.e., tributary water), shouldn't these "users" be required to have an augmentation plan, and how might the plan be structured to conserve Colorado's compact waters?

9. The draft report says that "releases of water that are significantly different than the natural seasonal flows of the river affect the river's aquatic and riparian communities." Isn't this effect a positive one -- sustaining flows during critical low-flow seasons?

10. Much of your report concerns expanding the "no injury" rule to include consideration of other impacts of water transfers (social, environmental). Is it really politically feasible to change Colorado water law to consider other impacts, besides injury to water rights, from water transfers?

11. How about a tax on water transfers (or even use) which would fund "public trust" uses?

12. Recently, the CWRRI (along with CU's Natural Resources Law Center) has come under attack as being a "bully pulpit" for the personal political view of academics. How have you guarded against that in developing your scoping study?

13. You appear to base your presentation on populist political assumptions of referendum or constitutional amendment process. Your fear-based tactics of a potential water amendment drives this study on a basis that is not factual and biases the results.

14. Amendment 1 and 8 were not water mandates. On what basis do you conclude that they were?

15. Your claim that agricultural uses should be preserved or protected as a form of public open space is without basis and doesn't appear to be directly related to the charge given the researchers by the legislators.

16. Your paper is good, well informed on issues but lacks case support and theoretical reference. Strongly suggest brief of major elements of CWRRI/MacDonnell study be included.

17. What methodology was used to identify the areas of concern? Was any public opinion polling done? How many sources were consulted?

1993 Colorado Water Convention

**Luncheon Panel: Area-of-Origin Protection -- Is There a Need
for Statutory Protection in Out-of-Basin Transfers?**

Moderator: Gale Norton, Colorado Attorney General

[A transcript of Gale Norton's remarks was not available for this report]

Panel members: Jo Evans, Evans Environmental Information Services
Rollie Fischer, Secretary-Engineer, Colorado River Water
Conservation District
David Robbins, Attorney for the Rio Grande Water
Conservation District
Harold Miskel, Colorado Springs Utilities Department
Bruce Bernard, Attorney for the City of Thornton

Jo Evans
Evans Environmental Information Services

In the last four legislative sessions the Colorado General Assembly has looked at eight basin-of-origin proposals. In 1989, two bills were offered. Former Representative McInnis introduced HB1326 which would have extended existing conservancy district requirements to other out of basin or district diverters. HB1315 by Representative Prinster suggested a comprehensive compensation package with a public interest review.

The following year, 1990, saw refinements and variations of these two approaches. HB1014 by Representative McInnis and Senator Bishop again looked at compensatory storage and HB1210 by Representative Prinster and Senator Pastore again suggested a compensation and mitigation package, this time without the public interest review and employing the joint review process.

In 1991, Representative Foster introduced HB1186, a non mitigation approach focusing on the diverter rather than the impacts on the originating basin. HB1190 by Representative Redder would have required a vote of the people affected in the area where dam construction would occur.

In 1992 Senator Cassidy and Representative Foster introduced SB44, the Water Supply Alternatives Act, again focusing on the proposed diverter. It would have made efficient end use a requisite to out-of-basin transfers and directed the applicants to evaluate reasonable alternatives to such transport. Senator Pastore brought forward a proposed constitutional amendment requiring a vote of the people in the basin losing the water.

The environmental community brought four of these proposals to the table. The concerns which prompted bringing these proposals forward are fairly easily identified. Obviously the biggest problem with out-of-basin transfers is the complete loss of return flow and resultant ecological and socioeconomic impacts. As a friend pointed out a few years ago, water does more than keep fish wet. It is the basic building block of the entire riparian ecosystem.

Less water in a stream changes the stream. Assimilative capacity is reduced. The flow is altered. The temperature may change. Sedimentation patterns alter. Water quality is affected. Fish and wildlife habitats are influenced. When the natural cycles are altered by diversions, the change in river habitat can be dramatic. The channels deepen and narrow. Sandbars critical to the nesting of cranes and plovers disappear. Cold water fisheries are affected as are migration routes and water fowl wintering habitats. We may see a loss of wetlands and wetmeadow habitat.

Out-of-basin transfers may have broad socioeconomic consequences as well. The quality and quantity of streams affect both recreational opportunities and a clearly dependent tourism. Fishing, hunting, rafting, canoeing, wildlife watching, hiking, camping, and skiing are integral economic resources to many communities. Agriculture may be deeply and deleteriously affected. Insufficient water flowing in ditches and laterals impedes delivery of irrigation water. Municipal dischargers may face prohibitively expensive treatment costs due to the reduction of assimilative capacity. Sometimes a community's ability to continue to defray general obligation bonds on schools and infrastructure is imperiled. Local economies suffer when water is removed. Quite simply, out-of-basin transfers have the potential to affect life style, economy, ecology, and the capacity for continued growth in the area-of-origin.

Enlightened state self interest suggests yet another reason we might want to look at basin-of-origin legislation, defense against out-of-state raids. Colorado requires out-of-state transfers to be credited to any compact requirements. In 1985 a proposed sale to California prompted the Colorado General Assembly to pass additional restrictions on out of state water transfers. There has been some question as to the constitutionality of the 1985 addition. Legislation conditioning interbasin transfers could provide protection from a constitutional challenge to the existing water export stature based on commerce clause restrictions.

While the United States Constitution grants to the Congress of the United States the ability to regulate interstate commerce, states may not unreasonably burden or discriminate against interstate commerce. One of the criteria by which the courts have evaluated state legislation with negative implications on the federal commerce clause is whether the statute discriminates against nonresidents.

In Sporhase v. Nebraska supra, the Supreme Court ruled that Nebraska's reciprocal embargo statute was facially discriminatory. Appellee had sought to enjoin appellants from transferring groundwater across the state border to Colorado, but the court noted specifically that "...Commerce Clause concerns are implicated by the fact that 46-613.0 (Nebraska statute) applies to interstate transfers but not to intrastate transfers."

Since it is clearly important to show that whatever standards, procedures, or restrictions a state seeks to impose on its neighbors are also applied within the state, legislation conditioning interbasin transfers could help Colorado to defend against out-of-state sales and transfers. If we wish to ensure that no out-of-state buyer of water could purchase Colorado water absent a showing that they have made full

and efficient use of their own water resources, it would be in Colorado's best interests to have such a requirement for intrastate transfers.

Colorado needs a process to begin to address at least some of the myriad issues raised by transfers out of the area-of-origin. Other states have done so, and it might be helpful to take a quick look at some states which have survived enactment of some type of basin-of-origin legislation.

All riparian states have an inherent protection, since the fundamental premise is that the water use is tied to ownership of the land through which the water flows. Many western states provide some form of statutory oversight on out-of-basin water transfers. The following list is not meant as an exhaustive review of other states' statutes, but rather as a brief overview of selected examples of methods adopted by other western states to deal with the problems created by the transfer of water from the basin where it originated.

Some states impose severe restrictions on out-of-basin transfers. Under Arizona law, irrigation districts and local water users' associations are given veto power over all water transfers. In Montana, only the state may transfer water out of the originating basin. Nebraska once flatly prohibited out-of-basin transfers. Since 1981 it has permitted out-of-basin transfers which pass a public interest review. The transfer must be in the interest of the entire state and a cost benefit analysis from a state perspective must be met or the transfer will be denied.

Some states either allocate a portion of the water for the exclusive use of the originating area or grant the users in the area-of-origin a permanent priority. California law sets aside a portion of state-held water for the county of origin. California also provides a right of recapture as a condition on certain water exports. Any time that the county of origin finds it economically necessary, they may, ostensibly, recapture water exported to another basin. A subsequent provision granted a permanent priority to users in the originating area to obtain water over the priority of existing exporters.

New Mexico acknowledges a "natural right" to a portion of the water in the headwaters to be reserved to the residents of the originating areas. Texas reserves water needed for a 50-year period to the area-of-origin by prohibiting the Texas Water Development Board from authorizing or funding any planned transbasin diversion "if the water supply involved ... will be required for the next ensuing 50 year period within the river basin-of-origin" (1965 Texas General Laws 588).

Oklahoma only permits water to be transported which is in excess of reasonably projected needs of the area-of-origin and directs the state to conduct a review of the area needs every five years.

So where do we go with all of this? Clearly many of our sister states have found it appropriate to enact some terms and conditions on interbasin transfers. There are economic, environmental, and social consequences inherent in such transfers. If we do not address these concerns, they are likely to continue to cause resistance to any large out-of-basin transfer. Stopping out-of-basin transfers is not the

answer, but we do need a process, a process to facilitate cooperation and ensure equity.

We need to be looking at a multiple-step process, and certainly not limited to structural alternatives which may be counterproductive or at least limiting in their benefits. Compensatory storage projects, for example, may be of very little value to the area-of-origin and extremely wasteful as well. We ought to be looking at a wider range of issues and not presume that what works for one situation will work in all situations. The process must ensure that all the cards are on the table. Speculation and suspicion simply fuel controversy and do little to further legitimate state interests.

The first step ought to be to carefully evaluate alternatives. Senator Cassidy's SB44 in 1992 and Representative Foster's HB1186 in 1991 made a great deal of sense as starting points. This approach required persons seeking to transport water from one river basin to another to first demonstrate that they have explored all reasonable, economically feasible alternatives to the proposed transport. The bill did not say that water could not be moved to another basin. It simply said that because of the economic and environmental consequences for the basin of origin caused by out-of-basin diversions, we should be cautious and judicious. The proposed transporters should be efficient in their water use and have a sound plan with realistic projections of need that integrate supply and demand. Such a proposal is well reasoned and equitable. If such a mandated truth-in-transfer provision were in place, a negotiated process based on mutual respect would be more likely.

Any state process must allow case-by-case analysis. The process should be flexible. People involved should have clear benefits accruing to them. Anyone who goes in to divert must enter into some process that leaves the basin whole.

The problems associated with out-of-basin water transfers are not going to simply vanish. Some have suggested that many of these issues may be resolved without legislation simply through increased mutual respect and a recognition of the validity of competing concerns. Perhaps. But I believe we need a statewide process both to ensure a level playing field and to address the broad ecological and socioeconomic concerns on a case-by-case basis. Such a process would require legislative action. Many other states have chosen to enact legislative remedies.

One thing is certain. We must seek cooperative problem resolution, as we are best served if we grow together, sacrificing no region's tomorrows for another region's today's.

KEN SALAZAR: There are a couple of members of the legislature that have joined us that I did not introduce this morning, and I would like to do that at this point of time. To my left is Senator Larry Trujillo, Senate minority leader. To my right, is the person who led the charge in getting 40,000 signatures, 10,000 short of getting a basin-of-origin constitutional amendment before the voters in November, Senator Bob

Pastore. Are there any members of the general assembly I didn't introduce this morning? Why don't all the members of the legislature stand up so we can see who they are? Stay standing for just a second: Representative Bob Shoemaker, Canon City; Senator Tom Blickensderfer, Arapahoe County; Representative Don Armstrong, Adams County; Senator Linda Powers from Gunnison; Senator Sam Cassidy, who is also a member of the Senate Agriculture Committee and is one of our speakers this afternoon, represents the Durango-Cortez area of southwest Colorado; Minority leader Representative Ruth Wright from Boulder; Senator Don Ament, farmer from the eastern plains; Senator Tilly Bishop from Grand Junction, who has been Chair of the Senate Agriculture Committee and now is the President Pro Tem of the Senate; Representative Lewis Entz, who is representative from the San Luis Valley; and Senator Pat Pascoe from Denver. Thank you all.

Rollie Fischer
Secretary-Engineer
Colorado River Water Conservation District

I appreciate very much the opportunity to address the Colorado Water Convention, and I want to offer special thanks to Hal Simpson and my colleague Eric Kuhn, who let this whole convention know that Rollie Fischer reconfigured the agenda so he could go skiing yesterday. And I did, and I invited both Ken and Hal Simpson to come ski with me, but they have both lived in Denver so long they are afraid to breathe air they can't see.

Basin-of-origin protection is very controversial. The Colorado River Water Conservation District and its fifteen directors have been in the middle of this question since 1937, and we intend to stay right in the middle of it. Gale referred to Green Mountain Reservoir and Ruedi Reservoir as part of that issue. These reservoirs were part of the early philosophy of settlement of this issue. We find that it is ever more emotional and ever more controversial.

This morning Senator Bishop said something which I personally applaud, and that is that in these discussions, the discussants have the very real responsibility to understand that Colorado has a water policy and it is called the appropriation doctrine. First in time and first in right. This does not mean that it cannot accommodate the issues that are before us, but the issues should be reduced in emotionalism and should be reduced in rhetoric. The discussants have a responsibility to understand the Appropriation Doctrine and to gain the institutional memory which is so much a part of Colorado water resources.

The River District has 23 written policies, four of which can be said to address basin-of-origin issues. I am speaking of the Colorado River only: the other river basins have other issues of basin-of-origin protection. Now certainly some river district directors have been very strong on the issues that involve the social impacts of out-of-basin deliveries. My remarks are limited to the resources question. We believe that so far as so-called basin-of-origin protection is concerned, the water resources that you can preserve you can protect and provide a

good basis for moving forward. Many folks think a conservancy district requires compensatory storage such as Ruedi and Green Mountain -- not true. The Conservancy District Act requires that the water resources not be reduced in availability nor increased in cost with an out-basin diversion. The River District has proceeded under this philosophy for a long time, and one of the most recent examples was the settlement the River District made with the Northern Colorado Water Conservancy District as a result of a law suit.

Second, an ongoing settlement with the City and County of Denver on a reservoir to be built in Grand County called Wolford Mountain: the Western Slope will get in effect 36,000 acre-feet of water without cost to the Western Slope. This is a landmark. Nevertheless, it has been done under the auspices of sharing a resource. It is time, we think, to reduce the rhetoric, reduce the emotionalism, and try to understand the water resources questions that involve the entire State of Colorado, recognizing that the Western Slope does not want to become a water colony and will probably resist with every ounce of its strength the metro Front Range. We know what's happened to the Owens Valley in California. We think there is plenty of opportunity to work together on this issue. We think that we have to recognize and honor decrees of the priority system and that can be done, as in the example with the River District, Northern Colorado, and the City and County of Denver.

We assume that the Conservancy District Act can be a very good example for the protection of the basins from which water is transferred. I would suggest that new legislation in this regard must be approached very thoughtfully, very carefully, from the standpoint that while the basins of origin should be protected for the benefit of the entire state -- especially in our view the protection of that part of the Western Slope which is the Yampa, the White, the main stem, and the Gunnison and pieces of the Big and Little Dolores -- nevertheless, this must be approached very carefully. I would venture that there are three people in this room who could accept and agree upon a definition of what is a basin. Is it West Divide Creek to be diverted to Plateau Creek? Is it the Yampa to the White? Or is it the Colorado River Basin to the Front Range? We don't know, and trying to figure a definition is going to be very difficult. That is only one of the first problems that will have to be addressed in an issue like this.

David Robbins
Attorney for the Rio Grande Water
Conservation District

Good afternoon, ladies and gentlemen. Panels are like organisms. There has to be some part that brings up the rear. As you hear often on the radio, "And now, the rest of the story."

I come to this session from two perspectives. I was one of ten participants in the Colorado Water Congress effort of the past several months trying to look at this issue. I guess it was an effort that was both fruitful and disappointing, but very clearly the panel, as Sara Duncan will describe, determined that you have to think about the issue

in two forms. One is the development of undeveloped, unappropriated, or new water resources from one area of the state to another. Secondly, you have to think about the problem of what to do with large changes of water rights, with existing water development -- that water development is now being changed in form, place and time of use. Sara will describe that effort in detail. I have also been involved, as Attorney General Norton alludes, in several lawsuits in which change in basin-of-use has played and is playing an important role.

I am convinced there are several important matters that are probably obvious, but I will state them anyway just to get them on the table. Up until about 30 years ago, give or take 10 or 15 years, the state was in a mode of developing water resources. Most water supply issues, outside of the Platte Basin and the upper portion of the Platte Basin, were looking at the appropriation of unappropriated water: who was going to get it and where it was going to be used. That was true both for water that was going to be used in the basin and out of basin. We were still in a mode of trying to get water to which we were entitled put to use. Today, with the exception of flows of the Colorado River Basin and flows on lower reaches of the South Platte Basin during parts of the year, the water supplies, at least those covered by interstate compact, are fully utilized. It creates a different situation.

Second, as I think you are all aware and I am painfully aware, our downstream neighbors surrounding us are incredibly sensitive to our every move with regard to our water resources. It has become apparent to them that if they do not watch Colorado carefully, there is an opportunity or a possibility or a suggestion that water that they believe they are entitled to may not flow to their benefit. I do not ascribe to that point of view, but they appear to hold it rather strongly. This is particularly true on the Arkansas, the Rio Grande, and the South Platte.

Third, the search for cheaper water supplies results in efforts to transfer water out of basin to higher-dollar higher-value uses. As I mentioned earlier, those supplies are not coming from surplus or unused water as they were in the historical past. They come from currently used resources, resources that are either used in the stream or out of the stream, but nonetheless used for productive economic purposes. When you move those supplies in large volume to new areas, you automatically create a host of economic, environmental and social problems. Remember, I am not speaking about surplus water here. I am speaking about supplies that are currently in use. I am convinced that the issue before us is no longer whether there is a need for some statutory guidance or protection. I think the need in the instance of moving currently used water is obvious: the need for guidance or protection. The question is, what form should that guidance or protection take.

Reliance on the relatively unregulated transfers of the past as a model for the future will serve no one's interest, in my judgement. Setting aside the issue of the availability of Colorado River water for the moment, let me just talk about the remaining basins. In those basins outside the Colorado, where there is arguably water that is currently available for some forms of use, every transfer has impacts. Many of those impacts are outside of those considered in current water court proceedings.

Those additional impacts need to be considered. If you don't consider them at the time of the transfer, I assure you, you will do so later. Your consideration, later, will take the form of state assistance to schools, to public assistance programs, and to health, safety, and welfare agencies which no longer have the financial capability to care for the citizens in those portions of the state from which the transfer arose. The state as a whole bears those burdens, not the entities who created the impact, and that is what we need to address. It seems to me that those impacts ought to be a part of the cost of the transaction. We should not allow those entities wishing to purchase currently used water to suggest that somehow those impacts ought to be born generally by the tax base as a whole. They ought to be considered part of the cost of doing that business.

The question isn't "Are we going to pay?" The question is "Just who is going to pay?"

Let me digress a moment. I am not necessarily advocating the inclusion of these secondary issues in the water court proceedings. That forum needs to remain a court of special jurisdiction. It is not a social agency. Its judges are not picked nor empowered to wrestle with social and political issues. If we do not deal with it statutorily, they inevitably will, because there is broad language in the statutes about impact, and eventually capable counsel will convince judges to deal with those impacts whether we want them to or not. We need to provide some standards and we need to provide a mechanism.

I have a reason for suggesting that the water court should not become a court in which all social, economic, and environmental issues associated with water resource decisions are considered, and that is because I believe that the McCarran amendment was a limited grant of jurisdiction by the United States Congress over the interest of the United States in water resource matters. We have to keep that in mind as we search for a mechanism. I am not sure the Congress thought it was turning over the United States' interests to a court that could adjudicate anything that might arise in the area of water resource management questions.

A statute eventually needs to be crafted, in my opinion. I am not sure that this is the year. In fact, I do not think it is. As Jo mentioned, how are we going to wrestle with Amendment One and at the same time wrestle with a proposed statute that has all of the thorny problems of area or basin of origin? There are definitely costs associated with any statute like that. I certainly think it would be folly for us to try to solve all the cost issues, all the political issues, all the various interest issues at the same time the legislature has the terrible burden of trying to decide how to apply Amendment One.

Eventually, we need to craft a statute, one that looks at the actual social, economic, and environmental consequences of the transfer. It cannot be a statute that amounts to tacit prohibition on transfers. There must remain the right of willing sellers to sell their water, to dispose of their real property, but as with all sales of real property, the interests of the public must be considered. The Water Congress drafting committee sought to wrestle with these problems. It created a start. Sara will describe it later, but in her discussion you will see

the number of issues and diverging interests that come up is amazing. In order to successfully complete the process, we have to produce a plan that allows transfers but does not result in a shift to the basin inhabitants of the adverse economic, social and environmental consequences. That must be considered a part of the transaction, as I said.

Finally, I want to comment that schemes that result in impacts that are passed on to our neighboring states have to be avoided. It is currently fashionable in some areas of the water community to discuss selling unused portions of water rights, or lining canals and selling the savings, and similar types of programs. Let me caution that in those basins that are currently appropriated to or near the compact limit, you will create nothing but ill will and litigation with your neighbors if you attempt to use those sorts of schemes. They are not unsophisticated people. Without monumental engineering efforts, you will present our state with more opportunity for litigation and striving, and I am not sure it is worth the gamble. Any plan, statute, or program that looks at area or basin-of-origin protection must also look at the interstate consequences of the proposed transfer that would be sanctioned by the statute in terms of the affected compact. We really could do no less in that regard.

I want to comment briefly - -- Bruce raised the San Luis Valley protection act. I wasn't going to talk about it, but I do want to provide a brief rebuttal. First, it is not a basin-of-origin bill. It is simply a statement of how government should work. What it says is that no permits from the federal government can be issued if groundwater withdrawals harm several specifically identified federal interests. As citizens of the United States, we certainly hope the government would do that anyway. It does not impact any transfer of water that does not relate to groundwater, nor does it impact any transfer out of the San Luis Valley that does not affect those specified interests. That is not basin-of-origin protection. That is simply avoidance of costly litigation. To a water developer who wished to ignore or mischaracterize the impacts of a proposed project and leave those impacts to others to bear or to mitigate, it may look and act like basin-of-origin legislation, but if you look at it closely or if you intend none of those impacts to occur, you will find that it is not.

Remember what the goal should be here: to permit the development and use of the state's water resources for the good of the state and its citizens while reducing costs to the citizens: the litigation costs, the social, economic and environmental costs. I do not see how we can do that without at some point developing some standards by which the game is played.

Thank you.

Harold Miskel
Colorado Springs Utilities Department

I bring you greetings from Colorado Springs, home of Amendments 1 and 2. And for all of you government officials out there, Doug Bruce

sends his regards. And just a reminder that he is watching you. Also a message from Focus on the Family asking you to boycott the boycott. And incidentally, for those of you who haven't heard, there is a new organization that has now been started in response to Amendment 2 and Focus on the Family. It is called Focus on Your Own Damn Family.

Seriously, I'd like to express my compliments to Ken Salazar and to his staff for putting this convention together. I think they have done an excellent job, given us all a great opportunity to refresh our memories and to remember that it is hard to be nostalgic when you can't remember anything. So we all need to refresh our memories from time to time. I'd like to compliment all of you out there for coming to this convention. I must admit I was a little surprised to see how successful the turnout was to discuss the topic that is always dear to us -- Colorado water issues -- a topic that can be very contentious, very frustrating and very polarizing. But the reason we are here is because this is a topic that is very important to us, whatever else it may be, and we're all here interested in trying to find some solution. So I commend you all for taking the time to be here.

The question before this particular panel today is, "Is there a need for statutory protection in out-of-basin transfers?" I submit to you that there is already an implication in the program, as well as probably within this group, that the current laws and regulations that we have do not afford adequate protection for the basins-of-origin. I'm not convinced that's true. I'm not sure that we need new legislation, at least not at this time. Now this is a change of position for me. Many of you know that previously I've been an advocate for basin-of-origin legislation. In fact, I've worked very hard over the last three years or so trying to bring a lot of people together to reach some a consensus that we could turn into legislation and carry forth to some legislative resolution.

