

# **Supporting Document C-7**

## **Media Kit**

## Media Outlets in Planning Region

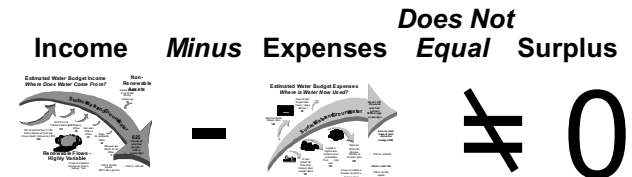
Organization	Organization Type
Albuquerque Journal	Daily Newspaper
The Albuquerque Tribune	Daily Newspaper
Crosswinds	Community Newspaper
East Mountain Telegraph	Community Newspaper
El Hispano News	Community Newspaper
Health City Sun	Community Newspaper
KABG-FM	FM Radio Station
KABQ-AM	AM Radio Station
KAJZ-FM	FM Radio Station
KALY-AM	AM Radio Station
KANM-AM	AM Radio Station
KANW-FM	FM Radio Station
KARS-AM	AM Radio Station
KASA-TV	Television Station
KASY-TV	Television Station
KAZQ-TV	Television Station
KBQI-FM	FM Radio Station
KBZU-FM	FM Radio Station
KDAZ-AM	AM Radio Station
KDEF-AM	AM Radio Station
KFLQ-FM	FM Radio Station
KHFM-FM	FM Radio Station
KIOT-FM	FM Radio Station
KJFA-FM	FM Radio Station
KKIM-AM	AM Radio Station
KKJY-AM	AM Radio Station
KKNS-AM	AM Radio Station
KKOB-AM	AM Radio Station
KKOB-FM	FM Radio Station
KKSS-FM	FM Radio Station
KLSK-FM	FM Radio Station
KLUZ-TV	Television Station
KLVO-FM	FM Radio Station
KLYT-FM	FM Radio Station
KMGA-FM	FM Radio Station
KNAT-TV	Television Station
KNKT-FM	FM Radio Station
KNME-TV	Television Station
KNML-AM	AM Radio Station
KOAT-TV	Television Station
KOB-TV	Television Station
KPEK-FM	FM Radio Station
KRQE-TV	Television Station
KRST-FM	FM Radio Station
KRZY-AM	AM Radio Station
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KSVA-AM	AM Radio Station
KSU-FM	FM Radio Station
KTBL-AM	AM Radio Station
KTEG-FM	FM Radio Station
KTEL-TV	Television Station

KTFA-TV	Television Station
KTFQ-TV	Television Station
KTVS-TV	Television Station
KTZO-FM	FM Radio Station
KUNM-FM	FM Radio Station
KVVF-FM	FM Radio Station
KWBQ-TV	Television Station
KXKS-AM	AM Radio Station
KYLZ-FM	FM Radio Station
KZNM-FM	FM Radio Station
KZRR-FM	FM Radio Station
New Mexico Jewish Link	Community Newspaper
New Mexico Public Broadcasting Network	Regional Television Netwo
The Observer	Community Newspaper
Weekly Alibi	Community Newspaper
New Mexico Business Weekly	Weekly Newspaper
New Mexico Business Journal	Weekly Newspaper

# Regional Water Planning

## What are the Problems?

- Coming Periods of Drought are Certain
- Population Growth - Immigration, Birthrate
- Regular Over-Budget Water Consumption
- Thirsty Neighbors



## What are the Constraints?

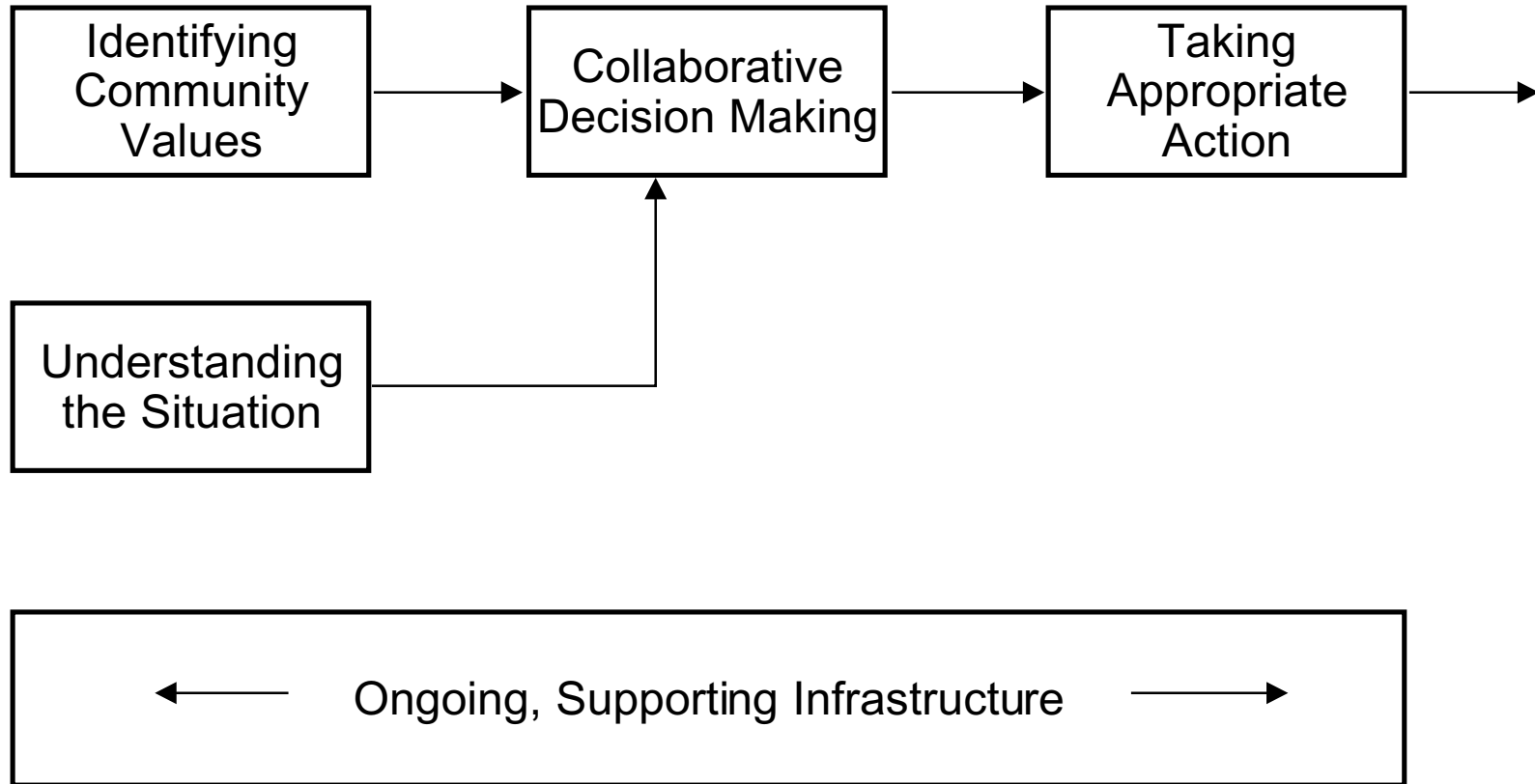
- Rio Grande Compact
- Endangered Species Act
- Aquifer Limitations
- Pueblo Water Rights

## What are the Results?

- Ability to be Proactive, Not Reactive
- Assuring Future Safe Water Supplies
- Toolbox to Manage Local Resources
- Coordinated Help to Guide State Legislators
- Package to Defend Regional Interests
- Mechanism to Avoid Interminable Litigation



# Overview of Water Planning

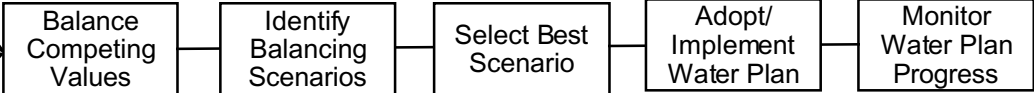
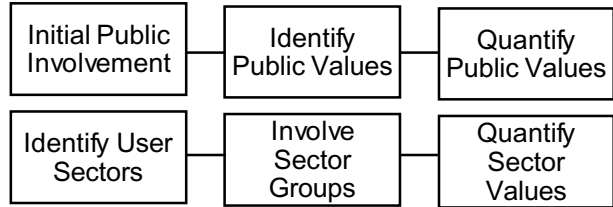