I chaired a committee of about 15 persons for a period of about 15 months and held numerous meetings with representatives from both the East and West Slopes with the intent to do this. I also chaired a group about a year later of just Front Range interests who all came together to see if those of us on just one side of the Divide could agree on all the issues and concerns before us. We have actively supported the effort carried on by the Colorado Water Congress for the last few months. We haven't been totally successful. I have worked with members of the legislature; you can ask Senator Ament, Senator Bishop or now Congressman McInnis about my involvement in the process. So I know a lot about it, and it's close to me. And I can tell you that it is a very difficult topic for us deal with.

All this has caused me to rethink where we're headed and what we're doing. And one of the things I've seen was whenever the groups get together and they begin to talk about basin of origin, there is one contentious issue that always comes up: 1041 Land use regulations. It has been very polarizing and very divisive. I think it would be to our advantage to try to find some way to relieve local governments of the responsibility, indeed the burden, (laughter) of having to make decisions on matters of state interest under the guise of local land use regulations. Think about that for a minute. Now listen, I'm serious, think about that for a minute. I believe it is unfair -- now, Rollie,

you quit laughing -- Owens Valley -- you guys have so much water under decrees over there already no one could ever dry up that side of it -- if you could just go build something, you'd be alright. Well listen, I hope you make it, I really do, I hope you make it. As I was about to say, I believe these land use regulations, like 1041, are not only unfair to the project proponents, but they are unfair to the local governments.

Let me give a little background on the Homestake experience, just to illustrate what I'm talking about. We got all of our federal permits. We got all our state permits. We went into Eagle County and applied for local land use permits. We went through the whole process, which was long, cumbersome, expensive, and got down to the very end and they denied our permits. Why? Because it was a very political setting. You had local officials who had campaigned and been elected on the issue or on the platform, at least in part, of stopping this water project. They had to be responsive to their constituents locally. What were they going to do? Commit political suicide and issue a permit? You can't expect them to do that. They were between a rock and a hard place. They could either commit political suicide or they could engage in long, extensive and expensive litigation with two cities. So now we're in litigation.

And what has been achieved? Not much. We made some people happy. I won't pick on the attorneys today, I promise. But let me also point out to you that we have gotten a decision in that case. Now I admit that it's already at the Eagle County District Court, and we still have two more layers of court to go through, but I still think this decision is pretty significant simply because it came out of the Eagle County District Court. That decision in Eagle County said that the county acted outside its authority granted under the 1041 law, that they were arbitrary and capricious in the way they applied that law to us, and that they violated our right to due process. And the court ordered them to issue the permits for the project using the mitigation standard already set forth in the federal litigation, or excuse me, the federal permits. Obviously it's under appeal. But I point that out to you, because it indicates to me and should indicate to you, how something like land use regulations can get in the way and be misused, misinterpreted, and stop what we're all here for today.

You heard what the Governor said yesterday, and I don't think anybody really disagrees with that. The reason we're here is to try to find ways to assure that we have adequate water supplies for all our needs in the future throughout the state. And in the process of doing that, let's also try to find out how we can best address economic and environmental issues. I submit to you that 1041, which I consider tantamount to most of the basin-of-origin legislation I've seen in recent years, is not the way to solve the problem.

We've heard a lot of talk also about success stories. Wolford Project, Thornton's project, even the Metropolitan Water District of Southern California seems to know how to go out and cooperate with agricultural areas and entities in achieving solutions that are mutually beneficial. And believe it or not, we've had a few successes.

I'd like to set the record straight very quickly on. There was a reference made this morning to the Arkansas River Valley. The City of Colorado Springs went to the Arkansas River Valley and acquired a lot of

agricultural water from one person who owned all this land and water. And we didn't want the land, so he kept it. Other farmers in the area were really concerned about how the land was going to be left, so we all got together and agreed that the person who was going to continue to be the land owner would take care of revegetation of the land. We agreed to lease him back all of the water we had just purchased for a short period of several years, at a very minimal cost, so that it would be feasible for him to enter into a revegetation program. He didn't do it. He failed. The other farmers in the area were very dissatisfied. They sued him and of course they sued us, even though we thought we were out of the picture. That's all been resolved, and once again we've said, "You get together and figure what you need; we'll furnish the water." We've committed in excess of 20,000 acre-feet of water at no cost to be put on the land down there to try to get some revegetation established in that area. We're also funding a pilot project study, sponsored by the Soil Conservation Service and others, to try to figure out the best way to do these things.

The work that the City of Aurora is doing there, which Tom Griswold told you about yesterday, is precedent-setting. They are investing a lot of money. We all are working with them, trying to find the best way to do this, and you know, Tom told us there are problems. You just don't go back into an area that was once the great American Desert, as expressed by our former Senator that represented that area, the Honorable Harold McCormick, and try to get things to grow again but limit the water supply. But we're working on it. I think we'll get there.

Let me say this: I am encouraged by the success stories that I have heard here, and I'm a little discouraged with the past three years experience I've had in trying to deal with this contentious issue. I think one of the things we ought to do at this time is not get in a big hurry about enacting legislation to protect the basin of origin. I think Mayor Carpenter said it very well when she said it is unnecessary and it would inhibit creative solutions. I think we need to focus more on the business that's been going on with the River District, Denver, Northern and Thornton, and yes, even Colorado Springs and Aurora, and see if we can continue on that track, to be a little more cooperative, to work a little more together, to be a little more sensitive to one another's needs, and do it in a positive way. One of the things we have to understand is that the people involved in these processes are going to have to come to the table with that kind of a positive attitude. Keep in mind the overall objective that we're all after and that is to develop those compact entitlements to secure the future of our state in the best way that we can.

Now, I was really pleased when I was invited to come to this meeting and I discovered that meeting here at the same time was the Rocky Mountain Chapter of the Prognosticators and Fortunetellers of America. I thought that we could simply go and sit in on one of their meetings and we could find out whether or not we can be successful. What does the future hold for us? So I checked at the desk a little while ago to see what room they were meeting in so that we could go, and they told me their meeting had been canceled due to unforeseen circumstances.

Once again, I'd like to give kudos to the Department of Natural Resources and its staff. I also want to specifically mention that I

think there are a lot of organizations that are working on this problem that ought to be recognized for their efforts. A couple of them are the Colorado River Headwaters Forum -- I know that some of you are kind of disbelieving, but I think that is an excellent effort that shows a desire to cooperate -- and don't forget, of course the Colorado Water Congress. I promised Dick McRavey I'd mention him. He is going to have his annual convention later this month. Please come to this meeting. Thank you very much for your time.

Bruce Bernard
Attorney for the City of Thornton

I guess we all are products of our experiences, and my recent experience the last five or six years has been from the perspective of an attorney representing clients trying to carry forward with large projects, most recently Thornton's northern project on the Poudre. My experience, however, has not been limited to representing project proponents. I was mentioning to Rollie here at lunch that actually my first job out of law school was with the Environmental Defense Fund, a one-year fellowship with that organization, and my very first task was to try to kill the Juniper Project by defeating the application that was under consideration at that time.

The issue we have been asked to address is whether there is a need for statutory basin-of-origin protection. I think maybe a useful beginning for us in looking at this question is to look at what the record has been in major water transfers over the last ten years or so. Everybody is familiar with the Two Forks story. After years in the federal permitting process and the expenditure of well over \$40 million, the project is in all likelihood dead at this point, although the EPA veto is being challenged by several providers in the court.

Next, we can talk about the Homestake II project. I'll just briefly mention this one -- Harold may want to go into a little more detail. This is a project from the City of Colorado Springs and the City of Aurora. They've been in the process of trying to obtain necessary permits for that project for a decade at this point. They were forced to litigate both the issuance of federal permits, which are necessary for the project, as well the Eagle County denial of the local 1041 permit.

We have heard some mention over the last day or so of the Arapahoe County's Union Park project. The primary proponents have been seeking a water court decree for something on the order of eight years and Governor Romer told us yesterday, I believe, that \$15 million has been spent on that project.

Last year the Water Court in Division 4 ruled that most of the water Arapahoe County was seeking to appropriate was not available because it had been previously appropriated due to the existence of paper conditional water rights which are on the books. And that ruling effectively killed that project, which is now on appeal to the Supreme Court.

We have heard some mention of the AWDI project. This was a project to develop newly developed groundwater from the San Luis Valley and export it to the Front Range high areas of demand. The Water Court in Division 3 last year denied that application and awarded costs and fees to opponents of the application of \$2.7 million, and again, according to the Governor, a total of \$30 million was spent on that project. That ruling is also on appeal to the Colorado Supreme Court at this point.

Since that ruling was issued last year, the U.S. Congress has passed what I would characterize as federal basin-of-origin legislation affecting the San Luis Valley, with the Department of Interior having a veto over potential water projects to export water from the San Luis Valley.

Finally, there has been some mention of the Colorado Interstate Gas Fort Lyon proposal. That project at this point has not gotten off the ground because there are not sufficient farmers who are willing to sell at the price being offered.

What conclusions do we draw from this record with respect to major water projects over the last ten years or so? I think it is fair to conclude that not very many major projects are meeting with any great rate of success. I think at a minimum projects are becoming extremely expensive, and the process is very litigious and time-consuming for proponents as well as opponents of the projects. I would submit that, rather than talking about legislation to protect basins of origin at this point, if we're talking about legislation, it ought to be legislation that would somehow streamline the process of water court adjudication and the permitting process that is necessary to move forward with projects. I think any initiative along this line should be aimed at reducing cost, streamlining the process, making it all more cost effective, and giving more certainty to the process, for farmers that aren't looking to sell water rights, cities and other water providers that are interested in purchasing water rights or otherwise providing water to their customers, and for project proponents. I think everybody would agree that what we really don't need is a legislative mandated requirement or standard about which we can all litigate over the next ten years. I believe, further, that what we do not need is another set of hoops that project proponents have to jump through to provide yet another manner of killing or delaying water projects.

Let me quickly summarize the hurdles that are currently in place that a water project must clear. First, you have either the purchase of existing water rights or the initiating of water appropriation. It's this first hurdle that the CIG proposal has so far fallen short on -- they haven't found a sufficient number of buyers to make their project feasible.

The second hurdle that closely follows is the water court process itself, obtaining a decree for a sufficient amount of water that you can economically proceed with the project. If you're dealing with a change of agricultural water rights, the key issue there is non-injury to other users. That now includes the revegetation requirement at the discretion of the court. If you're dealing with a new appropriation, there are a couple of key requirements: one is that you have to show that unappropriated water is available. This may or may not consider the

existing conditional water rights. Another issue is showing that the project is non-speculative, that the water can and will be put to beneficial use. The standard is "can and will" that we've all heard a lot about, and it is not much of a standard, but it apparently provides an almost endless set of arguments for opponents trying to stand in the way of projects. You get into inquiries such as the financial capability of the project, whether the project can obtain necessary land use and environmental permits, whether it's feasible for the applicant to obtain necessary land and facilities for the project, and again the Arapahoe County and AWDI projects fell short here in the water court adjudication process.

Now if you're able to get that far, and can obtain a decree for some of these older projects such as Two Forks or Homestake II, then you get into the permitting side of thing. We'll talk about federal permitting first. I think this is probably the most formidable barrier. Typically you're talking about a 404 permit, and perhaps federal special use authorization may be required. This is going to trigger a need for compliance with Section 7 of the Endangered Species Act. The Two Forks faltered at this point. Homestake has been delayed over this, the issue of the permits in dispute. Next, and these don't go in any particular order with respect to the permitting, but you do have state permitting to think about. Typically, here you've got 401 certification, perhaps the 403 permit if some discharge is involved. Then you've also got local permitting, and the key or primary obstacle there is 1041 permitting. Again, Harold may want to speak to that with respect to Homestake II, and that's the issue that has delayed that project at this point.

In some areas of the state, there may be additional barriers. I mentioned what I characterized as federal basin-of-origin legislation, San Luis Valley. Rollie mentioned if you are removing water from the West Slope, you have to deal with that portion of the Conservancy Act. And then if you accomplish all of this and you have any money left at this point, you actually get to build the project and perhaps take some land out of irrigated agriculture. And on top of all this we're talking about possibly adding state basin-of-origin legislation.

I would conclude that while no such legislation is necessary, if anybody is going to pursue such legislation there are several key considerations the state needs to be looking at. First and foremost, any legislation ought to simplify the process and make it more cost-effective and add certainty for all the parties involved. Secondly, I suggest a very careful look at whether the legislatively mandated solution to these sets of issues really makes more sense and is preferable to the transactional solutions that are now being fashioned with some success around the state.

Then you have the issue that Rollie mentioned of how you are going to define basins. Are you going to stick with the major water divisions, major drainages of the state, or are you going to try to break it down further into sub-basins? Try to protect against, for instance, the South Park transfers, transfers out of the Arkansas, transfers out of the Poudre? Finally, I think you have to look at whether you are making some a restrictive solution to keep a certain amount of water in certain basins within the state. How is that allocation going to affect the

basins that have current demand for water? How is it going to interface with the Colorado Water Conservation Board's instream flow program? How is that allocation going to affect Colorado's ability to perfect its compact water?

It seems to me the General Assembly is probably not the forum to be hashing out these very difficult issues. And I think the General Assembly last year with Senate Bill 87 perhaps recognized that and authorized the scoping study. We heard something this morning about all the issues that have already been identified as part of that study. I was involved with the Water Congress effort to look at basin-of-origin issues to see if there was some possibility of moving forward with the legislation. Sara Duncan will be speaking to that this afternoon. But I think that process helped all of us understand how very difficult these issues are, and that they are probably issues that are not ripe at this point for the General Assembly to deal with. It seems to me that if the State wants to be looking for a leadership role at this point, one of the greatest immediate contributions it could make would be opposing any basin-of-origin legislation at this point, and ensuring that all of these issues will get the careful attention they deserve before legislation. Thank you.

Panel: Alternative Legislative Proposals

Moderator: Chuck Lile, Colorado Water Conservation Board Director
[A transcript of Chuck Lile's remarks was not available for this report.]

Panel Members: Colorado Senator Bob Pastore, Monte Vista
Colorado Senator Sam Cassidy, Pagosa Springs
Larry MacDonnell, Director, Natural Resources Law Center
Sara Duncan, Denver Water Board

Constitutional Changes

Senator Bob Pastore

I want to thank you, Chuck, and Ken for inviting me here today. I am truly honored to speak to such a distinguished group. It truly is exciting to me that groups like this are beginning to form and talk about this subject of interbasin transfers and looking into what is a basin when we talk about interbasin transfers.

One of the reasons I wasn't here yesterday is that I had to go with some of my constituents in the San Luis Valley to look at their fences. The ranchers are losing their fences to literally hundreds and thousands of elk. I didn't think that I would see something that reminded me why I'm working on what I'm working on -- the thing called the WATER amendment -- giving the vote to a group of people to determine whether water is moved rather than giving it to one judge backed up by four members of a Supreme Court. When I went out on the edge of the farmed area in Costilla County near Blanca and Fort Garland, there was a point at which the field stopped and the barbed wire fences demark the cattle and fields of alfalfa and other crops that the cattle eat and merely some kind of sagebrush. We call it chicobrush; some people call it rabbitbrush. The elk down there are hiding out during the day where there is really not much for them to eat, and in the evening they're jumping the fences, destroying them and pulling up brand new alfalfa and wreaking havoc for small and large ranchers and farmers in that area.

Right there, at that demarcation, at that last fence before the prairie starts, is where it hit me -- why I am doing what I'm doing; why I'm here today; and why I worked the entire year last year on the water amendment unsuccessfully. There is a giant difference between this side of the fence where there are ton bales getting ready to be shipped all over the country, where there are hundreds and hundreds of cattle off to the side, a real economy right there. And right across that fence where the chicobrush starts, where the rabbitbrush starts, and where the elk hide in the daytime, there isn't much of an economy at all. That's what it's all about. Does it matter whether it is unappropriated water? Does it matter whether it belongs to some group of farmers? If it is moved from that area -- up over the tops of the mountains, over Whiskey Pass, over La Veta Pass, whatever, into a coal slurry line perhaps, as was the plan in 1981-82 by San Marcos Company -- does it really matter whether it's unappropriated water, whether it's owned? If it's gone, it's gone. If it's not being used anymore to create that economy, which is essential to the State of Colorado, does it really matter?

Another event that happened to me yesterday is that I selected my treasurer for the 1994 water attempt. So let there be no mistake by

anyone here in this room: I am going to do it again. I am asking you to come to me and help me frame something for 1994 that isn't necessarily what you want, but something that is more palatable and correct. Look at Amendment 1, for example. It finally passed. Douglas Bruce and all of his army of people finally passed it. And how many people can honestly say they read the text of Amendment 1 before the election? What I am offering everyone is a chance to come forward and shape what I am going to do. I am promising you that I am going to do it again, because I picked my treasurer yesterday and we're putting our first \$5,000 in the bank within a few days. I will remind you that in 1992 I started with a goose egg. I started with \$0. I also promise you that I will not begin again in 1994 on the water amendment until I have \$100,000 in the bank account. It is going to be a different ball game altogether. It may not be successful in 1994, 1996, 1998, or the year 2000; but eventually the will of at least 70 percent of the people of this state will be expressed in a constitutional amendment.

Going back to Amendment 1, it was the will of the people of the state, a great majority, that taxes get under control and that growth of government be limited. The problem again is that what came out, because none of us read it, was something we now have to live with, and we're probably going to have to change. It went too far. I want to avoid that. I believe very sincerely that we must do something about basin protection. And I have defined basin, in my constitutional amendment that I attempted, very carefully as the whole basin of every river that has an interstate compact controlling it. I would stick with that same definition of basin.

I am toying with the idea of dropping conservancy districts, so those of you from conservancy districts might breathe a little sigh of relief, and I may just go with conservation districts. For a little education for those who don't know, there are only three right now in the state. There is one that has five of the six counties of the San Luis Valley, everything except Costilla County. There is one in the southwestern part of the state, and then the whole rest of the Western Slope. That doesn't mean there can't be more in the future. I am toying with the idea, if it is feasible for an election, of limiting it in the vote -- those that would vote before a transfer of water could take place out of that particular basin -- as I have defined it, property owners. It may not be very practical, it may be very difficult, but I ran into arguments everywhere I went: "I don't want the welfare recipient deciding anything about my use of my water." I happen to think that the welfare recipient goes out and goes fishing and appreciates the water just as much as anyone else, but maybe politically that isn't feasible and I am willing to at least explore the idea of limiting the scope of those who vote.

We have talked all morning long and during lunch on the panel about who is going to make the decisions. Sometimes there are things that just can't be done in the legislature because they're too big for the legislature to handle. The legislature never would have come up, I don't think, with a meaningful approach to controlling growth of government and taxes like we got in Amendment 1. That had to come from the people. It had to come from a petition drive and be done by the whole voting populace in November. I think that taking the bull by the horns and saving this state from itself and looking into the future and trying to

do something to keep our farms and ranches from disappearing, and trying to do something to keep this particular metropolis here from becoming a megalopolis of 5-7 million, if we don't do something like what I am proposing, or there are many other proposals, it will do no good to get into the future when we've done it. When we have destroyed our agricultural economy and packed too many people in this Front Range, and created a smoggy, congested, infested area, I don't want to be one of the people who looks back and says, "Why didn't we think of this earlier? Why didn't we do something? Why did we let our water go down a coal slurry line to Houston, go over Poncha Pass and Marshall Pass into the Colorado River, from the San Luis Valley into the San Diego water system or into the water system of Las Vegas or Lofton or any of the other growing, burgeoning cities of the southwest? Why didn't we do something?"

I don't want to be one of the people who said, "I sat there and didn't think of it. I didn't look into the future. I didn't care about our beautiful state."

After Sporhase
Senator Sam Cassidy

I want to open today by sharing with you one of my favorite riddles about lawyers. You have to guess the answer to this. There is an expensive water lawyer and there is a cheap water lawyer. You put them both in the same room with a \$100 bill on the table, and the question is: "Who gets the \$100 bill -- the expensive water lawyer or the cheap water lawyer?" None of you know? You're going to solve basin-of-origin problems and you can't figure this one out? The answer is that the expensive water lawyer gets the \$100 bill. The other one is a figment of your imagination.

I have to share this true story with you, too. There was a French entomologist, and he had just completed a study of a creature that I had never heard of until I read this. It's called a procession caterpillar. It reminds me of the way we make policy sometimes in the State of Colorado. In his study he took the procession caterpillars and put them on a clay vase. They lined the top rim of the vase. A procession caterpillar follows the caterpillar's tail immediately in front, relentlessly, no matter what happens. He lined the caterpillars up all the way around this vase and started them marching. They marched around and around this rim. Just an inch below the rim he put food and water. The caterpillars followed one another for seven days and then died, never diverting from their path to take a drink of water or eat some food.

I have seen that happen in the Colorado legislature. I dare to say in each of your own organizations you may have noticed the tendency. But we're going to have to take a more creative approach when we look at basin-of-origin legislation, proposals and concepts. We are going to have to think outside the box for a change. I don't think that it will be enough, as we go into the future, to say when we look at a proposal, "Oh, not this proposal," or when we look at a proposal to say, "Not today. Let's think about it tomorrow." I think instead we're going to

have to start finishing the question. If not this proposal, what? If not today, when?

I brought a proposal to the legislature last year, and I'm not here to tell you that it's the answer to all our problems, but it puts the subject on the table. What I invited then and will again this year is for all of us, those of us who care about the future of the State of Colorado, those of us who care about the proper allocation of this precious resource of water, to participate in that conversation and to solve the problem by bringing forth a proposal today which will be more advantageous than the way we have approached it in the past.

I have listened to some of the conference today, and I have heard that there is no need for legislation, that this is not an area that the General Assembly should even be involved in. Those same people advocated market control of this precious resource. Now let's stop for a moment and think about what they're saying. They're saying that we don't need laws, that we don't need third parties, that it is more than adequate for the owner of the water resource, the seller, to sit down at a table with the buyer, the purchaser of that water resource. The two of them then come up with a solution that not only satisfies their own needs but magnanimously protects this precious resource for this entire community in the State of Colorado.

I think perhaps we need someone else at the table. I think that there are other people that are affected by that water transaction. You know, you only have to drive through Park County -- a few years ago and then again today -- to see that the complexion of Park County has changed. There is no hay or alfalfa grown there now. Livestock grazing is very minimal. You only have to drive through communities that used to be thriving and see them today -- communities like Rocky Ford, La Junta, Fowler, Manzanola -- to see that something has happened there. Something has changed the way those communities operate. The substructure of their economy is changing, and it has not only affected the people who bought the water; it has not only affected the people who sold the water; it is affecting the people who wanted to stay and be part of those communities.

I recently saw an article that was printed in the *Pueblo Chieftain*, and I want to share just a few paragraphs of it with you because it compared two communities: one community that has water and one community that doesn't have water. It is talking about two counties in the very southeast corner of the state -- Prowers and Kiowa counties. The counties are amazingly similar, and the article says this is a concrete example of the importance of water to these communities. Two counties, roughly the same in area and in the same stretch of plain and prairie, both have railroad lines, both have federal highways that lattice their areas. They are identical in all areas except water availability. But look at how that plays out. Look at the differences:

- Population: Prowers, 13,347; Kiowa, 1,688, according to the 1990 census.
- Farm income: Prowers, \$144 million; Kiowa, \$21 million, according to the 1987 Census of Agriculture.
- Irrigated farms: Prowers, 287 farms, 104,000 acres; Kiowa, 16 farms, 3,122 acres.

- Retail trade: Prowers has 20 times more than Kiowa.
- Jobs: Prowers, more than 5,000; Kiowa, less than 1,000.