**An Open, Inclusive, Participatory Process**

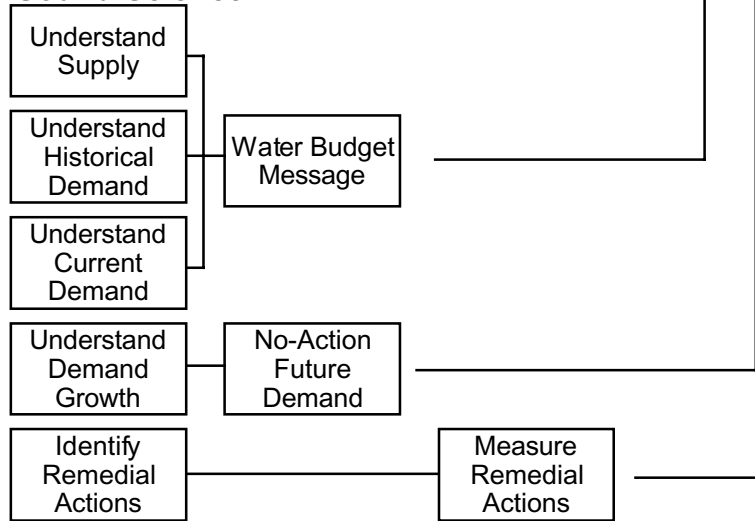
# Water Planning

## *Joining Technical Data and Diverse Opinions*

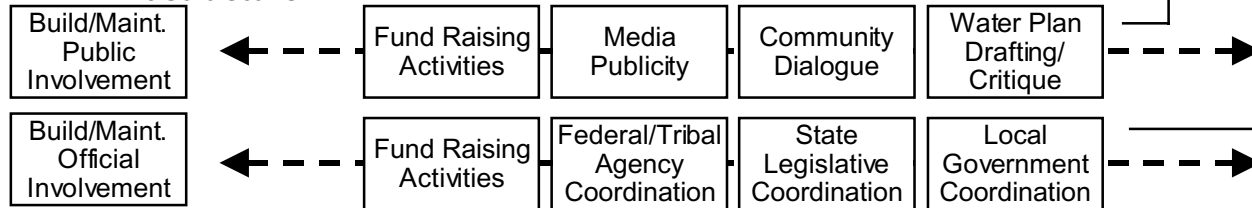
### Wise Decisions:



### Sound Science:



### Firm Infrastructure:



*The Water Assembly*

# Funding Needs and Resources – Two Year Program

## Estimated Need for Resources - \$1.7M:

- ISC Contract Funds 18%
- Varied Local Governments 18%
- Private Sources - WA 12%
- Volunteer Expertise/Labor 35% (15,000 hours)
- Sandia/Utton/WA Collaboration 9%
- Estimated Shortfall 8%

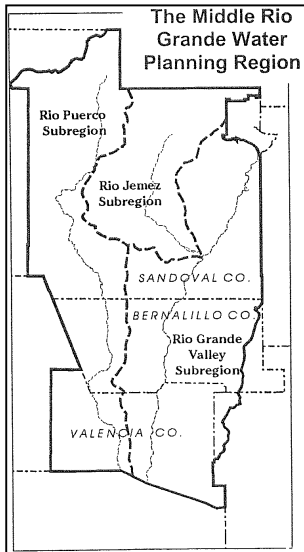
## Planned Use of Resources:

- Public Involvement and Coordination 24%
- Alternatives, Scenarios, Analyses & Evaluation 27%
- Water Plan Documentation and Maintenance 15%
- Planning Infrastructure and Facilities 20%
- Program Administration and Management 14%

## Communicate, Cooperate, Collaborate, and Compromise

# Middle Rio Grande Regional Water Plan Background

*What is the program and why it needs your help*



## Background

Before the 1990's, estimates of the water resources available to the Middle Rio Grande region indicated that the supply was significantly larger than the demands. Recent studies sponsored by a number of different federal, state, and local governments have improved our understanding of the region's water resources. We now know that groundwater in our region is being depleted by approximately 70,000 acre-feet per year over and above recharge rates. We also have learned that there is no surplus water available from the Rio Grande. Additionally, population growth in our region is expected to double in approximately 50 years. How can we balance the budget now and how will we use our finite water resources in the future?