All because of water, according to this article. I think, if we're going to be fair about it, we will all agree that water is a very basic element to every community in the State of Colorado. Agriculture itself is important. And it's not just important to the people that I'm supposed to represent down in the southwest corner of the state. It's important to the urban areas, but sometimes we don't notice it because it's not right in front of our noses.

In 1987 agriculture statistics for the State of Colorado, agriculture contributed \$3.9 billion to labor and proprietor income, \$26.9 billion in sales, and 231,000 jobs for the State of Colorado -- an agricultural industry that is absolutely dependent on water.

Let me quickly tell you about the proposal that I brought to the Legislature to stimulate conversation in this area. It's really quite simple. It takes the state and divides it up into four regions: the Western Slope comprises one region and the balance of the state is divided into three others. The bill, if it were to become law, would simply say that you cannot take water from any one of those regions and transfer it outside the region without first demonstrating that you have looked at alternative supply sources. That's all the bill says. It measured about ten on the Richter Scale. I'm not sure what the problem is, but I'll tell you what one of the advantages is. We talked about the Spohr decision. It really troubles me. I am not among those who are willing to rely on the sanctity of the compact to assure Colorado's future needs.

What the Supreme Court said in Spohr was that water is an article of interstate commerce. Because it is an article of interstate commerce, it is entitled to federal constitutional protection. Specifically, as that is applied it means that no state can enact legislation that discriminates against the interstate movement of water. Now, if we were to adopt a bill such as Senate Bill 44, we would not be discriminating against the interstate movement of that water, because it would be the same standard that we apply to intrastate transportation of water when it moves between one of those four basins. I think that would give us an edge in court that we don't have today. I don't think the threat is Denver or Colorado Springs or Thornton. I think the real threat is in Nevada and Los Angeles, and that is where we need to focus our concerns.

When Mr. Salazar put me on the program today, it was to explain the Western Slope approach. I asked him to change my topic, because I don't think this is a Western Slope approach. I think that as an entire community in the State of Colorado we need to figure out how we are going to preserve future water resources so that my children and your children and our grandchildren and our great-grandchildren will have the same kind of opportunities that we have enjoyed. We must act now so that there will still be water to develop; so that there will still be potential for growth in the State of Colorado 30, 40 or 50 years from now. My fear is not that the City of Durango will have to come to Denver 20 years from now to try to buy some of our water back. It is that the State of Colorado will have to go to Los Angeles to buy our water back. Thank you.

Options for Protecting Basin-of-origin Interests
Larry MacDonnell, Natural Resources Law Center
University of Colorado-Boulder

Principles of
Area-of-origin Protection

1. Water transported out of an area-of-origin should be the least-cost alternative for meeting the water need;
2. the benefits to the area of use should exceed all costs to the area-of-origin; and
3. all losses in the area-of-origin should be compensated.

ASCE Model Water Code

3. Interbasin Water Transfers

- 1.1 Statement of Policy -- The diversion or withdrawal of water to be transported out of a water basin for use in another location may raise social, economic and environmental issues affecting the safety, health, and general welfare of the citizens of the state. Such interbasin transport of water therefore should be subject to the control of the state and is hereby declared unlawful unless in compliance with the provisions of this section.

Commentary: This section singles out water development proposals involving the transport of water for use in a location different than the source of the water. In riparian states such proposals may be controversial even if the transport is within the same basin. Thus the transport of water across jurisdictional boundaries is proposed as the trigger to involve this section. In prior appropriation states transport of water considerable distances from its source is common. In these states, transport proposals likely to generate the greatest concern are those permanently removing water from its native water basin.

1.2 Requirement of Approval

- a. Any person desiring to make an interbasin transfer of water shall make application to the Water Court for approval prior to initiation of construction of related facilities. The applicant shall provide such information concerning the proposed transfer as may be required by the Court and in a form prescribed by the Court. The Court shall establish a fee for such application sufficient to cover the costs of review.
- b. Interbasin transport of water in an amount less

than 50,000 gallons per day shall not be subject to the provisions of this section.

Commentary: Proposals to transport water are made subject to administrative review through a permit process. Small transport schemes are exempted.

1.3 Review Procedure

- a. The Court shall provide notice of such applications in the same manner as for other water right applications.
- b. Any person may file a written protest to the application within ten days following the end of the publication period.
- c. The Court is authorized to make investigations and hold hearings as it considers necessary.

Commentary: This procedure is essentially the same as for proposed changes of water rights.

1.4 Requirements for Approval

- a. Applications for interbasin transport of water shall be approved upon satisfactory evidence that
 - (1) the transfer is the least-cost alternative for meeting demonstrated water need when the full range of alternatives is considered, including other supply enhancement alternatives and demand management alternatives;
 - (2) the benefits to the area of use exceed all costs to the area-of-origin, including environmental damage, as well as the full costs of the transport; and
 - (3) the applicant agrees to pay such compensation as specified by the Court to mitigate short and long term losses within the area-of-origin.
- b. The transport applicant carries the burden of satisfying those requirements.

Commentary: Three conditions for approval of transport proposals are set forth. These conditions are derived from proposals by the National Water Commission by Cox and Shabman, "Interjurisdictional Transfers," 3 Va. J. Natural Res. Law 181 (1984), and MacDonnell and Howe, "Area-of-Origin Protection in Transbasin Water Diversions: An Evaluation of Alternative Approaches," 57 U. Colo. L. Rev 527 (1986).

1.5 Approval Based on Negotiated Agreement

- a. The Court shall accept as evidence that the requirements of section 1.4 have been satisfied by a transfer agreement between the applicant and a) the affected water-rights holders and b) the governing body of the political subdivision from which the proposed transfer would originate, provided that environmental impacts and the interests of other areas of the state are adequately considered in such agreement.
- b. The Court shall facilitate such negotiation by coordinating meetings and providing other reasonable assistance as requested by the applicant, the governing body of the political subdivision where the transfer would originate, or other parties to be affected by the proposed transfer.

Commentary: Provision for facilitation of negotiation among the parties to a water-transfer conflict and acceptance of a negotiated solution as satisfaction of the permit requirement is intended to increase the flexibility in resolving transfer-related conflict. Assisting the affected parties to find a mutually agreeable solution enhances the potential for finding the "best" solution to such conflict.

Colorado Water Congress Proposals

Sara Duncan, Denver Water Board

The Water Congress, for those of you who don't know, is an association of approximately 500 members. Some of those members are institutions such as the Denver Water Board, the Northern Conservancy District, the Southeastern Water Conservancy District, Southwestern Water Conservation District; some of them are individual water rights holders; some are ditch companies -- both carrier ditches and not -- some have water delivery obligations; and even some environmentalists belong. They come from almost every aspect of water life, and they come from almost every corner of the state. I think it was for this reason that Senator Ament approached the Water Congress a few years ago and asked if they could not try to come to some cohesive agreement on the water transfer issues. I suspect his hope was that if you could get agreement among the Water Congress, you probably could get agreement anywhere. Unfortunately, that may or may not be true, but we did get some agreement.

The process for this past year (this has been going on for several years as others have mentioned) was to form a large water transfer committee of approximately 60 people, and from that committee select a smaller group called the drafting subcommittee. I was named chairman of the drafting subcommittee, really without my knowledge, and it was one of those things that remind me of the Mark Twain character who was tarred and feathered and ridden out of town on a rail. He said, "Well, I would

have walked but for the honor of the thing." I think this was the same kind of honor.

In any event, the drafting subcommittee is made up of the following members, some of whom are here today, and if you have further questions or comments you can certainly make them to them as well as to me. The members were Buford Rice, Chris Treese, Mark Fifer, Gregg Hobbs, David Robbins, Chuck Lile, on occasion, Dick MacRavey, who whenever there was any kind of problem would pipe up and say, ("Yes, but I'm a member of the Water Congress too, and I can talk" -- So those of you who know him know that he was not shy about offering his insights on this), Rick Humm, Paul Orey, Bob Cosa, Sherry Kahn, and Bruce Bernard.

When we started out, I think there was general agreement that some legislation was needed, and we perhaps did not talk about that as much as we should have. I noticed that a few members of the committee have publicly stated that they no longer think that legislation is needed. Be that as it may, I think it is important to know the kind of process that evolved with this subcommittee, so you can get some idea of the kinds of things that we talked about and the kind of conclusions we were ultimately able to come to.

First, the rules of the committee. One was the Satchel Paige rule, which was: don't look back; they may be gaining. In fact, the idea of this was first that we did not want to dwell on our past differences, which among this group happened to be many. And further, that there were people who were probably gaining on us, and we were not going to do a very good job if we always worried about reacting to the kinds of criticism and other comments that were going to occur.

The second rule was "Come, let us reason together." That was really our job: to look forward and try to act in good faith and try to recognize each other's needs. In fact, we found that there was a need for certainty and predictability on both sides of the mountain. We were talking about opposite sides of the same coin. What the West Slope wanted was to know that they would have water for some future development; and what the Front Range interests wanted was to know that they would also have water for some future development, and further that they would be able to develop this water.

We tried to look for agreement and consensus, but I should tell you that time caught up with us, and there was not the ability to circulate the last few drafts in the manner which we would have liked or to receive input and comments. Further, the Board of the Water Congress was unable to review and approve this, so although this might be called the Water Congress proposal, they may disavow it. We will call it that for lack of a better name, but that is not entirely accurate.

The procedure was that the subcommittee would agree on certain subsets, and then the larger committee would review and tell us where we had gone astray and send us back to the drawing board. We probably have had, altogether, about 20 meetings since late September-early October, and all of them were useful in the way that David Robbins said; they were fruitful and allowed an exchange of ideas and a commonality of purpose. But they were also disappointing in that there were not very many things we found that we could agree on. But we did come to some principles of

agreement -- some common values that were held by everyone who worked on this process -- and these are some that seem most pertinent to the legislation that came out.

The first was that the state as a whole must work together in placing Colorado's compact water to beneficial uses within the State of Colorado. As was discussed at lunch, water which is not used in the State of Colorado is claimed by the downstream states. Water which they have used for the past 30 years might be very difficult to get back. So, we wanted to be assured that our goal was a cooperative effort, but that cooperative effort was focused on placing water to beneficial use. Further, we felt that the goal of basin legislation should be to address project-related impacts subject to mitigation in a constructive manner that leads to reasonable requirements and to responsible water development. On what these reasonable requirements were, we differed, but at least we thought we should try to accommodate the needs on both sides of the mountains.

Next, we found that we wanted to know that the mechanisms established to address impacts associated with transbasin diversions and changes of water rights were conducive to the resolution of issues and done in an expedient, flexible and cost-effective fashion. We really didn't want to have the situation reoccur where you have someone who has been trying since 1983 to get a 1041 permit in Eagle County. The Colorado Supreme Court has said 1041 cannot be used to permit or deny projects, but that's hard to sell to the people in Colorado Springs. And we did not want to have a shadow permitting that simply replicated the federal requirements.

One of the more basic things we found is that water is not naturally present at the place of need, and therefore it may be moved in order to place it to beneficial use. Further, the ability to move water underscores its aspect as a property right and gives it value. The importance of the market aspect of water is that we found the agriculture interests really had two things: (1) they hated to have the water leave their area; particularly if it was carrier water or if it meant that there would be fewer agricultural services; and (2) on the other hand, they wanted to be able to sell their own water rights if they found that they would no longer be able to be applied in an effective way to agriculture. So, they wanted both things that didn't always happen.

Finally, and probably most importantly, was that the prior appropriation system should not be compromised. We found that change cases (the movement of water to a new place, a new type or time of use or all these things) were more conducive to resolution given these agreed-upon values. We really couldn't accommodate the need to assure a certain water supply in a certain area. One of the reasons was constitutional -- that the right to divert water shall never be denied. Also, the court in interpreting this says there is no geographic advantage to water.

So, we looked at change cases instead. What the legislation we have drafted proposes is that there will be payment in lieu of taxes when over 1,000 acre-feet of water is changed and moved across county lines outside a 20-mile radius. We are recommending that these payments occur for a five-year period; or, if there is some bonded indebtedness based upon

irrigation water rights that gives the land extra value, that the bonded indebtedness be paid until it is retired. The five-year period is rather arbitrary, but it would give the county -- the public, taxing entities -- the ability to stabilize and to know that these revenues would not be coming in after that. It would also include schools and other areas.

The amount of money was discussed, and it was finally decided that it should be the difference in value between the land as irrigated and the land as no longer irrigated, because that would be the result of moving water. There were many on the committee who did not agree with this. My time has been up for some time, so I think I will be available for questions.

Q: TO SARA -- Please finish the other components of the bill.

A: SARA DUNCAN -- I want to talk a little bit about change cases and 1041. One of the things that is in this proposed bill is that, if an entity that wants to move the water pays the payment in lieu of taxes, it is deemed that they have complied with all aspects of the 1041 provision except for those that are entitled in the proposed legislation -- construction impacts. Those would be the more traditional land-use kinds of things: impacts on right-of-ways; waste removal; air and noise pollution; that type of thing. We really did not have any concurrence as to how appropriate people on the committee thought that was, because it was resolved at the very last. But one of the things we thought important to remember is that change cases usually involve the removal of the historic consumptive use, and often the method of transporting it is to leave it in the stream and take it on down to a place of beneficial use. So, very seldom do 1041 provisions come into play in change cases. This provision may be almost like a non-provision.

Also, we did not deal with environmental impacts, because we felt that by looking at change cases that deal with the historic consumptive use, the environmental impacts would probably be very little. Those are my only two additions.

Written general questions and comments (these were not addressed to a particular speaker or panel):

1. Can an integrated system work on a voluntary basis? Does it have to have legislative mandate for a crutch?
2. Water quality representatives are not here today? Shouldn't they be? Because the Commission is meeting today -- with a hearing on the new classifications in H.B. 1200 -- they aren't here. Isn't this insensitive scheduling?
3. What is the definition of the "Colorado Front Range?" Is it only the South Platte Basin or does it include south of the Palmer Divide?
4. How under existing Colorado water law can farmer use on-farm efficiencies and sell water, and not have water taken by users with

junior priority. Do we need change in Colorado law? Who will tackle this so farmers have incentive to conserve water and more water is made available? Are there potential, significant, adverse environmental and other impacts if on-farm efficiencies are instituted?

5. The assumption that a successful farming operation can have an interruptible supply of water is very suspect. Successful agriculture must have reliable sources of water, just as cities do.

1993 Colorado Water Convention

SECTION III

SUMMARY OF WORKSHOP FINDINGS AND PARTICIPANT SURVEY RESULTS

Designed to Obtain Public Input Regarding the Convention's Theme

On the afternoon of the first day of the Convention, twelve breakout groups of 30 people each were convened to obtain ideas and input from the meeting's participants. A well organized procedure was used to assist the groups in reaching consensus within the hour and a half devoted to the workshop discussions.

The members of all groups were given two cards on which they were to write, in seven words or less and in complete sentences, answers to the question presented to their group for discussion. Odd numbered groups were asked to answer the question:

"What strategies would be the most successful to help assure adequate water supplies for the Front Range?"

Even numbered groups were asked to answer the question:

"What can the state do to help assure adequate water supplies for the Front Range?"

The answers, ideas and thoughts of each member were collected and discussed, collectively, at random. The answers were then sorted into like categories and "titles" were given to each category. Finally, members of each group were provided three votes and the categories were then ranked in importance to the group as a whole via voting. The top three vote getters for each group were then presented to the entire meeting attendance.

On Tuesday morning, the top three answers to each question, from each group (a total of 18 answers) were listed on a survey form and distributed to all those in attendance that morning. Each attendee was requested to vote for their top three answers to each question. The following instructions were used to solicit the attendees votes:

"Following is a list of the ideas that emerged from Monday's workshops. Please place an X next to the three (3) ideas you think were the best responses to each of the two questions asked."

Two additional questions were added to the survey. The first, which directly addressed the Legislature's question to the Colorado Water Conservation Board in Section 12 or Senate Bill 92-87, was stated as follows:

"Should the state conduct additional investigations related to the basin-of-origin issue? If yes, what aspects of the issue do you think require additional investigation. Write your comments below."

The last question asked was stated as follows:

"Should the state conduct future conferences similar to this on major water issues? Whether your answer is yes or no, please comment on the 1993 Colorado Water Convention below."

Below the questions are repeated along with the results obtained from the survey. Thus, this listing of the results shows not only the answers to the questions developed from the workshops, but also the priority that the attendees Tuesday morning placed on each of the ideas.

A total of 171 responses were obtained for the attendees present on Tuesday morning.

Question 1:

Following is a list of the ideas that emerged from Monday's workshops. Please place an X next to the three (3) ideas you think were the best responses to each of the two questions asked.

Note: The number preceding each response listed below indicates the number of people who indicated a preference for that idea. Some of the 171 survey respondents marked more than three ideas, while others marked less than three. All of the preferences marked were tabulated and are reflected in the numbers listed below.

Question answered by workshop groups 1, 3, 5, 7, 9 and 11: What strategies would be the most successful to help assure adequate water supplies for the Front Range?

- 46 Development of water storage facilities to capture water which otherwise could not be beneficially used.
- 40 Review existing state laws and revise where necessary to streamline the adjudication and permitting process. Support legislation which facilitates water supply solutions and rewards increased efficiency.
- 39 Facilitate communication to promote water development between real players, have/have nots, the total state, basin of origin and end user, promoting joint development of projects when applicable.
- 39 Water use efficiency: Maximize utilization of existing water supplies by education, best management techniques, financial and other incentives an increased physical efficiency.

- 34 Promote most efficient use by both agricultural and urban users.
- 34 Promote full disclosure of water rights information and systems operations to create a climate which fosters systems efficiencies such as exchanges, leases and first-use agreements.
- 30 Assess the water facilities and supplies of the Front Range communities. Develop a plan to coordinate the use of these facilities and supplies for maximum benefit to the Front Range and to the state.
- 29 Develop transbasin diversions with reasonable mitigation. Develop collaborative procedures to solve basin of origin problems.
- 29 Statewide planning: Make realistic assessment of Front Range needs in order to formulate a statewide plan. Such long-range plans would promote cooperation of statewide interests, facilitate possible transfers, establish a statewide water planning group or authority.
- 27 Increase storage.
- 25 Education: Recognizing that Colorado is an arid region, educate the general public on the wise use of water.
- 24 Verify real need and supply; support a forum for solutions.
- 23 Colorado water for Colorado: an end to polarization. We need to improve cooperation and become less adversarial. This includes communication, coordination and win-win solutions. Encourage innovative transfers across institutional boundaries.
- 20 Conjunctively use surface and ground water.
- 20 Establish a Front Range providers group that: develops strategy; reassesses institutional responsibilities; promotes system integration; and promotes public participation.
- 18 Cooperation: Encourage cooperation between agricultural, municipal and legislative interests to assure adequate water supplies (base, dry year, all type uses) for the Front Range.
- 17 State water planning process: (1) begin at grassroots of each region; (2) compare

commonalities and identify opportunities for integration; and (3) define plan.

- 17 Reclamation of water including effluent.
- 7 Cooperation of all political sectors considering all economic sectors.

Question answered by workshop groups 2, 4, 6, 8, 10 and 12: What can the state do to help assure adequate water supplies for the Front Range?

- 81 Provide easily usable, basic water data. Maintain monitoring program to collect data, compile and publish data, and utilize data for enhanced administration.
- 41 Develop incentives and procedures for re-use, exchanges, efficient use of existing systems, dry-year ag leasing, sale of water savings and conservation.
- 39 Build projects now. Support rather than oppose reasonable water projects.
- 35 Develop and maintain neutral, accurate database for existing and future conservation, operations and construction.
- 34 Statewide water policy forum: Provide a forum for diverse groups to come together and formulate a strategy to meet water needs.
- 34 Facilitate water users' cooperation to maximize water yield and operating efficiency.
- 34 Conservation/efficiency: Encourage conservation and efficiency through agricultural-municipal cooperation, agricultural reform, policing and reducing waste, and a water clearinghouse for more efficient administration.
- 33 Provide forum for communication and cooperation. A non-partisan and non-adversarial atmosphere. Purpose: to generate ideas, identify those interests affected by projects, mediate conflict, assist networking and provide more efficient notification to parties involved.
- 32 Growth management. Land use planning for future development.
- 31 Facilitate the development of a state water plan.

- 24 Promote conservation and efficient water use through education and economic incentives.
- 24 Get out of the way. Let the market system operate. Leave the cities alone. Play a passive role in project development.
- 23 The state acts as a facilitator by: (a) providing a forum for discussions and exchange of ideas; (b) promoting east slope/west slope cooperation; and (c) mediating disputes/conflict resolution.
- 16 Develop compact entitlement to meet Front Range needs.
- 15 Legal reform: State should facilitate legal reforms in response to public's interest (flexibility).
- 9 Support legislation that results in the most water to the most users at the least cost.
- ◆ The state should fund information gathering, provide expertise and facilitate communication on Front Range water issues.
 - ◆ An expanded role for the Office of Water Conservation in providing information and educational programs about water conservation.
 - ◆ Be a leader in necessary statutory changes encouraging innovative solutions.
 - ◆ *These last three ideas were inadvertently left off of the participant survey.*

Question 2:

Should the state conduct additional investigations related to the basin-of-origin issue? If yes, what aspects of the issue do you think require additional investigation. Write your comments below.

Yes	99
Possibly	1
No	54
No answer/don't know	17
TOTAL	171

See table for complete listing of all comments received in response to Question 2.

1993 WATER CONVENTION SURVEY

Question: Should the state conduct additional investigations related to the basin-of-origin issue? If yes, what aspects of the issue do you think require additional investigation. Write your comments below.

Yes/No	Comments
--------	----------

yes	CSU study simply listed issues--it did not "scope" what needs to be studied.
yes	
yes	Recognition of public interest, environmental and ecological concerns, economic and sociological concerns.
yes	Definition of items that require investigation as a result of the diversion from one basin to another. What represents "appropriate" mitigation--i.e., ground rules? How will compact issues be considered?
yes	Revenue returns to the state. It's nice to talk about gross revenues, but what does ag activity return in taxes? Quantify losses/gains in basin of origin!
yes	Help facilitate continued investigation and discussion of the concepts that need to be addressed: protection of property rights, both sellers and other impacted users; environmental concerns and impacts; economic impacts; future reserved rights and priorities.
yes	Only after the present scoping study has been thoroughly digested and discussed.
yes	Reduce transaction costs for development of water resources.
yes	Protection of "other" interests--social and environmental in the state (as well as property rights). Relationship of basin of origin to interstate compact entitlements and development of compact water.
yes	Don't buy into fake CWC/Sara D. basin of origin sham. . . But there might be hope for a real one.
yes	Encourage business to develop and relocate to Western Slope.
yes	Definition of terms.
yes	
yes	Impacts on basin of origin: economic, environmental, quality of life. Mitigation process: monetary, other.
yes	Impacts on downstream appropriators. Impacts on delivery under the terms of any interstate compacts. Define how extensive or inclusive the basin/area of origin is.

1993 WATER CONVENTION SURVEY

Question: Should the state conduct additional investigations related to the basin-of-origin issue? If yes, what aspects of the issue do you think require additional investigation. Write your comments below.