Regional water planning can help us address these issues, together. A partnership has been formed to accomplish this task between the Water Assembly and the Water Resources Board. The Assembly came into existence after the State Engineer contacted the University of New Mexico to help start regional water planning in our region. A 501(c)(3) organization, the Assembly's purpose is to develop a water plan in an open, inclusive and participatory manner. The Middle Rio Grande Council of Governments (MRGCOG) created the Middle Rio Grande Water Resources Board in 1999 to oversee the development and implementation of a regional water plan. Recognized by the Interstate Stream Commission (ISC) to be the responsible entities, these two have partnered to fulfill the necessary tasks involved.

The map depicts the region and the watersheds which make up our region. Diverse interests and peoples will make this planning process a challenge.

## Purpose of Plan

The partners have recognized that the present water situation calls for action. They adopted a mission for the regional water plan - *Balance Water Uses With Renewable Supply*. Next they will be discussing the objectives of how to attain that mission, what strategies might be available, and then how best to implement the selected strategies. This process will be done together, ensuring public support all the way.

### **Regional Water Plan for the Middle Rio Grande Region**

0. Summaries
1. Introduction
2. Middle Rio Grande Region - Past and Present
3. Strategy Chosen to Maximize Public Involvement
4. Public Involvement in Planning Process
5. Current Legal Issues
6. Water Resources Assessment for the Planning Region
7. Current Water Demand and No-Action Future Water Demand
8. Water Plan Alternative Actions and Scenarios
9. Criteria and Evaluations of the Scenarios
10. Conclusions and Recommendations
11. Implementation
12. Appendices

The annotated version of the outline shown on the right can be found by calling MRGCOG for a copy. Beginning with this document, it is anticipated that each component of the Plan will be available for review and comment, either electronically or mail, as well as through a variety of public events.

Clearly this proposed plan represents an ambitious undertaking in both time and money.



### Deliverables and Activities Accomplished to Date

- \* Water Budget brochure, dated October 1999
- \* The "Plan-to-Plan" session in December 1999
- \* March 2000 Assembly - *Balancing the Water Budget*
- \* *Historical and Current Water Use in the Middle Rio Grande Region* Report (Shomaker & Associates)
- \* *Attitudes & Preferences of Residents in the MRG Water Planning Region Regarding Water Issues* Survey Report (UNM Institute for Public Policy)
- \* *Middle Rio Grande Water Supply Study* (S.S. Papadopulos & Associates)
- \* *draft Public Comment Database*
- \* *Roadshow and Water Picture Show* design and presentations
- \* summary 6-page flyer of the Community Conversations and four newsletters
- \* 12 Community Conversations and one Forum
- \* March 2001 Assembly, *Water for Our Kids - Starting to Negotiate a Fair Water Deal*
- \* The planning charts for the Community Conversation series, June 2000
- \* The "Retreat" planning session in January 2001, resulting in the Annotated Table of Contents
- \* The *Saving Water in the Desert* discussion series Jun 2000 - Jan 2001
- \* Reports on *preliminary water management alternatives* and the *methodology* to evaluate them
- \* *Future Water Demand* report projecting future water use for the region, spring 2001
- \* GIS products, spring 2001
- \* Preliminary Evaluation Methods and Criteria
- \* Candidate Set of Alternative Actions
- \* Preliminary Technical Measurements for Alternative Actions
- \* Future Water Budgeting Exercise
- \* Scope of Work for Two Year Program and ISC Contract

### Work Needed to Complete the Plan

We know the water supply and demand within the region, and what the future looks like if current trends hold. What scenarios can be devised to change this, abiding by the mission of the plan, is next. Determining their cost, and whether implementable, will take time and effort. The basic process is set out in the box, and the work plan is under development. To do a competent job with adequate public involvement, the MRGCOG and the Assembly estimate the cost will be more than a million dollars.

#### Planning Process

In a nutshell, to develop a regional plan, the steps include:

- a. identifying concerns, gathering and analyzing data, defining challenges and opportunities, developing objectives, and documenting decisions.
- b. addressing the objectives, selecting the best alternative(s), listing strategies for implementing the selected alternative(s), and determining how to measure progress.
- c. implementing and evaluating efforts.