Yes/No	Comments
--------	----------

yes	Public access to specific data on each basin.
yes	Spend money to develop river basin data bases.
yes	What are the real impacts of diversions out of agricultural basins in socio-economic terms? What are the impacts of not having inter-basin transfers in terms of the state's economic growth and well-being? How will we value instream uses of water in a meaningful way?
yes	How can public be educated that attempts at constitutional initiatives such as WATER I and WATER II will be soundly defeated?
yes	
yes	
yes	Follow-through on issues raised in previous studies. Develop real, do-able solutions to problems.
yes	What water supply, demand and use data is currently collected? Is this data readily available in a form public can understand? What data info is needed for today's water related decision making? Bottom line: Do we understand our own water system in Colorado (ala Chips Barry's comments regarding Denver's system)?
yes	Economic effects of transfer, social effects, political effects, environmental effects and mitigation strategies. Study must address area of origin issues. Water transfers have similar effects, be they inter-basin or intra-basin. Do not hire CWRRI again! Their basin of origin study was more concerned with new users than with issues in the basin of origin. Try to involve people from the basin of origin in these studies. Also, involve people like Jo Evans, who genuinely care about basin of origin issues, and will make sure they are addressed. Assess what impact transfers to date have had on areas of origin . . . (Note: I'm working on one study right now, focused on the South Park transfers. I'd be happy to work with the state on this. My name is Cathy Kindquist. Get in touch.)
yes	All of the issues identified in the scoping paper, which is too brief to provide a guide for policy.
yes	
yes	Investigation needs to continue until all of people of this state realize that one area of Colorado is just as important as any other. We've done enough damage by the "bigger is better" theory. We need a diverse economy with respect for all of its forms.

1993 WATER CONVENTION SURVEY

Question: Should the state conduct additional investigations related to the basin-of-origin issue? If yes, what aspects of the issue do you think require additional investigation. Write your comments below.

Yes/No	Comments
--------	----------

yes	Specific definition of what is "required mitigation" to allow water transfers. A list of specific policy questions which must be decided (and by who) to form a foundation for decision making.
yes	Encourage creation of three alternative optimum economic development plans for each drainage basin within the state with a 100 year time frame. Identify the amount of water required to support each scenario. This will allow a determination of how much water must stay and what may be available with the overall good of the state in mind.
yes	There is a limit on supply available. Define rules as Dave Robbins suggests. Define basin. I like Pastore's definition.
yes	
yes	Consider Amendment 1 in realistically answering this; coordination of statewide users' input/interest.
yes	Economic analysis standards should be uniformly applied.
yes	Principles for transfers--reach agreement, consensus, and pass joint resolution of legislature as statement of state policy.
yes	Define "basin" of origin. Define "developed" water and "salvaged" water as it applies to the prior appropriation system. Define who would mediate/negotiate the "basins." Define what, if any, legislative protection would be needed for the basin of origin.
yes	Appropriate parties and procedures for measuring all costs in basin of origin. Who and what are they? What is the real relationship between basin-of-origin management within Colorado and the compacts with other states?
yes	Reuse, conservation. Integration of existing facilities.
yes	It seems obvious that the state, either the legislature or the DNR or both, needs to act before these types of decisions are relegated to the public vote. Even Pastore admits that voting is a faulty mechanism (citing the ignorance surrounding Amendment 1), but is eager to pursue his constitutional amendment. The public does not have the technical expertise to make good decisions. Sorting out the hydrology of a transfer is extremely difficult without consideration of socio-economic factors. Maybe creation of more water conservation districts could provide protection in water court for every basin in Colorado.

1993 WATER CONVENTION SURVEY

Question: Should the state conduct additional investigations related to the basin-of-origin issue? If yes, what aspects of the issue do you think require additional investigation. Write your comments below.

Yes/No	Comments
--------	----------

yes	The most important issue is procedural, i.e., how can inter-basin transfers be accomplished without making the process yet another impediment to transfers. Next, we need to identify issues which are not already addressed by the water court and the division engineer (in administration, federal permitting agencies (COE, EPA, USFS, F&WS, etc.), state agencies (e.g., 401 cert.), etc. In other words, the developer should have to deal with all issues only once.
yes	
yes	Current studies are too general of a study done at too high of level without application to a specific basin of origin study. Select an actual case study and then investigate all components (economic, hydrologic impacts, social impacts, etc.). This could be used as an example of other studies to follow.
yes	Clarify what compensation is appropriate for basin of origin.
yes	
yes	
yes	Basin planning efforts to determine basin-of-origin water needs to help water courts/state engineer weigh proposed water transfers (similar to New Mexico's 1987 basin planning legislation).
yes	Develop an accurate and reliable database which encompasses both hydrology and facilities so that meaningful assessments of total supply and demand can be made to assess what future needs really will exist. How to implement public education programs so that citizens understand water issues.
yes	Disregard and discredit any effort by proponents to ignore or disavow the responsibility to fully compensate all (economic, social, environmental, health, tax base, educational, etc.) costs to the area and/or basin of origin. Include non-owners needs in costs. Transfers should occur only with the approval of the area of origin.
yes	Develop standards for transfers and mitigation.
yes	Provide the data and resources in respect to diversions, storage, ground water monitoring and acres irrigated.
yes	
yes	Provide rules that govern the transactions that are in accordance with the ASCW water code.

1993 WATER CONVENTION SURVEY

Question: Should the state conduct additional investigations related to the basin-of-origin issue? If yes, what aspects of the issue do you think require additional investigation. Write your comments below.

Yes/No	Comments
--------	----------

yes	Means of mitigating direct economic effects of transfers, especially those involving decreased property values.
yes	Mechanisms--how basin-of-origin legislation will interact with existing laws and processes. Can these processes be streamlined? Can existing laws be used to protect the basin-of-origin economy, society, environment, etc.? Environmental impacts--can they be mitigated? How can impacts and costs be quantified? How can public be involved?
yes	As we move toward resolution of this issue, we need to moderate and inventory the various new issues that will arise. The importance of the issues will change and that change and need needs to be moderated and investigated.
yes	Try to address socio-economic problems.
yes	All out of basin diversions must provide mitigation, including compensatory storage to the basin of origin as a permanent compensation to the basin. Five years of taxes is nothing when compared with the water value.
yes	In theory, I think yes, but am skeptical that useable results can be obtained.
yes	Public interest? What type of standards/criteria might be applied? How do you address the "preservation" or "no change" attitudes?
yes	What forum will decide these issues? How can these issues be addressed and decided without greater costs to the affected area? The significant differences between transfers of existing rights and new appropriations. This having been said, I think legislation is needed to provide significant present disruptive effects.
yes	Impact on compacts. How to make full use of our Colorado River compact entitlement without unfair impact on West Slope.
yes	Options for bringing all stakeholders (not just buyer and seller) to bargaining table.
yes	How do you quantify impacts?
yes	Socio-economic impacts of transfer or new appropriation. Transfers result in near-term impacts; impacts of new appropriation are mostly opportunity or future costs.
yes	Should be rolled into a program to require an EIR for major diversions and other major actions of state significance.
yes	More emphasis on alternative, non-structural solutions. Thorough understanding of both short and long term impacts on area-of-origin environment, economy, educational potential and future growth potential.

1993 WATER CONVENTION SURVEY

Question: Should the state conduct additional investigations related to the basin-of-origin issue? If yes, what aspects of the issue do you think require additional investigation. Write your comments below.

Yes/No	Comments
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yes	
yes	
yes	
yes	Larry MacDonnell's model water code appears to provide a framework in which to resolve conflicts, an alternative to long water court battles.
yes	Why does Denver metro area have to grow even larger? Why do we need more traffic, more smog, more socio-economic problems? Why does the resource (in this case, water) have to go to the area where there already exists virtually unmanageable problems, strife and environmental impacts? Why cannot new business and industry be diverted to where the resources (water) exists? The problem of water transfer goes away. The rural areas and smaller municipalities will greatly benefit, and the Denver-metro area limits its growth problems.
yes	Define "basin"--then discuss some individual issues. Are there any case studies on Colorado or elsewhere to document the affects of these transfers--or are we just being protectionists using scare tactics?
yes	Identify a list of alternative actions that entity transferring water must select from prior to filing for transfer actions. Would allow transferring entity to apply. Most logical and practical alternatives when mitigating basin source area.
yes	First focus should be metro supply--also talk among technicians should be the basis. Conversations among technicians toward win/win situation.
yes	The state needs to enforce the Clean Water Act; study and identify sound biological reclamation alternative to clean up industrial wastes that is destroying the quality of rural water (and urban water for that fact). There are millions of acre feet of non-usable water resources that are being generated by industry (e.g., mining). The state must look critically at conserving water by making it a crime to destroy water (e.g., Summitville). Under institutional responsibility the state needs to require hotel facilities, schools and other commercial or public facilities to be responsible for retrofitting water saving. Also swimming pools and golf courses should be required to conserve. Agricultural users may have to face the reality that some water consuming crops (e.g., corn) may have to be replaced by less water intensive crops. The state (via CSU) needs to look at alternative crops. You also need to look at Fair Trade Agreement and population growth and how it will impact Colorado.
yes	As they relate to federal mandates.

1993 WATER CONVENTION SURVEY

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Yes/No	Comments
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yes	Environmental consequences of transferring water out of basin. Foregone economic opportunities to use portion of water in an area.
yes	Attempt to define boundaries of water basins. Determine if its possible to treat water basins on an individual basis and identify if there are certain things that may be appropriate to do in one basin of origin but not in another basin of origin.
yes	The definition of the problem is subjective, and area of origin is as important, if not more so, than "basin."
yes	I don't feel that there is a consensus at this time, but I feel progress is being made.
yes	The Hydrosphere study should be pursued in greater depth. The results of that study (and possibly current study) should be the subject of a further forum with prepared responses in the following areas: legal; engineering; financial; environmental; political. Would be a great program for the water workshop in Gunnison.
yes	Constitutionality of such restrictions. Whether should simply go with area of origin protections across the board instead of focusing on only transbasin diversions. Public surveys--what do people think about the issue (not just the water buffaloes). Read the <u>Fort Gratiot</u> 1992 U.S. Supreme Court decision--will intrastate interbasin restrictions violate the Commerce Clause? Studies--unbiased comparisons of costs and benefits of such provisions.
yes	Constitutionality.
yes	Interstate impacts (compacts, etc.).
yes	Can we develop our Colorado River compact water through storage without demonstrating need and application to beneficial use at present?
yes	
yes	Recognize that water storage is the foundation of the qualities of life in Colorado including ecological features. All groups including ecology enthusiasts, sports people, agricultural supporters, those with urban interests and preservationists will benefit from more development of water storage. Two Forks would enhance the interests of all groups both in Colorado and in downstream states.
yes	Transbasin transfers investigation. Basin of origin definition.
yes	Regional meetings on a quarterly basis.

1993 WATER CONVENTION SURVEY

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Yes/No	Comments
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yes	
yes	Management of competing demands. Full spectrum of mitigation.
yes	Study the feasibility of such basin of origin legislation. Will it only serve to create an unwieldy process from which no benefit to the state will be generated?
yes	Clear definition of terms. Outline existing limitations based on constitution/statute or case law as a point of departure for the benefit of non-lawyers. Perhaps this could be prefaced in the conference proceedings to be published.
yes	Unsure of what should be done.
yes	Front Range institutional reform.
yes	Serve as facilitator to determine what the real basin-of-origins are and develop guidelines for a carefully defined mitigation evaluation process.
yes	Basin of origin impact, i.e., agricultural, social, economic. Evaluate and advocate actively water right as a private property right.
yes	What are the fundamentals required to investigate the potential of considering a water transfer--on both sides--proposed new users/impact on former users? To consider even a reasonable proposal--what are the roadblocks in each of the basins ("compact" systems) and therefore where (what basin) is success of water transfer most practicable and/or feasible?
yes	Mitigation estimates. Mitigation implementation.
yes	
possibly	Haven't reviewed current draft documents, but I suspect they are too general and unfocused; need to put actual issues from actual situations out for review and discussion. Clarify implications of the various possible definitions for "basin of origin."
17 - NA	[Provided no answer or "don't know."]
42 - no	[Responded "no" with no additional comments.]
no	Basin of origin not the real problem. Ag vs. urban should be main issue.

1993 WATER CONVENTION SURVEY

Question: Should the state conduct additional investigations related to the basin-of-origin issue? If yes, what aspects of the issue do you think require additional investigation. Write your comments below.

Yes/No	Comments
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no	I think focus should be shifted to (1) finding an additional increment of metro area supply that is relatively benign and consensual, (2) developing basic data and information to support and facilitate deal making.
no	None! The state should not force water development into a corner. Social, economic and other issues related to water transfers should not be considered. If agricultural economic conditions are such that a farmer wishes to sell his/her water, he/she should have the freedom to do so. (The loss of one major industry on the construction of a major highway bypass can affect a single area much more than a water transfer, so why make these issues a water issue?)
no	Why doesn't state spend our tax money on finding solutions to water problems rather than inhibiting and limiting the efforts to tackle them?
no	We have studied this issue sufficiently. Need to develop the political will to implement basin-of-origin protection "ground rules" similar to the concepts presented by David Robbins and Larry MacDonnell.
no	Basin of origin is a red herring issue being used to divide state for no growth objectives of greens. Real issue is saving compact waters for extended droughts and growth for all Colorado areas.
no	Would rather see it evolve through discussions between east and west slops without active state.
no	This was addressed by your panelists to my satisfaction for the present.
no	Ag interests need to make their concerns known.
no	I think the issues are well known and easily identified. If the state has a role, it is to facilitate a compromise agreement between the various interests.
no	I believe the basin-of-origin issues have been adequately identified.
no	Let us now absorb what exists!

Question 3: Should the state conduct future conferences similar to this on major water issues? Whether your answer is yes or no, please comment on the 1993 Colorado Water Convention below.

Yes	148
No	12
No answer/don't know	11
TOTAL	171

- 65 respondents stated the convention overall was "good" or "excellent." Although 4 people indicated they felt the state had a "hidden agenda" in sponsoring the meeting, 17 others said they felt it was appropriate for the state to conduct the event. Specific comments included:
 - Discussion is inherently a good activity that will lead to progress in solving problems.
 - The state can provide a neutral forum and attract key players and quality speakers to such discussions without the bias that may be associated with any one interest group.
 - 5 comments, however, suggested that the state convention is redundant with existing water forums and that future sponsorship should be in conjunction with the Colorado Water Congress' annual conference and/or with other public- and private-sector organizations.
 - 23 expressed a desire that convention organizers take action to ensure that some followup activities take place to ensure that the ideas presented during the conference lead to results.
 - 2 remarked on the positive spirit of the meeting, the focus on similarities versus differences, as something that distinguished this water conference from others they had attended.
- 35 made positive statements concerning the agenda topics and speakers. Generally, respondents felt that a diversity of perspectives were offered and, with few exceptions, that speakers were of good quality. However, several respondents felt more diversity in perspectives was needed.
 - 9 criticized the use of speakers who are "already on the water circuit" and suggested that future meetings bring new people who might contribute more innovative ideas.

- Others called for additional representation and/or participation from: municipal interests (1); realtors (1); technicians and technical experts (2); the West Slope (3); downstream states (1); agriculture (4); recreational and environmental groups (7); and private water developers (1).
- 3 said the convention was too pro-development; 1 said the convention was too anti-development.
- 6 indicated they liked the concept of concentrating on narrowly defined topics in depth. On the other hand, 6 indicated that more topics and/or broader themes would be more productive at future meetings of this kind; 2 of these 6 respondents said water quality should have been addressed in more depth at the 1993 meeting.
- 18 felt that the program agenda was too tight. Concerns included lack of informal discussion time at breaks and not enough time for audience questions to and interaction with speakers/panelists.
 - Related comments indicated that more time should be set aside for small group workshops to facilitate more attendee participation and in-depth analysis of possible solutions. Though 1 comment criticized the workshop process as "too structured," 4 comments praised the process.
- Other suggestions:
 - Database information and/or fact sheets should be distributed in advance of future meetings to enable attendees to prepare to participate more fully. (2)
 - Regional forums should be held as a followup to the 1993 meeting. (2)
 - A future conference should focus on federal laws and regulations that affect water issues in Colorado. (2)

1993 Colorado Water Convention

SECTION IV

CONVENTION WRAP-UP SUMMARIES

David Harrison, Chair

I was sitting in the hall yesterday, and Chips Barry came up and said this conference came up on very short notice. He wondered what had happened, and what this conference was all about. I think, in fact, what this conference has been about is sort of a time out. It's time to step outside for a minute to look at our situation and see what's working, what's not working and whether there are some changes to make. I invite the panel members to share their ideas about the conference in their wrap-ups. There is a diverse spectrum of opinion on where we stand.

The first of our commentators in the wrap-up will be Greg Hobbs from Hobbs, Trout & Raley. Greg has a long and rich experience in both water quantity and water quality, has been very active in legislative matters, and I'm very anxious to hear your remarks, Greg. Greg is general counsel for the Northern Colorado Water Conservancy District and a fine poet.

**Sort for Similarities Rather Than Differences:
Principles by Way of Summary**

Greg Hobbs
Hobbs, Trout & Raley, P.C.

1. The prior appropriation doctrine must be respected.
2. There should be an adequate supply of water developed and managed throughout the state to support local economies and the environment.
3. Adequate supply requires investment in structural measures, including storage and distribution systems.
4. There is more in common than there are differences. What is in common is the need for 1) water, 2) for a process that provides for the stability, certainty, and flexibility of rights for municipal uses, including agricultural, municipal, industrial, recreation, and the environment, and 3) to address Amendment 1 implementation in a way that forwards management of Colorado's water resources.
5. Water rights must be respected but, at the same time, equity in the development of unappropriated water and transfers from prior uses must include the project proponent bearing its fair share of transaction costs, including identifiable social, economic, and environmental costs.

6. There is no substitute for initiative generated at the local level, with support by the state in finding ways to resolve conflict, reduce transaction costs, and invest in actual water use rather than only in studies and professional fees.

7. There have been successes centered on discrete projects involving parties who are interested in addressing each other's water needs; for example, water for junior uses in Grand and Summit Counties, utilizing storage structures and rights held by senior users and the pipeline from Carter Lake to Broomfield being built to distribute water developed by the Windy Gap Project, developed after negotiation and execution of Basin of Origin Agreements with the Western Slope under the Colorado Water Conservancy Act.

8. Colorado must not lose sight of the overall goal of holding onto and managing the water it has already developed, including return flows, as well as continuing on a path of developing water to which it is entitled under its nine interstate compacts and its equitable apportionment decrees.

9. Interested parties cannot be shut out. If they perceive they are being shut out of having their interests addressed, they will fight back and tear the object of your desire asunder.

10. Harold Miskel is really a funny guy, and humor always helps!

Dan Luecke
Environmental Defense Fund
Boulder, Colorado

Thank you, David. Being a wrap-up speaker is always an interesting task. As I was coming up here I was stopped by one of Ken's staff. I asked what I should say. He said, "We don't care what you say, just don't say much."

Whenever I am going to be on the podium with Greg Hobbs, I always bring along a little poetry. Some of you may know this poem. It is 30 years old, and it has to do with water. It is a poem composed by Kenneth Boulding, an economist who was invited one time to offer some advice on the California water plan, back before it was built. The committee of which he was a member was disbanded before it could give its advice to the state legislature. Some would say it was because of the poetry Boulding wrote.

Water is far from the simple commodity,
Water's a sociological oddity,
Water's a pasture for science to forage in,
Water's a mark of our dubious origin,
Water's a link with distance futurity,
Water's a symbol of ritual purity,
Water is politics, water's religion,
Water is just about anyone's pigeon,

Water is frightening, water's enduring,
Water is a lot more than mere engineering,
Water is tragical, water is comical,
Water is far from the pure economical,
So studies of water, though free from aridity,
Are apt to produce a good deal of turbidity.

I thought that the essay that was prepared by Lee Rozaklis and presented as the centerpiece of the conference was a thoughtful and even-handed piece -- in particular, the kinds of issues that are near and dear to the hearts of those in the environmental community, having to do with cooperation, having to do with efficiency, having to do with elimination of system bottlenecks. The creation of systems linkages is certainly the sort of thing that we would support. And it's not that we in the environmental community are so bound to efficiency. Rather, we are interested in water being left in streams for as long as it can be. We are interested in the protection of aquatic systems and we see that as the heart of that protection process. Now there are those who have bricks in their toilets and carry library cards, and that is a another dimension of it.

There is a lot said about cooperation. The environmental community has done very well in the past ten years with the disarray in the water community in Colorado, and I'm not sure that I want to see that change. But there was a remark made yesterday that I felt was very important. And that is that the Denver Water Department is going to make its model public. Now that is a profound policy change for one of the truly important actors in the process. That sharing, not only of information, but of information on how a system operates, a system that is at the center of what happens in this metropolitan area. I don't know whether or not that was news to all of you here but it was a important revelation in the context of this meeting.

Today there was a good deal of discussion about the movement of water out of agriculture into municipal applications. I think that is inevitable. Just read the writings of the agricultural economists from Colorado State University and the University of Colorado over the past ten years. The potential synergy is there. The value of water in one application as opposed to the other creates a potential synergy so that the movement is going to occur. The systems will become more efficient in the process. The concern is a concern with equity. Who bears the cost of the movement of that water? Who has to fork over for the transaction cost associated with protecting interests?

There was an exchange that I enjoyed on a panel this morning between Senator Ament and Senator Bishop, that exchange being one over salvage. In the South Platte we don't want to see salvage, according to Senator Ament. In the Colorado Basin perhaps that makes sense, according to Senator Bishop. I thought that was a terribly important exchange between those two elected officials. I think that if there is a area for salvage, it is with the last diverter in the Colorado system, in that portion of the system that is not yet over-appropriated or fully appropriated.

I suppose there could be a variety of definitions of what the state responsibilities are. What the state is, not only in the water arena, but beyond that. In my opinion, the state has, at least as one of its responsibilities, protecting the interest of those who are not in the majority, protecting of the interest of those who are otherwise unprotected. It has the responsibility for equity, for the assurance of equity. In this water arena I think that is the place in which the state can play a role. If we are to accept the argument or the assertion that movement of water is inevitable, then the state has to ensure that, if it occurs, it occurs in a way that all the participants are made whole. And I would argue that there are some instances where all can be made better off than they otherwise would be. Thank you.

Ray Wright, Member
Colorado Water Conservation Board

I felt coming in here yesterday like quoting Harold Dill: "You've got trouble right here in River City." We entered this convention in a state of gridlock and confusion. That is why we are here: to alleviate this distrust that has been spread by animosity and paranoia. It has created great conflict and very unpredictable results. I found with yesterday's portion of the conference that some people still wish to operate in that manner, that some of the urban water planners remain in the past without communication, without cooperation, without integration, without openness to the rest of the state and with the attitude that rural Colorado should step out of the way in order to fulfill the manifest destiny of the cities.

Don't get me wrong that I am getting down on the cities. I think that rural Colorado is extremely confused too. Water rights holders want to maintain the property rights at all costs. They want protection of the rural lifestyle, they want increased water development. And yet they want the ability to sell out if points two and three don't happen to work out. The rural residents without the water rights, including recreational interests, want their life styles and their livelihood protected. They want to improve the economy and the tax base, and they expect all the benefits due to water rights holders without owning or contributing to the same.

The system that exists wasn't born that way. It was bred, over the history of water law in Colorado, of greed, litigation, heavy handedness, and years of power when the population called the shots in water allocation. The system and ignorance of openness in the process and consensus building was very educational. Everyone fighting the system learned how to play. The people who have been getting beat up on learned to play very well. They said, "If these are the rules, let's play it that way." And that caused the downfall of Two Forks and created many private ventures in the wake of Two Forks, which produced a void in the water supply of the system and costs of millions of dollars to the state and rural Colorado. In combating business this has always been done.

The gridload is strangling the Front Range economy based on irrigated agriculture. I consider substantial irrigated agriculture to be a valuable natural resource of the State. It has become an easy target for piecemeal destruction, because unlike the water flowing in the western rivers of the State, we in irrigated agriculture have no federal agency protection of the resource. There is no recreational outcry over the loss of farm or field. There are no environmental lobbyists decrying loss of habitat or loss of wetlands. There is even a lack of solidarity among the rural communities. The dry-up of these agricultural lands is the same as creating a high plains wilderness, for the productive capacity of the area will be lost to the State forever.

There is a lot of hope coming out of what I have seen here today. The conference showed me that there is a new regime of urban water planners who recognize the need for statewide participation in problem solving, see the need for win-win solutions among all the parties, and recognize the necessity for openmindedness and the futility of arrogance. The rural residents as well are willing to consider and even embrace innovative water planning. They recognize the need to cooperate in a new spirit of unity, and I believe they are beginning to recognize and educate themselves to the fact that the agricultural community needs to acknowledge the realities of a new stewardship standard, previously unacceptable and unexpected in the past.

There has been a great interest in an increased state role in the water planning process. Having been on the board for quite a few years now, I think I can assure you that the state is interested and willing, and in fact undertaking a lot of the suggestions. The data collection and computer modeling that has been brought up so many times is being addressed currently on the Colorado River in the form of a decision support system. It is being proposed for the South Platte as well. The Water Conservation Board provided the biggest share of the funding for Wolford Mountain and for the Clinton Reservoir agreement, fostering that East Slope-West Slope cooperation; providing that sounding board between the two and helping to get these projects to a point of realization.

Any of you who have ever been to a board meeting taking public testimony, you know that we have in many cases provided a public forum so that all interested parties can come in and state their views. In addition, the state interface with the federal policy makers appears to be an important role to me in providing an up-front role in dealing with increasing federal intervention. But the board is limited; the board does not make laws, and the board is not empowered to regulate. We can only hope that competing interests will begin to approach their problems with the goal of solving them, and that the board may facilitate this by bringing them together. But we cannot have the board put in the middle of the rigid antagonism that we have seen in the past.

As a closing note, I would like everyone here to forget your clients and constituencies for a moment, to forget your job descriptions and to forget your special interests. We all must first consider ourselves as citizens of this greatest of states, sharing it with our fellow citizens, working to see that it prospers, and

protecting it and all the diversity it offers for our children. I hope this meeting will help us all to accept our responsibilities as water leaders, to accept the inevitability of change, and pride ourselves, as the adaptable westerners we are, on our ability to thrive within this change. Thank you.

DAVID HARRISON: I would like to invite comment from the three panelists on what you think the next steps ought to be. What do we do?

GREG HOBBS: I think these are the immediate issues: first is to protect the Water Conservation Board Construction Fund so that use can be made in Colorado of Colorado's water. That has to be done immediately, in a joint effort I would hope by everyone in this room. Secondly, it seems to me we have to sort out the opportunities in Amendment 1 to define water project enterprises so they can go forward and serve our citizens, or else we are going to lose to the downstream states. Third, we have to support efforts like the Colorado River Headwaters Forum that brings people together not only to talk, but to work on discrete issues. I am convinced that the Blue River settlement, water for Graham and Summit Counties, came about because of a spirit of trying to get over the animosity that has been generated over the last 20 years and finally provide some wet water. When people start looking at wet water for uses, they sort for similarities rather than differences. So, there is an immediate agenda there that has long-range implications.

DAN LUECKE: I would just offer one suggestion. Of the many ideas that have been discussed over the past two days that would involve cooperation within the Platte Basin among urban and agricultural users, that there be an initiative there. Perhaps it comes under the auspices of the Department of Natural Resources as the convening body that would bring together urban and agricultural interests to begin discussing a project that might allow for first use, reuse, interruptible supplies. Now that has implications for modeling and a variety of other things, but that would be the element of it. It would have no set timetable; in my view, it would have no set outcome. But it would start a process of investigating such options.

RAY WRIGHT: I think I would take a more philosophical approach than the other two, and say that we go forth from here and attempt to place our priorities on problem-solving, on innovation, take away the incentives toward the antagonism, and put it all behind us in such a way that we can get something done from this point forward.

1993 Colorado Water Convention

CLOSING REMARKS

KEN SALAZAR
Executive Director
Colorado Department of Natural Resources

I would like to thank all of the people whose efforts made this convention possible. During the planning, we were often concerned whether or not all the various interests, including the West Slope, suburbs, etc., were sufficiently represented. At times, over the last several weeks, we even considered postponing the conference. I would like to thank Senator Ament, Hal Simpson, Chuck Lile, Peter Evans and others who suggested that we proceed with the conference as scheduled. There were approximately 350 people present yesterday and again today.

I want to thank the members of the legislature who participated in the conference. I realize that many of them traveled great distances to be with us and I appreciate their time and effort. I would also like to thank the Colorado Water Conservation Board's leadership in examining the basin-of-origin issue and asking the legislature to put together the Basin of Origin Scoping Study.

This convention, as you know, was convened in Denver, however there are many who came a long distance to be here and are spending, in effect, four days of their time to attend this convention. I would like to extend a special thank you to these people.

Finally, I want to thank Kathy Kanda, Jim Garcia and Peter Evans who all worked very diligently on organizing the convention over the past three weeks. While there were some stumbling blocks along the way, it all came together. We have had to move hastily and for those of you that we have offended, I apologize. I have received a nice letter from Arapahoe County stating that we are all wrong on the Union Park Project, and I have heard from others who felt as though they did not have an opportunity at the podium. For that, I apologize. However, I hope that everyone found the convention to have an exciting and fast-paced agenda that relayed new information.

In terms of sharing information on Front Range water issues, I think the conference was very productive. I would like to take this opportunity to highlight some of the products of this convention.

Yesterday, Mayor Wellington Webb made an offer that the Denver system, originally envisioned to be a system that could serve a much greater metropolitan area, is available for cooperative efforts with the rest of the Denver Metropolitan community. That was an important statement that had not, up to this point, been made by the Mayor. The Denver Water Board and the Mayor are in agreement on this position. That, in and of itself, is a significant outcome. It shows some promise in how the suburban communities and others can work together with the Denver Water Department.

Secondly, in regards to the Barr Lake proposal, we heard from a number of agricultural users that they are willing to work with their water rights to see how we might address the needs within the Front Range communities. There are many interesting possibilities within the Barr Lake proposal. For example, it has been configured and engineered as a reuse proposal. However, is it possible for us to incorporate some concepts of dry-year insurance for the metropolitan area within this proposal? Are there other options for those water rights in terms of the flood-control space available in the Cherry Creek, Bear Creek and Chatfield Reservoirs? Are there things that we could do together to enhance the water supply available to the metropolitan area, while at the same time enhancing the opportunities of those who rely on farming for their living? There might be.

In terms of basin-of-origin, we heard information from a variety of people with differing opinions on what direction we should take. It was suggested, by some, that the system is working the way it was intended and should not be altered. On the other extreme, people suggested that an amendment to the constitution of our state is necessary. The direction we choose to take with this issue will affect what happens on Front Range water supply. My own view is that the political momentum to amend the constitution of this state is driven largely by the aftermath of Two Forks, which has left people scrambling to meet the water demand, whether real or perceived, in the Denver metropolitan area. If we can address Front Range water issues in some way, we might be able to lesson some of that political momentum.

That is not to say that the issues and concerns raised by David Robbins and others, in terms of an ultimate remedy, should not be investigated. Personally, I feel that because of the Amendment No.1 issues that the legislature faces this year, we should focus our energy in another direction for the time being. However, it is an issue that will need to be addressed, in terms of legislation, at some point in time. If it is not addressed in legislation, what will happen? Those of us who have had experience with amending the constitution realize that it is not all that difficult to put an amendment before the voters of the State of Colorado. In fact, all one needs is 50,000 signatures, and those signatures can be bought for between \$0.80 - \$1.00.

A challenge that I want to leave you with is that we need to figure out a way of addressing the basin-of-origin issue, and by addressing it we need to understand the modern-day realities we face in terms of the social, economic, and environmental impacts incurred by transferring water from one area of the state to another. Mayor Margaret Carpenter said that this was being done on an ad hoc basis with respect to the Thornton transfer. They have discussed their mitigation package. Harold Miskel made a statement about the mitigation package and the revegetation that is under way in the Lower Arkansas River. The reality is that if we must address these issues, why not find a way to streamline a package that will ultimately allow us to move forward with the transferability of water and at the same time address the environmental, social and economic concerns associated with transfers.

I am a farmer and therefore, I am used to taking land out of production to participate in a number of the agricultural stabilization programs. I am used to setting land aside for ten years under a conservation reserve program. Those are common practices when dealing with the subsidies that are provided to the agricultural community from the federal government. However, when we examine the prospects of dry-year insurance and working with municipalities, we tend to, as an agricultural community, shy away from those. We are challenged with finding a way to be bold in terms of dealing with some of these issues and finding concrete solutions to the water resource challenges that we all face.

Let me conclude, by saying that we, in the water business and water community, sometimes think of water as the beginning and end all of everything. Recently, I was in a very interesting conversation about the Poundstone Amendment. A group of lawyers were brainstorming whether or not the amendment was, in fact, constitutional, and in effect, whether it passed scrutiny under the 14th Amendment of the U.S. Constitution. I was approaching the Poundstone Amendment from the context of metropolitan cooperation and water. Most of the others in the room did not know much about water beyond turning on their faucets. They said, "Ken, how can you talk about water when we have to deal with the issues of education, health care and many other issues in the Denver community." The reality of the situation we face is that if we cannot deal with the water issues, many of the other social and economic challenges that we are facing as a society today cannot be effectively met.

The Water Conservation Board has a meeting scheduled for the 21st and 22nd of January, and we will advise the Governor of the proceedings of this convention. My goal is that within the next 4-8 weeks I would like to be in a position to say that as a result of this convention we, as an executive branch of the state government, are going to move forward and try to implement something. Like most of you in the audience, I have attended many conventions. However, I do not want the proceedings of this conference to become another book on a shelf gathering dust. How we implement the ideas and substance of this convention is something that we will need to consider very carefully over the weeks and months to come. We would like to have your input, participation and thoughts in this process. Thank you.

A P P E N D I C E S

**1993 COLORADO WATER CONVENTION
WORKSHOP IDEAS**

WHAT STRATEGIES WOULD BE MOST SUCCESSFUL TO HELP ASSURE ADEQUATE WATER SUPPLIES FOR THE FRONT RANGE?

GROUP 1

Improve agricultural practices and efficiency; conserve urban use.

- Mandate xeriscaping and stricter water conservation.
- Eliminate residential lawn irrigation.
- Condemn conditional water rights older than 50 years.
- Encourage conservation through education, incentives, and model projects.
- Explore all aspects of interruptable irrigation supply.
- Long-term planning: limit growth of Front Range.
- Improve reuse programs.
- Practice water conservation more intensely.
- Improve agricultural efficiency.

Coordinate efforts, leadership and planning.

- Promote full **disclosure** of water rights information.
- Front Range water providers **cooperate** to efficiently manage (share) their existing supplies via exchanges, conservation, leases.
- Create water sharing and storage agreements.
- Develop a **clearinghouse** for water transactions.
- Develop a **priority** system utilizing major basin wide studies.
- Create a statewide water planning authority.
- Develop a single lead agency.

Change through legislation.

- Support legislation that facilitates, not hampers, solutions.
- Streamlining of adjudication-permitting process.
- Look at what **is** compatible with statutes.
- Change law to reward for increased efficiency.

Cooperate not polarize statewide.

- Use creativity to build win-win solutions.
- Continued development of agricultural-municipal cooperative projects.
- Develop forums for cooperation, coordination and communication.
- Facilitate communication between different factions.
- Develop rewards for transfers across institutional boundaries.
- More focus on East Slope/West Slope cohesiveness.

Better conjunctive use.

- Conjunctive use of ground and surface water.
- Pool all water and even out from yield with massive storage in underground aquifers.
- Streamline government help to support private initiatives.
- Use recharge of aquifers to provide a bypass of treatment of surface water.
- No sewage effluent returned to any stream user for wetlands and crop production.

Privatization of water agencies

Privatize all water agencies!!

Providence

Pray for high water years.

GROUP 3

All sector cooperation.

Beneficial cooperation between entities to share supplies.

Advertise CWCB's ability to administer instream flows **mitigation**

allows environmental groups to invest in water rights,
thereby (possibly) expediting new water projects, creating a
common currency for negotiation.

Is project beneficial to others also.

Implement first use agreement with agricultural users.

Put yourself in the other person's shoes.

Develop joint public/private cooperative projects.

Statewide coordination/cooperation.

Establish rational priorities for water use.

Cooperation between municipalities and agriculture.

Let cities easily and legally share.

Adjust water pricing.

Use a logarithmic cost scale for use.

Insure water users pay "true cost", water development.

State water czar.

Adopt a binding municipal state water plan.

Implement statewide water-use zoning like land-use zoning.

Integration of all water supplies in Colorado.

Govern growth.

Information sharing.

Reduction of basin rivalries thru education.

Identify the problems and obstacles to solutions.

Improve information dissemination; costs/benefits of options.

Provide forum/environment to share information.

Develop a system wide communication network.

Political leadership.

Leadership on economy -- "moving people not water."

Basin authorities.

Reestablish "River Basin Authorities" in our legislation.

Conservation.

Conservation in residential development/land use.

Conjunctive groundwater use.

More use of groundwater during dry years.

Implement conjunctive use of ground water supplies.

Structural alternatives.

Colorado Aqueduct Return Project.

Revise water code and courts.

Streamline water adjudication process.

Wastewater reuse.

Wastewater treatment and reuse.
Reuse effluent.

Storage projects.

New storage facilities.
Build the Poudre Project.

GROUP 5

Category 1.

Don't assume "the West Slope" is a single entity.
Facilitate deals between real players.
Facilitate communication and interests including better water development.
"Win-win" cooperation between basin of origin and user.
Including joint development of projects when applicable.
Joint utilization of haves/have-nots.
Front Range strategies must consider total state.
Develop water supplies with conjunctive use.
Recharging, conjunctive use, exchange with groundwater.
Construct water recharge projects.
Increase use of bedrock aquifers, dry years.

Category 2.

Define the problem: supply vs. demand = need.
Inventory state resource locations and needs.
Agree which sources can meet future need.
Verify real need and supply.
Support a forum for solutions.
Develop accurate urban water needs and existing resources.

Category 3.

Promote system integration with new database models.
Use simulation gaming to promote integrated strategies.
Perform unbiased comprehensive analyses of supply alternatives.

Category 4.

Interrupting irrigation supplies recognizing return flow protection.

Category 5.

Develop statewide water plan.

Category 6.

Educate decision makers about real facts.
Convene public forums to develop consensus.

Category 7.

Construct water storage projects.
Excess Colorado River piped to headwaters of rivers.
Integrate repaired current systems with new storage.

Category 8.

Use pricing to promote conservation.
Encourage conservation (i.e. use less water) (charge more for more water)

Category 9.

Address objectors issues, merely denigrating them wastes resources.

Category 10.

Limit growth.

Category 12.

Metro Water Authority -- to oversee development of "new" water.

Category 13.

Neutralize the effective authority of the E.P.A.

GROUP 7

Statewide water planning.

State controls all new transbasin diversions.
Establish a state wide water authority.
Cooperate with West Slope.
Facilitate interbasin transfers.
Process to accurately determine needs.
Quantify existing and future Front Range demands.
Plan for long range needs.
Encourage state water plan.
Identify incentives to balance surplus deficit supplies.

Cooperate with agriculture.

Cooperate with agriculture through fallow or drought criteria.
Develop cooperative approaches for dry year solutions.
Municipalities and legislators meet with agricultural leaders.
Agriculture and municipal cooperation.

Water use efficiency.

Educate Front Range residents on xeriscaping.
Develop basin water savings bank.
Price water considering life cycle costs.
Mandatory urban and agricultural irrigation reductions. (To be funded with 10 cents/1000 gal urban bills.)
Maximize reuse and conservation incentives.

Municipal cooperation.

Adopt legislation to encourage municipal cooperation.
Eliminate threat of anti-trust liability for cooperation.
Cooperative plan of action to satisfy metro water needs.
Integrate the systems of the providers.

Conjunctive use.

Allow new deep aquifer use only as conjunctive use.

State land planning.

Stop interbasin water transfers.
Discourage new towns where water is not available.
Provide better strategic planning. (Community, size and location.)

Provide increased storage.

Provide more adequate storage.
Groundwater storage facilities.

GROUP 9**Education.**

Develop traveling water education program.
Change attitudes regarding water use in arid regions.
Educate water users on conservation methods.

State wide planning.

Systematically prioritize Front Range/state development objective.
Define objectives with input from lowest levels.
Have state identify Colorado's common water interests.
Initiate a state water plan.
Develop a statewide water development plan.
State economic development plan -- state water plan.
Determine how much and who needs water.
To build a state water planning process: 1. Begin at grass roots of each region. 2. Compare commonalities to identify results/opportunities. 3. Define the plan.

Front Range cooperation.

Assess the water facilities and supplies of the Front Range water communities.
Develop a plan to coordinate the use of these facilities and supplies for maximum benefit to the Front Range.
Establish workable operating metro water authority.
Continue to perfect an integrated system.
Establish a vehicle to provide communication and coordination.
Develop cooperative efforts among metro users.
Develop integral planning from local/regional levels.
Open federal projects to Front Range use.
Develop cooperation and systems integration between users.
Look at systems integrated ideas.
Implement cooperative concepts: information sharing, spot markets.

Build new storage.

West Slope water storage for trans-mountain water delivery.
More storage lakes, etc.

Basin of origin.

Contact users from the area where originates.

Alternative dispute resolution.

Establish mediation forum as alternative to litigation.

Economic considerations.

Quantify economic implications of alternative approaches.
Concentrate on cost effective water supply solutions.

Growth management.

Develop areas with a surplus of water.
Encourage development in areas where supply exists.
Growth control based on guaranteed water supply.
Limit Front Range growth.
Implement statewide growth management.

Efficient water use.

Encourage farmers sell water saved from efficiencies.
Implement system integration/coordination.
Promote more water-efficient landscaping.
Encourage efficiency in water use.

Multiple uses.

Appeal to environmental and recreational public preferences.
Build up stream reservoirs for multiple use.

GROUP 11

Increase storage.

Increase storage and better cooperation among users.
Build water storage dams.
Increase storage of current dams.
Reallocate Chatfield Reservoir storage.

Establish a Front Range providers group to: develop strategy; reassess institutional responsibilities; promote system integration; and promote public participation.

Develop regional strategies and institutions.
Create Front Range Water Authority.
Expand Water Board service area.
Legislate consolidation of providers.
Create system integration implementation team.
Redefine Front Range concept/or boundary.

Develop transbasin diversions with reasonable mitigation and develop collaborative procedures to solve basin of origin problems.

Develop transbasin diversions with reasonable mitigation.
More transbasin diversions with environmental, economic soundness.
Work to keep Colorado water in Colorado.
Colorado River aqueduct return project would work.
Require reasonable mitigation for basin of origin.
Have West Slope define method for 100,000 AF supply.

Improve public education on water issues.

Educate public on need for additional storage.
Rebuild a public culture through education.

Facilitate statewide water cooperation.

Cooperate statewide; water for Colorado first.

Increased storage with cooperation of entities.
Form water partnership with Western Slope governments.
Cooperate between all sectors and geographic areas.
Change AG decrees to multiple use decrees.
Eliminate bureaucratic red tape.
Identify entities with common needs.
Municipalities and agriculture work together.
Use common sense mixed with a today's reality.

Force conservation.

Attack gridlock: prohibit water development until 2020.
To double supply, double the retail price.

Gather, develop and disseminate accurate water data.

Accurately determine total need by area.
Develop common data/information bases.

Match growth to water supply.

Spread employment throughout state where water is.
Limit population growth to certain water supply.

Develop statewide water plan.

Develop statewide water plan -- quantify and prioritize.
Negotiate intrastate compact.

Integrate social policy with water policy.

Insure sustainable access for the poor.

WHAT CAN THE STATE DO TO HELP ASSURE ADEQUATE WATER SUPPLIES FOR THE FRONT RANGE?

GROUP 2

Facilitate the development of a state water plan.

Develop water allocated by compact as required to meet Front Range needs.

Make Feds fight fair.

Play hardball to make feds fight fair.

Promote conservation.

Mandate water conservation practices.
Tax incentives for desert landscapes.
Provide incentives to conserve nonrenewable groundwater.
Pass a good agriculture water conservation bill.
Provide economic incentive to promote conservation.

Develop underground water.

Encourage agricultural municipal cooperation.

Store water high. (Cities use water first.)
Encourage municipal/agricultural 1st/2nd use agreements.
Facilitate interruptible agricultural/municipal water transfers.

Simplify water legal process.

Soften legal test for conditional water rights -- not further
complicate the process.
Change to administrative, not adjudicated water allocation.
Streamline and simplify process for water right transfers.

Protect irrigated agriculture.

Combine State Engineer office and CWCB.

Keep out of the process.

Keep out if whole state's not involved.
Let providers do planning, but facilitate various solutions.

Facilitate water user cooperation.

Mandate cooperative management/development (like Wastewater District).
Establish drainage cooperative districts.
Facilitate coordination between Metro users.
Coordinate uses -- cooperate.
Encourage exchange of water collection system information.
Develop financing sources for multi-user projects.
Provide crutch to help broach political subdivisions.
Work in cooperation with the water suppliers.

Facilitate state water plan.

Facilitate a state water plan.
Promote discussion of what 'adequate' means?

Incorporate grass roots input.
Quantify demand (reliable).
Act as main facilitator, repository of information.
Need an inventory of available water.
Fund, plan, organize and monitor progress.
Assist in providing technical information.

Develop unallocated water.

Develop consensus and then develop compact entitlement.
Make Front Range water development a goal.
Join in a West Slope water storage project.

GROUP 4

Basin of Origin.

Encourage Western Slope jobs -- to move population.
Move people to water.
Make friends with Western Slope.
Create jobs in the basin of origin.

State water policy/forum.

Provide consensus statewide strategy for water development.
Coordinate (not mandate) state water policy development.
Involve agricultural interests before deciding state policy.
Initiate work on formal state water plan.
Facilitate planning with Metro providers.
Provide forum to bring diverse groups together.

Conservation efficiency.

Encourage conservation.
Get tougher.
Police the users.
Change crops to less thirsty, more valuable ones.
Create water bank and construct exchange interconnections.
Water conservation share shortage -- pull up belt.
Learn from southern California -- implement the best of their ideas.

Legal reform.

Kill all lawyers.
Revise law, allow sale of conserved water.
Reduce restrictions on temporary water transfers.
Implement use of technical arbitration.
Alter institutional structures to benefit all users.

No action alternative.

Leave well enough alone -- the system works.
Butt out.
Don't look to Western Slope.

Public info.

Provide adequate information and education to public.

Funding incentives.

Create incentives for groundwater storage/recharge programs.
Provide funding for pilot projects.
Provide financing mechanism if needed.
Local enterprise zones near reusable supplies.

Construction projects.

Establish policy fund saving interstate compact water.
Implement "Colorado Adequate Return Project" (CARP).
Develop federally approved storage projects on Western Slope.

Technical data.

Collect data on supplies/projections.
Maintain quality water data in accessible format.
Publish available facilities and supplies, plus needs.

Regional water authority.

Create a "SUPER" Water Management Authority.

GROUP 6**Develop incentives and procedures for conservatives reuse, exchanges, efficient use of existing systems, and dry years agriculture leasing and sale of water savings.**

Procedures for using agricultural water during droughts.
Encourage efficient use of existing facilities/supplies.
Legalize sale of water savings.
Provide incentives for conserving water (reduced taxes, rates etc.).
Provide incentives for conservation, reuse, and exchanges.
Develop incentive for water efficiency.

Provide forum for communication and cooperation, a nonpartisan and nonadversarial atmosphere. Purpose: to generate ideas, identify those interests affected by projects, mediate conflict and assist networking. Provide more efficient notification to parties involved.