Both the Water Resources Board and the Action Committee of the Water Assembly meet on a monthly basis to provide direction and guidance on the development of the plan. Working teams have been formed to carry out many of the tasks. Not only are all meetings open to the public, but assistance is encouraged and always welcome. Contact us to find out more.

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(505) 867-3889



Middle Rio Grande Water Resources Board  
c/o MRGCOG  
317 Commercial NE, Suite 104  
Albuquerque, NM 87102  
(505) 247-1750

# MIDDLE RIO GRANDE WATER ASSEMBLY

## A WATER PLAN FOR THE MIDDLE RIO GRANDE

**What is Water Planning?** Legislation enacted by the state in 1987 authorized self-defined hydrologic and political ‘regions’ to develop individual plans to ensure sufficient water for future growth. A planning template published in 1995 by the New Mexico Interstate Stream Commission (ISC) poses five key questions to be answered:

- What is the region’s water supply?
- What is the region’s demand for water (current and future)?
- What alternative actions are there to balance supply with demand?
- Which of the alternative actions are consistent with regional values?
- What strategies will lead to implementation of the acceptable alternatives?

Actions or strategies may address areas such as local ordinances and policies, state legislation, coordination with federal agencies, construction and engineering projects, economic goals and policies, water pricing options, water rights considerations, education plans, etc.)

**Why Should We Develop a Water Plan?** It is now well known that on average, Middle Rio Grande residents are consuming all the river water we are allowed, and are mining finite groundwater to meet our *current* needs. Meanwhile, water demands in the region are growing substantially. Sooner or later, a balance must be struck among a diversity of user interests because any increase in one sector means a concomitant reduction in water use somewhere else. The entire desert southwest is short of water, and new sources lie somewhere between ‘unavailable’ and ‘price prohibitive.’ With water delivery obligations downstream that carry severe penalties for failure, the Middle Rio Grande needs a competent water plan to provide legal protection for our current resources. If we do nothing, critical decisions will be made for us.

**Who Is Involved?** The Middle Rio Grande region encompasses Sandoval, Bernalillo, and Valencia Counties. However, since evaporation at Elephant Butte Reservoir is “charged” to the MRG region under the Rio Grande Compact, the plan must necessarily take into consideration the river from Otowi Gauge near Española, all the way to Elephant Butte Dam. Everyone living in the region will be affected by the water plan and therefore has the opportunity to affect the plan. The following groups play key roles in the water planning process:

*Water Assembly*--A non-profit, all-volunteer, grass-roots organization formed in 1997 to develop a regional water plan for the Middle Rio Grande through an open, inclusive, and participatory process. The Assembly aims at maintaining a broad, balanced representation of water interests; a strong knowledge base to facilitate the communication, cooperation, and compromise necessary to draft a water plan; and sufficient public support to ensure eventual implementation.

*Constituency Groups*--Assembly participants are divided into five broad categories of water interests: Specialists; Managers; Agricultural/Cultural/Historical Advocates; Riparian/Environmental Advocates; and Economic/Urban Advocates.

*Action Committee*--An elected body of 29 members which meets monthly to set policy for the Assembly.

*Executive Committee*--Action Committee officers and Constituency Group Chairs

*Working Teams*--Task-oriented volunteers and/or contractors responsible for developing various aspects of the plan.

*Water Resources Board*--Local governments partnered with the Water Assembly to facilitate interface, adoption and implementation of the resulting water plan.

*Middle Rio Grande Council of Governments*--A quasi-governmental agency that provides staff support to the Water Resources Board, and to the water planning process.

*New Mexico Interstate Stream Commission*--The agency with oversight for state and regional water

## MIDDLE RIO GRANDE WATER ASSEMBLY

planning, including partial financing, and final acceptance of plans.

***What's Been Accomplished So Far?*** Extensive hydrologic studies have been conducted over the years in the MRG. Building on that knowledge, a group of geo-hydrologists developed a Water Budget for the region in 1999, and a concurring consultant study, funded by the ISC and the Corps of Engineers, was completed in 2000.

Initial public values have been identified through numerous community sessions and an extensive telephone survey. A detailed structure for the water plan, along with preliminary alternatives and evaluation criteria, was developed in 2000. The water plan's mission, goals and objectives, as well as a no-action future water use baseline projection, are currently in final review.