Provide forum for state-federal issue resolution.
Involve rural interests in the planning process.
Facilitate local interests by assisting process.
Provide forum for continue interaction.
Provide forum for resolution of conflict without litigation.
Seek cooperation at all levels.

Provide easily useable basic water data.

Maintain monitoring program to collect data, compile and publish data, and utilize data for enhanced administration.
Use decision support system to administer water rights.
Provide technical management resources.
Help direct possible solutions to specific local problems.
Act for networking: ideas/resources/integrating systems.
Act as an independent and objective fact-finder.
Publish water data/information for public understanding.
Provide easily usable basic water data.
Supply needed data and resources.

Get out of the way. Let the market system operate. Leave the cities alone. Play a passive role in project development.

Leave alone the cities with independent water systems.
Privatize the available state water supplies.
Recognizing value/injury in private enterprize groups.
Do not own water rights.
More flexibility in administration of priority system.
Passive role to: facilitate/mediate.
Assist not hinder water use ideas.
Stay out of the way of providers.
Let the market operate.

Streamline water court procedures.

Legislate streamlines water court procedures.

Better funding for water administration.

Develop a state water plan and policy.

Develop a state water plan.
Develop a statewide water policy or project.

Identify feasible water supply projects statewide.

Utilize existing dam works not now used.
Store excess state water in nontributary aquifers.
Be willing to explore new ideas.
Identify feasible water supply projects statewide.

Provide funding for water projects.

Provide funding to reduce reservoir storage restrictions.
Help water-short municipalities.
Provide grants/loans for rehabilitation of existing dams
(restricted reservoirs).
Water storage projects will help underground regeneration.
Help fund pilot studies for cooperative projects.
Provide funding for local projects.

GROUP 8

Promote water conservation.

Provide benefit for conservation successes.
Sufficiently educate the public about water conservation.
Real incentives for conservation of surface water.
Implement best management practices.
Real incentives for underground water conservation.
Promote more reuse of water.
Encourage conservation with \$\$\$ incentives.

Enhanced data collection and decision support system.

Develop a system to monitor and acquire water resources data.
Provide data and decision support system.
Fund research on state's hydrology.
State should develop an accepted data base.

State acts as facilitator.

Provide forum for diverse/competing interests.

Mediate disputes.
Stop East Slope versus West Slope thinking.
Facilitate discussion among groups with conflict.
Provide vehicles for cooperation equitable for all.
Convene quarterly forum as idea clearinghouse.
Gather all expert entities and get ideas.
Bring players together for discussions.

Develop Colorado's compact entitlement.

Understand the real need for water.
Use Colorado water in Colorado first.

Greater state authority.

Move 1041 permit process from county to the state.
Replace water court as fact finder.
The state should exert greater regulatory authority.
Force new Metro Roundtable by: (1) SB-5 change to 200 yr. life;
(2) tougher water supply standards for subdivision; (3) no
new projects until talk.

Adhere to current state law.

Protect private property rights.
Assure water development within prior appropriation doctrine.
Stay out of it.

Coordinated use of new and existing projects.

Coordinate structure construction and use.
Encourage coordinated system development operation.
Develop municipal storage space at Chatfield/Cherry Creek.
Expand storage capacity throughout the state.
Credit agriculture for storage increasing recharge.

Develop statewide water policy.

Develop framework (water policy) for future.
Follow up Rozaklis report with further system integration study.
Establish consistent, comprehensive water policy through out all
departments.
Facilitate an instate compact or water plan.

Limit federal intervention in state rights.

Take on the Forest Service.
Minimize or completely negate federal intervention.
Reduce over regulation and ease permit process.
Provide leadership in resolving federal permitting issues.

Limit growth.

Invent incentives to curb growth.

GROUP 10

Growth management.

Provide incentives for growth on Western Slope.
Encourage decentralization of business to Western Slope.
Control growth on the Front Range.
Develop statewide goals for conservational environmental
measures.

Cost issues.

Require water to be sold to highest bidder.
Oppose farm subsidies.
Tax conditional water rights to operate D.W.R.
Make users pay real water costs.

Strategic planning.

Educate the public on long-term water needs.
Help finance studies and impact.
Determine what an adequate supply is.
Provide data for supply, demand, compact entitlement.
Provide real time monitoring systems.
Develop plan for catering Colorado entitlement water.
Define "Front Range" at Pueblo to Fort Collins.
Fund water plans which others can buy.

Cooperate & coordinate.

Make decisions plenty of ideas are available.
Maximize utilization of existing Front Range facilities.
Look for alternatives, maximize recycling of water.
Use all resources at hand cooperatively.
Create "Kokopelli" approach, traveling ideas and thoughts.
Create negotiating forum other than courts.
Lawn irrigation with untreated, reuse water.
Help water users come together and work together.
Implement plans for cooperation; sit down and talk.
Coordinate groups to facilitate maximum efficiency.
Develop exchange programs by district.
Facilitate reuse planning and coordination.

GROUP 12**Information communication.**

Assure that all interested parties are represented.
Solicit information input from General Assembly.
Facilitate communication.
Collect more data on available supplies.
Provide expertise, guidance and funding
Fund decision support technology and information access.
Start information barrage about what is water supply issue?

Conserve.

Promote water conservation education.
Teach public to conserve water.
Teach conservation in public schools.
Raise the cost of home owners to enforce conservation.
Implement high visibility xeriscaping promotion.
Reuse, recycle as often as possible.
Promote conservation through appropriate laws and incentives.

Legislative solutions.

Ensure laws and regulation, facilitate innovative solutions.
Be a leader in necessary statutory changes.
Quit fighting/blocking small water rights changes.
State should be involved only through legislation.
Streamline water court process.

Cooperative planning.

Provide incentives for cooperative water planning.
Develop a statewide water plan.
Provide forum for local agency cooperation.

Protect agriculture.

Do not destroy agriculture water rights.
Lease water from farmers instead of buying.

Supply options.

Assist in storage capacity projects for districts.
Make use of available Front Range supplies.
Consider state water bank program.
Build several small storage projects.
Encourage/permit upstream storage by priority.

Market solutions.

Set fixed dollar TAXES for interbasin transfers.
Promote a free market in water rights.
Set appropriate parameters for water market.
Reduce institutional impediments to agricultural urban transfers.

Imposed solutions.

Impose a Metro Water Authority on all.
Keep growth in step with supply.

- Others called for additional representation and/or participation from: municipal interests (1); realtors (1); technicians and technical experts (2); the West Slope (3); downstream states (1); agriculture (4); recreational and environmental groups (7); and private water developers (1).
- 3 said the convention was too pro-development; 1 said the convention was too anti-development.
- 6 indicated they liked the concept of concentrating on narrowly defined topics in-depth. On the other hand, 6 indicated that more topics and/or broader themes would be more productive at future meetings of this kind; 2 of these 6 respondents said water quality should have been addressed in more depth at the 1993 meeting.
- 18 felt that the program agenda was too tight. Concerns included the lack of informal discussion time at breaks and not enough time for audience questions to and interaction with speakers/panelists.
 - Related comments indicated that more time should be set aside for small group workshops to facilitate more attendee participation and in-depth analysis of possible solutions. Though 1 comment criticized the workshop process as "too structured," 4 comments praised the process.

- Other suggestions:
 - Database information and/or fact sheets should be distributed in advance of future meetings to enable attendees to prepare to participate more fully. (2)
 - Regional forums should be held as a follow-up to the 1993 meeting. (2)
 - A future conference should focus on federal laws and regulations that affect water issues in Colorado. (2)

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BURR	CARYOLN		MEDIA
BURT	WILL	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
BUSH	LYLE	1819 DENVER WEST DR., BLDG. 26, STE 400, GOLDEN, CO 80401	COORS BREWING COMPANY
BUSH	GEORGE H.	P.O. BOX 131, KEENESBURG, CO 80643	LOST CREEK GROUND WATER MANAGEMENT DISTRICT
CAMPBELL	GREGG A.	1546 COLE BLVD., SUITE 265, GOLDEN, CO 80401	KIOWA RESOURCES INC
CANNON	C.A. (ART)	P.O. BOX 347, MONTROSE, CO 81402	TRI-COUNTY WATER CONSERVANCY DISTRICT
CARLSON	DAVID	700 KIPLING ST. SUITE 4000, LAKEWOOD, CO 80215	COLORADO DEPT OF AGRICULTURE
CARPENTER	MARGARET	9500 CIVIC CENTER DR., THORNTON, CO 80229	MAYOR OF THORNTON
CARTER	CRYSTAL	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
CASEY	TIM	P.O. BOX 2340, BRECKENRIDGE, CO 80424	MOUNTAIN MARKETING
CASSIDY	SAM	CAPITAL BLDG., DENVER, CO 80202	STATE SENATOR
CASTLE	ANNE	555 17TH ST. #2900, DENVER CO 80202	HOLLAND & HART
CATTANY	RON	1313 SHERMAN ST., DENVER, CO 80203	EXEC DIR OFFICE - DEPT NAT RESOURCES
CAZIER	STAN W.	P.O. BOX 500, GRANBY, CO 80446-0500	MIDDLE PARK WATER CONSERVANCY DISTRICT
CECH	TOM	3209 WEST 28TH STREET, GREELEY, CO 80631	CENTRAL COLORADO WATER CONSERVANCY DISTRICT
CHASE	KATHERINE	2525 16TH ST., SUITE 210, DENVER, CO 80211	TAGGART ENGINEERING ASSOCIATES INC
CHASTANT	RENEE	9500 CIVIC CENTER DR., THORNTON, CO 80229	CITY OF THORNTON
CHLOUFER	KEN	CAPITAL BLDG., DENVER, CO 80202	STATE REPRESENTATIVE
CLARK	JEFF	9500 CIVIC CENTER DR., THORNTON, CO 80229	CITY OF THORNTON
CLARK	JOHN	12050 PECOS STREET, SUITE 100, DENVER, CO 80234	GRONNING ENGINEERING CO
CLARK	THOMAS	5650 YORK STREET, COMMERCE CITY, CO 80022	PURECYCLE CORP
CLARK	LINDA A.	1050 17TH ST., SUITE 2100, DENVER, CO 80265	PIPER JAFFRAY INC
COATS	JOHN	1040 SOUTH 8TH STREET, COLO. SPRINGS, CO 80906	URS CONSULTANTS
COFFIN	STEVE	P.O. BOX 1087 COLORADO SPRINGS, CO 80944	COLORADO WATER SUPPLY
CORDOVA	WILLIAM	P.O. BOX 880, TRINIDAD, CO 81082	CITY OF TRINIDAD
CRAGO	KEVIN	P.O. BOX 100, FT. MORGAN, CO 80701	CITY OF FORT MORGAN
CURTIS	RALPH	10900 HWY. 160 EAST, ALAMOSA, CO 81101	RIO GRANDE WATER CONSERVATION DISTRICT
DANIELSON	JERIS	6805 W. 4TH AVE., LAKEWOOD, CO 80226	DANIELSON & ASSOCIATES
DARLING	ROD	6900 W. QUINCY AVE., #2B, LITTLETON, CO 80123-1385	DARLING LAND CO
DASS	PURUSHOTTAM	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
DAVIS	MARK	1313 SHERMAN ST., DENVER, CO 80203	BOARD OF LAND COMMISSIONERS
DE GETTE	DIANA	511 16TH ST. #300, DENVER, CO 80202	STATE REPRESENTATIVE
DEBRINE	BRUCE	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
DENEEN	MICHAEL F.	1700 ARAPAHOE ST., GOLDEN, CO 80419	JEFFERSON CO POLICY DEVELOPMENT UNIT
DEOREO	BILL	3030 15TH STREET, BOULDER, CO	
DESILET	RON	2126 N. WEBER, COLO. SPRINGS, CO 80907	COLORADO DIVISION OF WILDLIFE
DINATALE	KELLY	4800 W. 92nd AVE., WESTMINSTER, CO 80030	CITY OF WESTMINSTER
DISCHINGER	JOSEPH B.	511 16TH ST. , SUITE 500, DENVER, CO 80202	WHITE & JANKOWSKI
DREHER	KARL	P.O. BOX 679, LOVELAND, CO 80539	NORTHERN COLORADO WATER CONSERVANCY DISTRICT
DUCOMMUN	DENNIS	P.O. BOX 3077, WINTER PARK, CO 80482	GRAND COUNTY WATER AND SANITATION

DUMM	ELLEN	1470 S. HAVANA, #400, AURORA, CO 80012	CITY OF AURORA
DUNCAN	SARA	1600 W. 12TH AVE., DENVER, CO 80254	DENVER WATER DEPARTMENT
DURAN	BENITA	1777 LARIMER ST. #1105, DENVER, CO 81502	HISPANIC LEAGUE
DWYER	BLAINE	5660 GREENWOOD PLAZA BLVD. #500, ENGLEWOOD, CO 80111	ECI
DYCE	BETTY	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
EASLEY	TOM	1313 SHERMAN ST., RM. 618, DENVER, CO 80203	COLORADO STATE PARKS
EATON	BRAD	749 MAIN ST., LOUISVILLE, CO 80027	CITY OF LOUISVILLE
ECKERT	TOM		
EID	SANDRA	777 GRANT, #606, DENVER, CO 80203	SIERRA CLUB - ROCKY MOUNTAIN CHAPTER
EISEL	LEO	2490 W. 26TH AVE., SUITE 100-A, DENVER, CO 80211	COLORADO WATER CONSERVATION BOARD
EISENACH	ROBERT L.	14750 ROAD 16, FORT MORGAN, CO 80701	STATE REPRESENTATIVE
ELA	EVAN	9500 CIVIC CENTER DR., THORNTON, CO 80229	CITY OF THORNTON
ELLISON	BRIAN	1244 SPEER BLVD., SUITE 800, DENVER, CO 80204	U.S. GOVERNMENT ACCOUNTING OFFICE
ELLITHORPE	RICK	P.O. BOX 1179, CENTER, CO 81125	SAN LUIS VALLEY WATER CONSERVANCY DISTRICT
ELSON	THOMAS		U.S. FOREST SERVICE
ENTZ	LEWIS	CAPITAL BLDG., DENVER, CO 80202	STATE REPRESENTATIVE
ERKER	CYNTHIA L.	P.O. BOX 596, FORT MORGAN, CO 80701	MORGAN COUNTY COMMISSIONER
ETHREDGE	JACK	9500 CIVIC CENTER DRIVE, THORTON, CO 80229	CITY OF THORTON
EVANS	JO	777 GRANT ST., 3606, DENVER, CO 80203-3518	COLORADO ENVIRONMENTAL COALITION
EVANS	PETER	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DEPARTMENT OF NATURAL RESOURCES
FARBES	HUBERT	1600 W. 12TH AVE., DENVER, CO 80254	DENVER WATER BOARD
FARR	WILLIAM	P.O. BOX 878, GREELEY, CO 80632	NORTHERN COLORADO WATER CONSERVANCY DISTRICT
FAUX	JOHN	700 FLORIDA AVE, SUTIE 500, LONGMONT, CO 80501	ROCKY MOUNTAIN CONSULTANTS
FELT	JAMES G.	319 NORTH WEBER, COLO. SPRINGS, CO 80903	UNIVERSITY OF COLORADO CONTINUING EDUCATION
FERNANDEZ	JAMES	P.O. BOX 880, TRINIDAD, CO 81082	CITY OF TRINIDAD
FIELD	FRED	200 EAST VIRGINIA AVE., GUNNISON, CO 81230	GUNNISON COUNTY
FIFER	SCOTT	802 GRAND AVE., SUITE 302, GLENWOOD SPRINGS, CO 81601	RESOURCE ENGINEERING INC
FISCHER	ROLAND C.	P.O. BOX 1120, GLENWOOD SPRINGS, CO 81602	COLORADO RIVER WATER CONSERVATION DISTRICT
FISHBEIN	NANCY	1244 PINE ST., BOULDER, CO 80302	THE NATURE CONSERVANCY
FITZGERALD	PATRICK	8739 W. COAL MINE AVE., LITTLETON, CO 80123	PLATTE CANYON WATER & SANITATION DISTRICT
FLACK	PAUL	1470 S. HAVANNA ST., RM. 400, AURORA, CO 80012	
FONDA	STEWART	3400 S. ELATI ST., ENGLEWOOD, CO 80110	ENGLEWOOD UTILITIES DEPT
FORD	LARRY L.	P.O. BOX 597, COMMERCE CITY, CO 80037-0597	SOUTH ADAMS COUNTY WATER & SANITATION DEPT
FOSTER	SUSAN	5398 MANHATTAN CIRCLE, BOULDER, CO 80303	THORNE ECOLOGICAL INSTITUTE
FRANCE	JOHN	4582 S. ULSTER ST., SUITE 1000, DENVER, CO 80237	WOODWARD-CLYDE CONSULTANTS
FREYER	JOHN		LEHMAN NEWSPAPERS
FRIEND	BUTCH	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DEPARTMENT OF NATURAL RESOURCES
GABEL	SHARON	599 WRIGHT ST., #102, LAKEWOOD, CO 80228-1112	STUDENT - UNIVERSITY OF COLORADO
GALLAGHER	DENNIS	CAPITAL BLDG., DENVER, CO 80202	STATE SENATOR
GALLEGOS	JOE	P.O. BOX 42, SAN LUIS, CO 81152	COSTILLA COUNTY CONSERVANCY DISTRICT
GARCIA	JIM	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DEPARTRMET OF NATURAL RESOURCES
GARRETT	LESTER D.	1905 SHERMAN ST., #750, DENVER, CO 80203	COLORADO OIL & GAS ASSOCIATION
GEISENDORFER	PAUL	BOX 197, GRANBY, CO 80446	COLUMBIA DIVIDE PROJECT
GEORGESON	DUANE		METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
GERSTLE	JOHN	1002 WALNUT ST., SUITE 200, COULDER, CO 80302	HYDROSPHERE RESOURCE CONSULTANTS
GEYLER	JAMES	2252 E. MAIN, RANGELY, CO 81648	RIO BLANCO WATER CONSERVANCY DISTRICT
GILLESPIE	MIKE	655 PARFET ST., RM. E20C, LAKEWOOD CO 80215-5517	
GILLESPIE	DON	P.O. DRAWER 790, GLENWOOD SPRINGS, CO	DELANEY & BALCOMB, P.C.
GIMBEL	JENNIFER	110 16TH ST., 10TH FLOOR, DENVER, CO 80202	ATTORNEY GENERAL'S OFFICE
GLAZER	STEVEN	P.O. BOX 459, CRESTED BUTTE, CO 81224	POWER & HCCA
GOFF	HARRY	P.O. BOX 97, DURANGO, CO 81302	GOFF ENGINEERING
GOOD	BILL	3150 CHERRY CIRCLE DRIVE	COLORADO ASSOCIATION REALTORS

GOODWIN	DENZEL	BOX 176, WESTCLIFFE, CO 81252	UPPER ARKANSAS WATER CONSERVANCY DISTRICT
GORDON	KEN	CAPITAL BLDG., DENVER, CO 80202	STATE REPRESENTATIVE
GORSUCH	E. L.	11248 E. BULTHIC DR., AURORA, CO 80014	RANCHER
GRANTHAM	JODY	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
GREEN	BILL	6784 E. CEDAR AVE., SUITE 709, DENVER, CO 80224	WATER RESOURCES CONSULTING
GREENE	CHUCK	718 17TH ST., SUITE 808, DENVER, CO 80202	THE THIRD CREEK CORPORATION
GREIN	IVAN	16300 E. 168TH, BRIGHTON, CO 80601	BRIGHTON LATERAL DITCH CO
GRIGG	NEIL	P.O. BOX 580, FORT COLLINS, CO 80522	CITY OF FORT COLLINS W&WW UTILITY
GRISWOLD	TOM	1470 S. HAVANA ST., AURORA, CO 80012	CITY OF AURORA UTILITIES
GRONNING	LLOYD	12050 PECOS STREET, SUITE 100, DENVER, CO 80234	GRONNING ENGINEERING CO
HAFELI	JULIANNE	1000 10TH ST., GREELEY, CO 80631	CITY OF GREELEY
HALBERT	JEFF R.	P.O. BOX 104, LUCERNE, CO 80646	NEW CACHE LA POUDDRE IRRIGATION CO
HALFFIELD	DON	1225 17TH STREET, SUITE 1100, DENVER, CO 80202	PUBLIC SERVICE COMPANY OF COLORADO
HALL	JIM	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
HALLEY	RONALD, JR.	1310 WADSWORTH BLVD., #100, LAKEWOOD, CO 80215	HYDRO-TRIAD, LTD
HAMEL	ALAN C.	P.O. BOX 400, PUEBLO, CO 81002	BOARD OF WATER WORKS OF PUEBLO
HAMILL	JOHN	P.O. BOX 25486, DENVER, CO 80225	U.S. FISH & WILDLIFE SERVICE
HAMILTON	RICHARD	P.O. BOX F, SHAWNEA, CO 80475	W.A.T.E.R. INITIATIVE
HAMPTON	REX		GOLDEN CYCLE GOLD CORPORATION
HANSSON	MARGARET	5650 YORK STREET, COMMERCE CITY, CO 80022	PURECYCLE CORPORATION
HARDING	MARK	5650 YORK STREET, COMMERCE CITY, CO 80022	PURECYCLE CORPORATION
HARPER	JUDSON	203 ADMINISTRATION, FORT COLLINS, CO 80523	COLORADO WATER RESOURCES RESEARCH INSTITUTE
HARRIS	STEVEN C.	954 SECOND AVE., DURANGO, CO 81301	SOUTHWESTERN WATER CONSERVATION DISTRICT
HARRISON	DAVID	P.O. BOX 1440, BOULDER, CO 80306	COLORADO WATER CONSERVATION BOARD
HART	TREVOR	680 N. WILCOX ST., CASTLE ROCK, CO	TOWN OF CASTLE ROCK
HATAMI	BAHMAN	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
HATTON	TOM	4851 INDEPENDENCE ST., WHEAT RIDGE, CO 80033	HATTON WATER CONSULTANTS
HAUBALD	REINER	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
HELLBUSCH	RON	4800 W. 92ND AVENUE, WESTMINSTER, CO 80030	CITY OF WESTMINSTER
HELTON	DUANE	384 S. INVERNESS DR., SUITE 115, ENGLEWOOD, CO 80112	HELTON & WILLIAMSON, P.C.
HENDRICK	JOHN	5984 S. PRINCE ST., SUITE 200, LITTLETON, CO 80120	HENDRICK ENGINEERING
HENRY	ANDY	P.O. BOX 440, GRANBY, CO 80446	TOWN OF GRANBY
HERMUNDSTAD	MARK A.	P.O. BOX 338, GRAND JUNCTION, CO 81502	WILLIAMS, TURNER & HOLMES, P.C.
HERNANDEZ	TONY	CAPITAL BLDG., DENVER, CO 80202	STATE REPRESENTATIVE
HIGH	LUCY	WESTERN STATE COLLEGE, GUNNISON, CO 81231	COLORADO WATER WORKSHOP
HILD	HEIDI	10800 E. BETHANY DR., SUITE 450, AURORA, CO 80014	ROCKY MOUNTAIN FARMERS UNION
HILL	JOHN	7291 S. PONTIAC WY, ENGLEWOOD, CO 80112	
HILL	JOHN		ALAMOSA/VALLEY COURIER
HILL	DAVID G.	1401 WALNUT ST., SUITE 500, BOULDER, CO 80302	CHRISMAN, BYNUM & JOHNSON, P.C.
HILLHOUSE	BILL		HILTON & SPAANSTRA
HINCHMAN	STEVE	P.O. BOX 1090, PAONIA, CO 81428	HIGH COUNTRY NEWS
HOBBS	GREG		HOBBS, TROUT & RALEY, P.C.
HOBBS	NOEL	12603 E. BATES CIRCLE, AURORA, CO 80014	WESTERN WATER RESOURCES
HOLDERN	STEVE	C/O 770 GRANT AVE #200, DENVER, CO 80218	U.S. SENATOR BEN NIGHTHORSE CAMPBELL'S OFFICE
HOLDREN	JOHN	P.O. BOX 287, WIGGINS, CO 80654	TOWN OF WIGGINS
HOPPE	DIANE	14066 GREENWAY DR., STERLING, CO 80751	U.S. SENATOR HANK BROWN
HORN	STEVEN	700 KIPLING ST. SUITE 4000, LAKEWOOD, CO 80215	COLORADO DEPARTMENT OF AGRICULTURE
HOWARD	LARRY	200 N. WILSON, LOVELAND, CO 80537	CITY OF LOVELAND WASTEWATER DEPT
HUM	RICK	P.O. BOX 68, BRECKENRIDGE, CO 80424	SUMMIT COUNTY GOVERNMENT
HUNT	JOYCE	9500 CIVIC CENTER DRIVE, THORTON, CO 80229	CITY OF THORTON
HUTCHINS	RUTH	P.O. BOX 572, FRUITA, CO 81521	MESA COUNTY WATER ASSOCIATION
HYDE	BRIAN	1313 SHERMAN ST., DENVER, CO 80203	COLORADO WATER CONSERVATION BOARD

JAMIESON	STEVE	5660 GREENWOOD PLAZA BLVD., STE 202, ENGLEWOOD, CO 80111	GEI CONSULTANTS
JANKOWSKI	DAVID F.	511 16TH ST. , SUITE 500, DENVER, CO 80202	WHITE & JANKOWSKI
JANSSEN	STEVEN	745 WALNUT, BOULDER, CO 80302	HENRYLYN IGGIGATION DISTRICT
JAQUET	NEIL	1819 DENVER WEST DR., BLDG. 26, STE 400, GOLDEN, CO 80401	COORS BREWING COMPANY
JEFFERS	STEVEN P.	P.O. BOX 1440, BOULDER, CO 80306	MOSES, WITTEMYER, HARRISON & ...
JENCOSK	GENE	1313 SHERMAN ST., DENVER, CO 80203	COLORADO WATER CONSERVATION BOARD
JERKE	BILL	CAPITAL BLDG., DENVER, CO 80202	STATE REPRESENTATIVE
JOHNSON	LYNN	999 18TH STREET, SUITE 945, DENVER, CO 80202	DEPT OF JUSTICE, ENVIRONMENT & NAT RES
JOHNSON	JOAN	7951 YARD #3, DENVER, CO 80229	STATE SENATOR
JONES	KATE	1313 SHERMAN ST., DENVER, CO 80203	EXEC DIR OFFICE - DEPT NAT RESOURCES
JONES	SARA L.	10900 HWY. 160 EAST, ALAMOSA, CO 81101	RIO GRANDE WATER CONSERVATION DISTRICT
JONES	WEBB	P.O. BOX 2044, FORT COLLINS, CO 80522	EAST LARIMER COUNTY WATER DISTRICT
JONES	FRANK	625 WARREN LANDING, FT. COLLINS, CO 80525	ATTORNEY
JORDAN	CHARLIE	1600 W. 12TH AVE., DENVER, CO 80254	DENVER WATER DEPARTMENT
JOUFLAS	CHRIS	748 GOLDFORE DR. , GRAND JUNCTION, CO 81506	JOUFLAS SHEEP CO
KAHN	SHERE	9500 CIVIC CENTER DRIVE, THORTON, CO 80229	CITY OF THORTON
KAHN	JEFFREY	P.O. BOX 978, 515 KIMBARK STREET, LONGMONT, CO 80502-0978	GRANT, BERNARD, LYONS & GADDIS, P.C.
KANDA	KATHY	1313 SHERMAN ST., DENVER, CO 80203	EXEC DIR OFFICE - DEPT NAT RESOURCES
KAPLAN	MARSHALL	1100 14TH ST., UCD, DENVER CO 80202	GRADUATE SCHOOL OF PUBLIC AFFAIRS, UC-DENVER
KELLY	JOE A.	P.O. BOX 489, LA JUNTA, CO 81050	CITY OF LA JUNTA
KEMPER	DOUG	1470 S. HAVANA ST., AURORA, CO 80012	CITY OF AURORA UTILITIES
KENNY	JERRY F.	165 S. UNION BLVD., SUITE 200, LAKEWOOD, CO 80228	BOYLE ENGINEERING
KEPLER	KEITH	P.O. BOX 456, MONTROSE, CO 81402	COLORADO DIVISION OF WATER RESOURCES
KERKSIEK	F.W.	13200 HEADLIGHT MILE RD., STRASBURG, CO 80136	COLORADO GROUND WATER COMMISSION
KERNS	PEGGY	CAPITAL BLDG., DENVER, CO 80202	STATE REPRESENTATIVE
KESTER	W.A.	P.O. BOX 41, BLANCA, CO 81123	TRINCHERA WATER CONSERVANCY DISTRICT
KILLIP III	WILLIAM	1313 SHERMAN ST., DENVER, CO 80203	BOARD OF LAND COMMISSIONERS
KIMBALL	KITT	1626 COLE BLVD., GOLDEN, CO 80401	AMAX RESOURCE CONSERVATION
KINDQUIST	CATHY	P.O. BOX 247, GUFFEY, CO 80820	UNIVERSITY OF BRITISH COLUMBIA
KIRBY	ROBERT	1700 LINCOLN ST., SUITE 3800, DENVER, CO 80203	GRIMSHAW & HARRING, P.C.
KLINGSMITH	P.C.	P.O. BOX 59, GUNNISON, CO 81230	KLINGSMITH & ASSOCIATES, P.C.
KNIPP	CAROLYN	5398 MANHATTAN CIRCLE, BOULDER, CO 80303	THORNE ECOLOGICAL INSTITUTE
KNOX	KIRVIN L.	108 ADMINISTRATION BLDG., FT. COLLINS, CO 80523	COLORADO STATE UNIVERSITY
KNOX	KEN	P.O. BOX 456, MONTROSE, CO 81402	COLORADO DIVISION OF WATER RESOURCES
KNUDSEN	WALT	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
KOELZER	VICTOR A.	1801 SHEELY DR., FT. COLLINS, CO 80526	COLORADO STATE UNIVERSITY FACULTY AFFILIATE
KOLEBER	MARK	9500 CIVIC CENTER DR., THORNTON, CO 80229	CITY OF THORNTON
KRALICEK	DALE	11701 COMMUNITY CTR. DR., NORTHGLENN, CO 80233-1099	CITY OF NORTHGLENN
KRASSA	BOB	4888 PEARL E. CIRCLE, BOULDER, CO 80301	KRASSA & LINDHOLM
KRAUS	JULIE	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
KRISS	JUDY ANNE	1580 LOGAN ST., #620, DENVER, CO 80203	COLORADO WATER RESOURCES & POWER DEVELOPMENT
AUTHORITY			
KROEGER	FRED	199 HILLCREST DR., DURANGO, CO 81301	SOUTHWESTERN WATER CONSERVATION DISTRICT
KROEKER	BRUCE	7333 W. JEFFERSON, SUITE 210, LAKEWOOD CO, 80235	TED ZORICH & ASSOCIATES, INC
KRUGMIRE	ROBERT	9500 CIVIC CENTER DR., THORNTON, CO 80229	CITY OF THORNTON
KUHARICH	ROD	P.O. BOX 1103, COLORADO SPRINGS, CO 80947	COLORADO SPRINGS UTILITIES
KUHN	ERIC	P.O. BOX 1120, GLENNWOOD SPRINGS, CO 81602	COLORADO RIVER WATER CONSERVATION DISTRICT
KUNUGI	BYRON	P.O. BOX 41, BLANCA, CO 81123	TRINCHERA WATER CONSERVANCY DISTRICT
KUTKIEWICZ	ANDY		COORS BREWING COMPANY
LACEY	PAULA	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
LANG	LARRY	1313 SHERMAN ST., DENVER, CO 80203	COLORADO WATER CONSERVATION BOARD
LANGDON	MEL	1867 S. MARION, DENVER, CO 80210	COLORADO STATE PARKS

LAUGHLIN	CHARLES Dr.	16 ADMINISTRATION, FT. COLLINS, CO 80523	COLORADO AGRICULTURAL EXPERIMENT STATION, CSU
LAUTENSCHLAGER	STEVE	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
LAW	DANIEL	1580 LOGAN ST., #620, DENVER, CO 80203	COLORADO WATER RESOURCES & POWER DEVELOPMENT
AUTHORITY			
LAWLER	DAVID	1546 COLE BLVD., SUITE 265, GOLDEN, CO 80401	KIOWA RESOURCES INC
LAWRENCE	MICHELLE	6362 DEPEW ST., ARVADA, CO 80003	COLORADO GENERAL ASSEMBLY
LEAK	ALAN	1660 S. ALBION ST. #500, DENVER, CO 80222	WRC/ ARAPAHOE COUNTY
LEE	KHANH T.	6970 S. HOLLY CIRCLE, SUITE 200, ENGLEWOOD, CO 80112	WILLOWS WATER DISTRICT
LEE	MARGARET	1313 SHERMAN ST., DENVER, CO 80203	EXEC DIR OFFICE - DEPT NAT RESOURCES
LEFFLER	DICK	200 N. WILSON, LOVELAND, CO 80537	CITY OF LOVELAND WASTEWATER DEPT
LEWIS	DARLENE	9500 CIVIC CENTER DR., THORNTON, CO 80229	
LILE	CHUCK	1313 SHERMAN ST., RM. 721, DENVER, CO 80203	COLORADO WATER CONSERVATION BOARD
LINDAHL	KEVIN	P.O. BOX 2100, EAGLE, CO 81631	NORTHWEST COLORADO COUNCIL OF GOVERNMENTS
LOCHHEAD	JAMES	P.O. DRAWER 2030, COLORADO SPRINGS, CO 80306	COLORADO WATER CONSERVATION BOARD
LOPEZ	GREG		MAYOR OF PARKER
LOVAN	RON	9500 CIVIC CENTER DRIVE, THORNTON, CO 80229	CITY OF THORNTON, UTILITIES ADMINISTRATION
LUCERO	THERESA	118 3RD ST., CASTEROCK, CO 80104	DOUGLAS COUNTY PLANNING
LUECKE	DAN	1405 ARAPAHOE, BOULDER, CO 80302	ENVIRONMENTAL DEFENSE FUND
MACDONNELL	LARRY	BOX 401, UNIV. OF COLO., BOULDER, CO 80309-0401	CU-BOULDER NATUAL RESOURCES LAW CENTER
MACDOUGAL	SANDY	102 N. CASCADE AVE., COLORADO SPRINGS, CO 80903	ATTORNEY
MACDOUGALL	SANDY	102 N. CASCADE AVE., COLO SPRINGS, CO 80903	ATTORNEY
MACMILLAN	LOGAN	3607 E. BRIARWOOD AVE., LITTLETON, CO 80122	CONSULTING GEOLOGIST
MACRAVEY	DICK	1390 LOGAN STREET, SUITE 312, DENVER, CO 80203	COLORADO WATER CONGRESS
MAILANDER	ROBERT R.	1313 SHERMAN ST., DENVER, CO 80203	COMMISSIONER, STATE LAND BOARD
MALICK	AMY		DURANGO HERALD
MARTINEAU	ROBERT T.	275 S. SPRUCE ST., GUNNISON, CO 80306	COLORADO WATER CONSERVATION BOARD
MARTINEZ	MACLOVIO C.	P.O. BOX 42, SAN LUIS, CO 81152	COSTILLA COUNTY CONSERVANCY DISTRICT
MATHEWS	LAURIE	1313 SHERMAN ST., RM. 618, DENVER, CO 80203	COLORADO STATE PARKS
MATOON	WILLIAM	P.O. BOX 400, PUEBLO, CO 81002	PUEBLO BOARD OF WATER WORKS
MAURIER	JOE	3842 S. MASON, SUITE #8, FT. COLLINS, CO 80525	COLORADO STATE PARKS
MAXWELL	MAUREEN	410N UNIVERSITY SERVICES CTR, CSU, FT. COLLINS, CO 80523	COLORADO WATER RESOURCES RESEARCH INSTITUTE
MCCANN	MICHAEL	P.O. BOX 4379, BOULDER, CO 80306-4579	LAW OFFICES OF JOHN D. MUSICK, JR
MCDANALD	JIM	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
MCDANIEL	GERALD	P.O. BOX 1157, DURANGO, CO 81302-1157	FARM BREAU WATER TASK FORCE/CLUB 20
MCDERMOTT	PAT	9500 CIVIC CENTER DR., THORNTON, CO 80229	CITY OF THORNTON
MCGREGOR	HEATHER	P.O. BOX 841, GRAND JUNCTION, CO	GRAND JUNCTION DAILY SENTINEL
MCINTYRE	BILL	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
MCLEAN	MARK	700 FLORIDA AVE, SUTIE 500, LONGMONT, CO 80501	ROCKY MOUNTAIN CONSULTANTS
MCLEMORE	JILL	1313 SHERMAN ST., DENVER, CO 80203	EXEC DIR OFFICE - DEPT NAT RESOURCES
MCLLOUD	RICK	62 W. PLAZA DR., HIGHLANDS RANCH, CO 80126	CENTENNIAL WATER & SANITATION
MCNEILL	GRADY	6060 BROADWAY, DENVER, CO 80216	COLORADO DIVISION OF WILDLIFE
MCNULTY	HESTER	1070 MIAMI WAY, BOULDER, CO 80303	LEAGUE OF WOMEN VOTERS OF COLORADO
MENENDEZ	M. J.	625 MANHATTAN P. #112, BOULDER, CO 80303	COLORADO WILDLIFE FEDERATION
MERCER	PATTY		
MERRIMAN	DAN	1313 SHERMAN ST., DENVER, CO 80203	COLORADO WATER CONSERVATION BOARD
MERRITT	DAVID	1504 MOCNTEA DRIVE., GLENWOOD SPRINGS, CO	COLORADO RIVER WATER CONSERVATION DISTRICT
MEYERS	DON	10900 HWY. 160 EAST, ALAMOSA, CO 81101	RIO GRANDE WATER CONSERVATION DISTRICT
MIKELSON	A. DALE	1337 CASTLEWOOD, FRANKTOWN, CO 80116	INDEPENDENT
MILENSKI	FRANK	P.O. BOX 440, PUEBLO, CO 81002	SOUTHEASTERN COLORADO WATER CONSERVANCY DISTRICT
MILL	KURT	1313 SHERMAN ST., RM 618, DENVER, CO 80203	COLORADO STATE PARKS
MILLER	MARGE	1009 OURAY AVE., GRAND JUNCTION, CO 81501	MESA COLORADO WATER ASSOCIATION
MILLER	DAVE	P.O. BOX 567, PALMER LAKE, CO 80133	NATURAL ENERGY RESOURCE COMPANY

MILLER	STEVE	1313 SHERMAN ST., DENVER, CO 80203	COLORADO WATER CONSERVATION BOARD
MISKEL	HAROLD	P.O. BOX 1103, COLORADO SPRINGS, CO 80947	COLORADO SPRINGS UTILITIES
MITCHELL	KEN	1075 REPUBLIC PLAZA, DENVER, CO 80202-5610	NATIONAL WATER COMPANY
MITCHELL	MICHAEL	11031 PIKES PEAK., PARKER, CO 80134	ATTORNEY
MOELLENBERG	BUD	CAPITAL BLDG., DENVER, CO 80202	STATE REPRESENTATIVE
MOEN	CLAUDIA		U.S. BUREAU OF RECLAMATION
MONTOYA	MANUEL		
MORANDI	LARRY	1560 BROADWAY, SUITE 700, DENVER, CO 80202	NATIONAL CONFERENCE OF STATE LEGISLATORS
MORSE	STEVE	8739 W. COALMINE AVE., LITTLETON, CO 80123	PLATTE CANYON WATER & SANITATION DISTRICT
MULHERN	PAT	2 INVERNESS DR EAST STE 101, ENGLEWOOD, CO 80112	INVERNESS WATER & SANITATION DISTRICT
NAZARENUS	BRIAN	P.O. BOX 871, BOULDER, CO 80306	VRANESH AND RAISCH
NELSON	BARRY B.	P.O. BOX 288, MONTE VISTA, CO 81144	RIO GRANDE WATER USERS ASSOCIATION
NETTLES	DAVE	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
NICHOLOS	PETER	P.O. BOX 1051 CARBONDALE, 81623	
NICHOLS	REBECCA H.	310 CIRCLE DR., FT. COLLINS, CO 80524	COLORADO STATE UNIVERSITY
NO NAME			MEDIA
NOONE	ROBERT	P.O. DRAWER 790, GLENWOOD SPRINGS, CO 81602	DELANEY & BALCOMB, P.C.
NOREEN	BARRY		COLORADO SPRINGS GAZETTE
NORRIS	STEVE	1313 SHERMAN STREET #718, DENVER, CO 80203	COLORADO DEPARTMENT OF NATURAL RESOURCES
NORTON	TOM	CAPITAL BLDG, DENVER, CO 80202	STATE SENATOR
NORTON	GALE	1525 SHERMAN ST., FIFTH FLOOR, DENVER, CO 80203	COLO ATTORNEY GENERAL/COLO WATER CONSERVATION
BOARD			
OBMASLIK	MARK		DENVER POST
O'DONNELL	MARGARET	P.O. DRAWER 790, GLENWOOD SPRINGS, CO	DELANEY & BALCOMB, P.C.
OGILVIE	JAMES	1600 W. 12TH AVE., DENVER, CO 80254	DENVER WATER BOARD (RETIRED)
O'HARA	BUD	P.O. BOX 400, PUEBLO, CO 81002	PUEBLO BOARD OF WATER WORKS
OLSON	PERRY	6060 BROADWAY, DENVER, CO 80216	COLORADO WATER CONSERVATION BOARD
ORBANEK	GEORGE		GRAND JUNCTION SENTINEL
PAGE	POLLY	1470 S. HAVANA ST., AURORA, CO 80012	AURORA CITY COUNCIL WATER CONSERVATION DISTRICT
PANKONIN	JIM	300 W. 4TH ST., CRAIG CO 81625	CITY OF CRAIG
PANTER	KAREN L.	9755 HENDERSON ROAD, BRIGHTON, CO 80601	COLORADO STATE UNIVERSITY COOPERATIVE EXTENTION
PARSONS	DON	P.O. BOX 281304, LAKEWOOD, CO 80228-8304	KN ENERGY, INC
PASCOE	PAT	744 LAFAYETTE ST., DENVER, CO 80218	STATE SENATOR
PASTORE	BOB	CAPITAL BLDG., DENVER, CO 80202	STATE SENATOR
PAULSON	CHRIS	707 17TH ST., SUITE 3500, DENVER, CO 80202	SAUNDERS, SNYDER, ROSS & DICKSON, P.C.
PEABODY	JERALD	GENERAL DELIVERY, TOWAOC, CO 81334	UTE MOUNTAIN UTE TRIBE
PEARSON	ALAN	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
PETERSON	CHARLES	2508 SO. COLLEGE AVE., FT. COLLINS, CO 80525	PETERSON CO (LAND SALES)
PHARO	RANDY	718 17TH ST., SUITE 808, DENVER, CO 80202	THE THIRD CREEK CORPORATION
PIFHER	MARK	104 S. CASCADE AVE. SUITE 204, COLORADO SPRINGS, CO 80903	ANDERSON, JOHNSON & GIANUNZIO
PILATZKE	RICHARD	6770 S. ONTARIO CIRCLE, LITTLETON, CO 80123	
PINEDI	MANUEL	P.O. BOX 580, FORT COLLINS, CO 80522	CITY OF FORT COLLINS W&WW UTILITY
PINNES	ELLEN	P.O. BOX 2430, SANTA FE, NM 87504	CONSULTANT
PITTMAN	IRENE	8150 E. LENVALE PLACE/	GLOVER WEST
PLASTINO	RICHARD	445 S. ALLISON, LAKEWOOD, CO	
PLATT	JON	P.O. BOX 25007, BLDG. 67, DENVER FED CTR, DENVER, CO 80225	U.S. BUREAU OF RECLAMATION
POINTON	THOMAS	P.O. BOX 440, PUEBLO, CO 81002	SOUTHEASTERN COLORADO WATER CONSERVANCY DISTRICT
PORTER	JOHN	P.O. BOX 1150, CORTEZ, CO 81321	DOLORES & SOUTHWEST WATER CONSERVANCY DISTRICT
PORZAK	GLENN	1401 PEARL ST., SUITE 400, BOULDER, CO 80302	HOLME ROBERTS & OWEN
POWERS	LINDA	BOX 2300, CRESTED BUTTE, CO 81224	
PRATT	KEVIN	480 HOLLY SUGAR BLDG., COLORADO SPRINGS, CO 80903	ATTORNEY
PRATT	KEVIN	480 HOLLY SUGAR BLDG, COLORADO SPRINGS, CO 80903	ATTORNEY

PRESKORN	BARBARA	3645 W. 112TH, WESTMINISTER, CO 80030	FRCC
PRICE	SCOTT	1313 SHERMAN ST., DENVER, CO 80203	BOARD OF LAND COMMISSIONERS
PROFFITT	JOHN		KCNC CHANNEL 7
PROBST	KEITH	P.O. BOX 5647, DENVER, CO 80217	COLORADO FARM BUREAU
QUINN	LARRY	P.O. BOX 2509, LYONS, CO 80540	LARRY QUINN AND ASSOCIATES
RALEY	BENNETT	1775 SHERMAN ST., DENVER, CO 80203	HOBBS, TROUT & AND RALEY, P.C.
RAWLINGS	BOB	P.O. BOX 4040, PUEBLO, CO 81003	THE PUEBLO CHIEFTAIN
REESER	JEANNIE	CAPITAL BLDG., DENVER, CO 80202	STATE REPRESENTATIVE
REETZ	GENE R.	ONE DENVER PL, 999 18TH ST, STE 500, DENVER, CO 80202-2466	U.S. ENVIRONMENTAL PROTECTION AGENCY
REEVES	ANNE	4275 E. AUTUMN HGHTS	COLORADO WATER SUPPLY
RENNELS	DUANE	P.O. BOX 318, FT. COLLINS, CO 80522	RENNELS ENTERPRISES, INC
RICE	LEONARD	2401 15TH ST., DENVER, CO 80202	LEONARD RICE ENGINEERS
RICE	BUFORD	P.O. BOX 5647, DENVER, CO 80217	COLORADO FARM BUREAU
ROBBINS	DAVID	10900 E. HIGHWAY 160, ALAMOSA, CO 81101	ATTORNEY RIO GRANDE WATER CONSERVATION DISTRICT
ROBERTS	CHUCK	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
ROMER	ROY	CAPITAL BLDG., DENVER, CO 80202	GOVERNOR OF COLORADO
ROMERO	DORI	1313 SHERMAN ST., DENVER, CO 80203	COLORADO WATER CONSERVATION BOARD
ROTH	HERRICK S.	30 WRITER SQUARE, 1512 LARIMER ST., DENVER, CO 80202-1613	COLORADO FORUM
ROZAKLIS	LEE		HYDROSPHERE
RUSSELL	GEORGE	P.O. BOX 1553, RIFLE, CO 81650	
SAKATA	ROBERT	P.O. BOX 508, BRIGHTON, CO 80601	SAKATA FARMS INC
SALAZ	MIKE	CAPITAL BLDG., DENVER, CO 80202	STATE REPRESENTATIVE
SALAZAR	KEN	1313 SHERMAN ST., RM. 718, DENVER, CO 80203	COLORADO WATER CONSERVATION BOARD
SANDS	JOE	P.O. BOX 68, BRECKENRIDGE, CO 80424	SUMMIT COUNTY GOVERNMENT
SAPPINGTON	JUDY	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
SCANTON	BILL		ROCKY MOUNTAIN NEWS
SCHANTZ	BRENT	2008 5TH AVE., GREELEY, CO 80631	
SCHROEDER	DEWAYNE	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
SCHUFF	SALLY		COLORADO RANCHER & FARMER
SCHURER	JOHN	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
SCHWEIZER, JR.	JOHN	P.O. BOX 5647, DENVER, CO 80217	COLORADO FARM BUREAU
SCOTT	BILLIE L.	680 N. WILCOX ST, DRAWER 8000, CASTLE ROCK, CO 80104-8000	TOWN OF CASTLE ROCK/ENV RES TECH
SEAHOLM	RANDY	1313 SHERMAN ST., DENVER, CO 80203	COLORADO WATER CONSERVATION BOARD
SEAWORTH	RICHARD	11801 N. COUNTY RD. 9, WELLINGTON, CO 80549	SEAWORTH AG ENT, INC
SELBERG	VICKIE	1313 SHERMAN ST., DENVER, CO 80203	EXEC DIR OFFICE - DEPT NAT RESOURCES
SENDERHAUF	ROBERT M.	BOX 176, WESTCLIFFE, CO 81252	UPPER ARKANSAS WATER CONSERVANCY DISTRICT
SHAFFER	DALE	1075 REPUBLIC PLAZA, DENVER, CO 80202-5610	NATIONAL WATER COMPANY
SHEFTEL	JANICE	1313 SHERMAN ST., DENVER, CO 80203	COLORADO WATER CONSERVATION BOARD
SHIMMIN	MICHAEL D.	P.O. BOX 871, BOULDER, CO 80306	VRANESH & RAISCH
SHOEMAKER	ROBERT	6484 CO. RD. 9, CANON CITY, CO 81212	STATE REPRESENTATIVE
SHOREY	DAWN	1244 SPEER BLVD., SUITE 800, DENVER, CO 80204	U.S. GOVERNMENT ACCOUNTING OFFICE
SIGNS	CHERYL	109 E. FOURTH AVE., DENVER, CO 80203	CHERYL SIGNS ENGINEERING
SILKENSEN	GREG	410N UNIV. SERVICES CTR., CSU, FT. COLLINS, CO 80523	COLORADO WATER RESOURCES RESEARCH INSTITUTE
SIMPSON	LARRY	P.O. BOX 679, LOVELAND, CO 80539	NORTHERN COLORADO WATER CONSERVANCY DISTRICT
SIMPSON	HAL	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
SKINNER	JAY	6060 BROADWAY, DENVER, CO 80216	COLORADO DIVISION OF WILDLIFE
SMITH	MARK	ECONOMICS DEPT./COLORADO COLLEGE, COLO. SPRINGS, CO 80903	COLORADO COLLEGE
SMITH	TRAVIS L.	P.O. BOX 637, CENTER, CO 81125	SAN LUIS VALLEY IRRIGATION DISTRICT
SMITH	MIKE	P.O. BOX 580, FORT COLLINS, CO 80522	CITY OF FORT COLLINS W & WW UTILITY
SMITH	MARYLOU	P.O. BOX 580, FORT COLLINS, CO 80522	CITY OF FORT COLLINS W & WW UTILITY
SMITH	DAVID	BOX 359, MEEKER, CO 81641	COLORADO WATER CONSERVATION BOARD
SMITH	DAN	DEPT OF AGRONOMY, CSU, FORT COLLINS, CO 80523	COLORADO STATE UNIVERSITY

SPANN	STEPHEN A.	P.O. BOX 612, FAIRPLAY, CO 80440	UPPER SOUTH PLATTE WATER CONSERVANCY DISTRICT
SPIVEY	PAMELA	5808 S. RAPP ST., SUITE 200, LITTLETON, CO 80120	METRO DENVER WATER AUTHORITY
SPRONK	BRENT E.	90 MADISON STREET, SUITE 700, DENVER, CO 80206	SPRONK WATER ENGINEERS, INC
SRUTTON	LARRY		ROCKY MOUNTAIN NEWS
STEALEY	W.R.	1301 PENNSYLVANIA #760, DENVER, CO 80203	STEALEY & ASSOC, INC
STENZEL	DICK	6060 BROADWAY, DENVER, CO 80216	COLORADO DIVISION OF WATER RESOURCES
STEPHENS	FRANK	1000 10TH ST., GREELEY, CO 80631	CITY OF GREELEY
STODOLSKI	MAX J.	P.O. BOX 640, DURANGO, CO 81302-0640	U.S. BUREAU OF RECLAMATION
STRATTON	BILL	1313 SHERMAN ST., DENVER, CO 80203	COLORADO WATER CONSERVATION BOARD
STREETER	PATTI	1313 SHERMAN ST., DENVER, CO 80203	EXEC DIR OFFICE - DEPT NAT RESOURCES
SULLIVAN	JAMES R.	101 3RD STREET, CASTLE ROCK, CO 80104	DOUGLAS COUNTY GOVERNMENT
SULLIVAN	JIM	P.O. BOX 8101, ARVADA, CO 80001-8101	CITY OF ARVADA
TAYLOR	JACK	CAPITAL BLDG., DENVER CO 80202	STATE REPRESENTATIVE
TAYLOR	BOB	1600 W. 12TH AVE., DENVER, CO 80254	DENVER WATER DEPARTMENT
TELEP	SAM	1327 10TH AVENUE, GREELEY, CO 80631	NORTHERN COLORADO WATER CONSERVANCY DISTRICT
TEMPEL	ROBERT	PROWERS COUNTY, CTY COMMISNR'S OFC, LAMAR, CO 81052	PROWERS COUNTY
TEN EYCK	GREGG	2401 15TH ST., SUITE 300, DENVER, CO 80202	LEONARD RICE CONSULTING
THOMAS	JO ANN	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
THOMPSON	TOMMY	905 HIGHWAY 500 WEST, P.O. BOX 440, PUEBLO, CO 81002	SOUTHEASTERN COLORADO WATER CONSERVANCY DISTRICT
THOMPSON	LARRY	806 COOPER AVENUE, GLENWOOD SPRINGS, CO 81601	CITY OF GLENWOOD SPRINGS
THOMSON	CHARLES	P.O. BOX 440, PUEBLO, CO 81002	SOUTHEASTERN COLORADO WATER CONSERVANCY DISTRICT
TONER	JOHN	P.O. BOX 475, DURANGO, CO 81302	SOUTHWEST COLORADO WATER CONSERVATION DISTRICT
TOWNSEND	JIM	P.O. BOX 294, PUEBLO, CO 81002	U.S. ARMY CORPS OF ENGINEERS
TRAINOR	GREG	250 NORTH 5TH ST., GRAND JUNCTION, CO 81501	CITY OF GRAND JUNCTION
TRAMPE	BILL	393 COUNTY ROAD 8, GUNNISON, CO 81230	UPPER GUNNISON RIVER CONSERVANCY DISTRICT
TREESE	CHRISTOPHER	BOX 1120, GLENWOOD SPRINGS, CO 81602	COLORADO RIVER WATER CONSERVATION DISTRICT
TRIMBALL	JIM		
TRUJILLO	JOSE G.	2147 SOUTH GOLDEN CT., DENVER, CO 80227	COLORADO STATE PARKS BOARD
TRUJILLO	LARRY	CAPITAL BLDG., DENVER, CO 80202	STATE SENATOR
TYMKOVICH	TIMOTHY	1525 SHERMAN ST., 5TH FLOOR, DENVER, CO 80203	COLORADO ATTORNEY GENERAL'S OFFICE
UILENBERG	BRENT	P.O. BOX 60340, GRAND JUNCTION, CO 81506	U.S. BUREAU OF RECLAMATION
UNDERBRINK C.	LURLINE	P.O. BOX 239, HOT SULPHUR SPRINGS, CO 80451	GRAND COUNTY PLANNING DEPT
UNSELD	CHARLES	1313 SHERMAN, RM. 521, DENVER, CO 80203	DEPT OF LOCAL AFFAIRS
VALDEZ	MARIA	ROUTE I, BOX 3-A, SAN LUIS, CO 81152	PEOPLES ALTERNATIVES ENERGY RESOURCES
VALDEZ	EARL	P.O. BOX 42, SAN LUIS, CO 81152	COSTILLA COUNTY CONSERVANCY DISTRICT
VALLIANT	JIM	P.O. BOX 190, ROCKY FORD, CO 81067	COOPERATIVE EXTENSION, COLORADO STATE UNIVERSITY
VANDERHORST	KEITH	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
VANDIVER	STEVE	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
VANSCIVER	JOHN	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
VAUGHT	KEN	1819 DENVER WEST DR., BLDG. 26, STE 400, GOLDEN, CO 80401	COORS BREWING COMPANY
VICKROY	IRMA B.	3869 SO. HELENA ST., AURORA, CO 80013	
VICKROY	ROBERT C.	3869 SO. HELENA ST., AURORA, CO 80013	
VISINTAINER	DEAN	221 W. VICTORY WAY, CRAIG, CO 81625	MOFFAT COUNTY
VOLZ	TIMOTHY R.	1040 SOUTH 8TH STREET, COLO. SPRINGS, CO 80906	URS CONSULTANTS
VON LOH	FAYE	P.O. BOX 287, WIGGINS, CO 80654	TOWN OF WIGGINS
WAAGE	MARC	1600 W. 12TH AVE., DENVER, CO 80254	DENVER WATER BOARD
WADE	JOHN	777 GRANT, #606, DENVER, CO 80203	SIERRA CLUB - ROCKY MOUNTAIN CHAPTER
WALKER	DAVID		MEDIA
WALKER	DAVID	7574 S. ROSEMARY CIRCLE, ENGLEWOOD, CO 80112	
WALL	HARLEN	310 S. 22ND AVE., BRIGHTON, CO	BURLINGTON DITCH CO
WALSH	SUSANNE	24406 N. CURRENT DR., GOLDEN, CO (526-1955)	
WARD	ROBERT C.	410N UNIV. SERVICES CTR., CSU, FT. COLLINS, CO 80523	COLORADO WATER RESOURCES RESEARCH INSTITUTE

WARNER	JAMES	DEPT OF CIVIL ENGINEERING, CSU, FT. COLLINS, CO 80523	COLORADO STATE UNIVERSITY
WATTENBERG	DAVE	CAPITAL BLDG., DENVER, CO 80202	STATE SENATOR
WEAR	GEORGE H.	P.O. BOX 1175, FRISCO, CO 80443	COLORADO STATE UNIVERSITY
WEBB	WELLINGTON		MAYOR OF DENVER
WEIDELMAN,	ROGER A.	11056 W. COUNTY RD, #18E, LOVELAND, CO 80537	U.S. BUREAU OF RECLAMATION
WELLS	PATRICIA L.	1600 W. 12TH AVE., DENVER, CO 80254	DENVER WATER BOARD
WERNER	BRIAN	P.O. BOX 679, LOVELAND, CO 80539	NORTHERN COLORADO WATER CONSERVANCY DISTRICT
WESTCOAT	JAMES		UNIVERSITY OF COLORADO
WESTMORE	RICHARD A.	5660 GREENWOOD PLAZA BLVD., STE. 202, ENGLEWOOD, CO 80111	GEI CONSULTANTS INC
WHEELER	PATRICK	27 E. VERMIJO, COLORADO SPRINGS, CO 80903	EL PASO COUNTY ATTORNEY'S OFFICE
WHITE	LINDA	P.O. BOX 2188, GRAND JUNCTION, CO 81502	DUFFORD, WALDECK, MILBURN & KROHN
WHITE	MICHAEL D.	511 16TH ST. SUITE 500, DENVER, CO 80202	WHITE & JANROWSKI
WHITTEN	GEORGE	44010 COUNTY ROAD., M CENTER., CO 81125	RIO GRANDE WATER CONSERVATION DISTRICT
WILDER	M.	13787 S. HWY 85, LITTLETON, CO 80125	COLORADO STATE PARKS
WILKES	JOHN S. III	1313 SHERMAN ST., DENVER, CO 80203	BOARD OF LAND COMMISSIONERS
WILKINSON	ERIC	P.O. BOX 679, LOVELAND, CO 80539	NORTHERN COLORADO WATER CONSERVANCY DISTRICT
WILLIAMS	SAM	CAPITAL BLDG., DENVER, CO 80202	STATE REPRESENTATIVE
WILLIAMSON	JANE	4038 COMMANCHE DR., WALSENBURG, CO 80124	HUERFANO COUNTY CONSERVANCY BOARD
WILLIAMSON	THOMAS	384 S. INVERNESS DR., SUITE 115, ENGLEWOOD, CO 80112	HELTON & WILLIAMSON, P.C.
WISSEL	DAVID B.	P.O. BOX 612, FAIRPLAY, CO 80440	UPPER SOUTH PLATTE WATER CONSERVANCY DISTRICT
WITTE	STEVE	P.O. BOX 5728 PUEBLO, CO 81002	COLORADO DIVISION OF WATER RESOURCES
WITTE	STEVE	1313 SHERMAN ST., DENVER, CO 80203	COLORADO DIVISION OF WATER RESOURCES
WOLDRIDGE	JULIANNE M.	102 N.CASCADE SUITE 208, COLORADO SPRINGS, CO 80903	MACDOUGALL LAW OFFICE
WOOD	JOHN	P.O. BOX 472, MONTROSE, CO 81402	WESTERN COLORADO CONGRESS
WOODKA	CHRIS		PUEBLO CHIEFTAIN
WOODWARD	BART	P.O. BOX 455, FORT MORGAN, CO 80701	RIVERSIDE IRRIGATION DISTRICT
WORLEY	H.D. "HANK"	102 N.CASCADE SUITE 208, COLORADO SPRINGS, CO 80903	MACDOUGALL LAW OFFICE
WRIGHT	RAY	3165 E. HIGHWAY 160, MONTE VISTA, CO 81144	COLORADO WATER CONSERVATION BOARD
WRIGHT	RUTH	CAPITAL BLDG., DENVER, CO 80202	STATE REPRESENTATIVE
YOUNG	R.A.	AG ECONOMICS CSU, FORT COLLINS, CO 80523	COLORADO STATE UNIVERSITY
ZALLEN	MARGOT	P.O. BOX 25007, (D-105) DENVER, CO 80225	DEPT OF INTERIOR OFFICE OF SOLICIATION
ZANETELL	MARLENE	200 EAST VIRGINIA AVE., GUNNISON, CO 81230	GUNNISON COUNTY
ZILLIS	PAUL J.	P.O. BOX 871, BOULDER, CO 80306	VRANESH & RAISCH
ZIMBELMAN	LEROY	745 WALNUT, BOULDER, CO 80302	HENRYLYN IGGIGATION DISTRICT
ZUSCHLAG	NANCY	15200 W. 6TH AVE., GOLDEN, CO 80401	CSU COOPERATIVE EXTENSION

Convention Speaker Biographies

Honorable Margaret W. Carpenter was elected mayor of Thornton in 1979 after serving for six years on the Thornton City Council. A retired educator and administrator, Carpenter currently serves on the Executive Board of the Colorado Municipal League. She also served on Governor Lamm's Colorado Water Roundtable and Governor Romer's Colorado Transportation Roundtable.

Honorable Greg Lopez was elected mayor of Parker in April 1992. A U.S. Air Force veteran, he moved to Colorado in 1988 after earning a business administration degree from New Mexico State University. He currently serves as a director of the E-470 Authority, as a representative to the Denver Regional Council of Governments and as a member of the Latino Coalition.

Louis T. "Lee" Rozaklis is a principal and engineer with Hydrosphere/WBLA, Inc. He specializes in computer modeling and optimization of water resources systems, water resources management policy analysis and negotiations, and the organization and presentation of complex technical information to decision makers.

Duane Georgeson is one of three assistant general managers of the Metropolitan Water District of Southern California. He is in charge of the district's resources, planning, water quality, conservation and State Water Project activities. He also represents California on the Colorado River Board. Georgeson received his bachelor's degree in engineering from the University of California at Los Angeles.

Marshall Kaplan is dean of the University of Colorado at Denver's Graduate School of Public Affairs, which includes the Center for the Improvement of Public Management and the Center for Public/Private Sector Cooperation. Before coming to Colorado, he served as deputy assistant secretary for urban policy, community planning and development at the U.S. Department of Housing and Urban Development.

Hamlet J. "Chips" Barry III has been the manager of the Denver Water Department since January 1991. He served as executive director of the Colorado Department of Natural Resources from 1987 to 1990. Barry, who can trace his Colorado roots back to 1886, was raised in Denver and attended Denver public schools, Yale College and Columbia Law School.

Chris Bridges coordinates the urban and municipal water conservation program in the Colorado Water Conservation Board's Office of Water Conservation. She received a bachelor's in education from Eastern Illinois University. In addition to teaching and developing high school curricula in biology, she has also worked as a field biologist specializing in aquatic studies.

Roland C. "Rollie" Fischer is the secretary-engineer of the Colorado River Water Conservation District, which has its headquarters in Glenwood Springs. A registered professional engineer, he is past president of both the Colorado Water Congress and the Colorado River Water Users Association.

Tom Griswold, the City of Aurora's director of utilities, has worked for the Utilities Department for 19 years. He has two bachelor's degrees from the University of Colorado, one in civil and environmental engineering and one in business. A registered professional engineer, Griswold is past president of the Colorado Water Congress Board of Directors and vice chairman of the Metropolitan Water Providers.

Larry D. Simpson is the general manager of the Northern Colorado Water Conservancy District. He joined the district in 1971 as planning coordinator and has also served as assistant manager and chief engineer. Raised in Eaton, Colorado, Simpson has a professional engineering degree from the Colorado School of Mines and a master's in business administration from California State University-Los Angeles.

Senator Thomas Edmond "Tom" Norton, a Republican from Greeley, was elected to the Colorado House of Representatives in 1987 and to the Senate in 1988. He serves on the Capital Development Committee. With both a bachelor's and master's in engineering from Colorado State University, Norton is the owner of Norton, Underwood and Lamb, Inc., a consulting engineering firm headquartered in Greeley.

Senator Tilman M. "Tillie" Bishop, a Republican from Grand Junction, served in the Colorado House of Representatives from 1971-1974 before being elected to the Senate in 1975. Bishop serves as the vice-chair of the Agriculture, Natural Resources and Energy Committee. He has both a bachelor's and a master's degree from the University of Northern Colorado and serves as an administrator of Mesa State College.

Senator Don Ament, a Republican from Iliff, serves as the chair of the Agriculture, Natural Resources and Energy Committee. Before being elected to the Senate, he served in the Colorado House of Representatives for two terms. A family farmer and rancher, Ament graduated from the University of Colorado with a bachelor's degree in engineering.

Representative Ruth Wright, a Democrat from Boulder, was first elected to the Colorado House of Representatives in 1980. She has been House minority leader since 1987. Representative Wright received her bachelor's degree from Marquette University with majors in philosophy, English and history. She also holds a J.D. degree from the University of Colorado.

Representative Jeannie G. Reeser, a Democrat from Thornton, was first elected to the Colorado House of Representatives in 1984. She serves on the Agriculture, Livestock and Natural Resources Committee. A graduate from Cincinnati's Mount St. Joseph College with a major in elementary education, she received her teacher certification from the University of Northern Colorado.

Judson M. Harper is professor of agricultural and chemical engineering at Colorado State University, as well as vice president for research, a post he has held since 1982. An internationally recognized expert in the areas of food extrusion and food processing, Harper received his bachelor's, master's and Ph.D. degrees at Iowa State University in chemical engineering and food technology.

Robert C. Ward is director of the Colorado Water Resources Research Institute at Colorado State University and a professor in the Agricultural and Chemical Engineering Department. He has a Ph.D. in agricultural engineering with a minor in water resources. Ward's primary teaching and research area is the interface between water quality management and monitoring and the methods used to design monitoring systems.

Maureen Maxwell is a research associate with the Colorado Water Resources Research Institute in Fort Collins and will receive her master's in agricultural and resource economics in the spring of 1993. She has worked as a legislative aide for U.S. Representative Pat Schroeder, handling issues in natural resources, foreign affairs, transportation and education.

David W. Robbins, who holds a bachelor's degree from Stanford University and a J.D. from the University of Wisconsin, is a partner of the law firm of Hill & Robbins, P.C. He is a past member of the Colorado Water Conservation Board and a current member of the Colorado River Salinity Control Forum. He serves as special assistant attorney general and counsel of record for the State of Colorado in the U.S. Supreme Court case *Kansas v. Colorado*, No. 105, Original.

Harold E. Miskel is manager for the City of Colorado Springs' Department of Utilities in planning and resource development. He has worked for the department since 1966. Miskel is past president of the Colorado Water Congress and served on the Governor's Metropolitan Water Roundtable, Technical & Resource Support Group. He holds a bachelor's of science degree from the University of Colorado-Colorado Springs.

Bruce D. Bernard, a partner with the firm of White & Jankowski, specializes in water and natural resources law and serves as attorney for the City of Thornton. He spent his first year out of law school as an environmental fellow with the Environmental Defense Fund; prior to that, he worked as a planner with the National Park Service and the Heritage Conservation and Recreation Service.

Senator Robert L. "Bob" Pastore, a Democrat from Monte Vista, was first elected to the Colorado Senate in 1986. He has served as Alamosa city attorney and serves as attorney for Costilla and Alamosa counties. He received his bachelor's degree in political science from the University of Colorado and his J.D. from the University of the Pacific.

Senator Samuel H. "Sam" Cassidy, a Democrat from Pagosa Springs, was elected to the Colorado Senate in 1990. An attorney with the firm of Cassidy & Zentmyer in Pagosa Springs, he serves on the Agriculture, Natural Resources and Energy Committee. He received his bachelor's degree from the University of Oklahoma and his J.D. from the University of Tulsa.

Larry MacDonnell is director of the Natural Resources Law Center and adjunct professor at the University of Colorado School of Law. Publications include *Controlling Water Use: The Unfinished Business of Water Quality Protection* and *"Transferring the Uses of Water in the West."* He holds a B.A. from the University of Michigan, a J.D. from the University of Denver and a Ph.D. from the Colorado School of Mines.

Sara Duncan serves as legislative liaison for the Denver Water Department. She is also an adjunct professor at the University of Denver, specializing in water law. In 1992, she served as deputy director and interim director of the Colorado Water Conservation Board. Duncan holds a bachelor's degree from Denison University and a J.D. degree from the University of Denver.

Gregory J. Hobbs, Jr., of Hobbs, Trout & Raley, P.C., specializes in water rights, water quality, air quality, mined land reclamation and transportation. He is principal counsel to the Northern Colorado Water Conservancy District. He has a B.A. from Notre Dame and a J.D. from the University of California, Berkeley and frequently writes and speaks on natural resource issues and edits the Colorado Water Congress Water Legal News.

Daniel F. Luecke is director of the Environmental Defense Fund's Rocky Mountain regional office. A graduate of Notre Dame, he completed his Ph.D. in environmental sciences at Harvard. He has served on the Colorado Water Resources Research Institute Advisory Committee on Water Policy Research and the Denver

Metropolitan Water Roundtable and chairs the executive committee of the Colorado Environmental Caucus.

Raymond B. "Ray" Wright, a member of the Colorado Water Conservation Board, is a native of Monte Vista who is involved in production agriculture in Rio Grande and Alamosa counties. He graduated from Colorado State University with a bachelor's degree in agricultural engineering and is on the board of directors of the Rio Grand Water Users' Association and the Centennial Ditch Company.