Besides strong public and government outreach campaigns for education, input, and plan acceptance, the next steps are detailed analysis of potential alternative actions and input on how water allocation should be balanced among user interests in the region. Finally, alternative scenarios of actions and impacts will be developed and put to extensive public review. A completed water plan is due at the ISC in June 2003.

The Water Assembly and Water Resources Board have developed an Annotated Table of Contents for the plan, delineating the kind of content each paragraph should contain. The document will be updated and publicly distributed as individual sections reach some minimal level of maturity.

What's next?

A number of activities, which comprise the coming attractions, include:

### Building Technical Knowledge

- Understanding the Alternative Actions
- Refining the "Analysis Light"
- Technical/Physical/Hydrological/Environmental Attributes
- Economic, Social, Cultural, Political, Legal Attributes
- Collecting Actions into Scenarios

### Public and Governmental Participation

- Round Out Stakeholder Participants
- Continue Ongoing Governmental Dialogue
- Broaden General Public Involvement
- Trade-Off Modeling of Selected Actions
- Community Conversations on Actions, Scenarios, Plan
- Refined Public Opinion Survey

### Administrative/Infrastructure

- Selected Subcontracting for Analyses
- Develop Implementation Strategies
- Populate the Water Plan Document

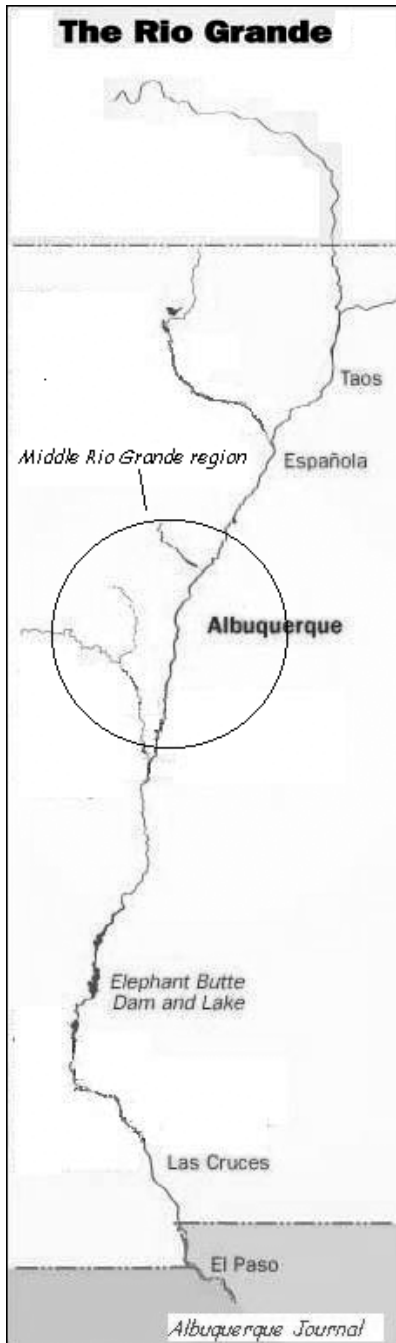
***To Participate:*** A general purpose water planning e-mail list server is one vehicle for input and discussion. To receive broadcast messages, send one message to [majordomo@cabq.gov](mailto:majordomo@cabq.gov) with "subscribe mrgwp" in the body text. To broadcast a message, address it to [mrgwp@cabq.gov](mailto:mrgwp@cabq.gov). The Assembly web site ([www.WaterAssembly.org](http://www.WaterAssembly.org)) is another major information source and additional dialogue facility. All meetings of the Assembly, Constituency Groups, Action Committee, Executive Committee, and Working Teams are open to the public and are announced on the e-mail list server. For further information contact Bob Wessely, Assembly Chair, (505) 867-3889 <[wessely@sciso.com](mailto:wessely@sciso.com)>, or Bob Prendergast, Assembly Vice Chair, (505) 857-9225 <[rnptep@uswest.net](mailto:rnptep@uswest.net)>, or Mike Trujillo, MRGCOG, (505) 247-1750 <[MTrujillo@mrgcog.org](mailto:MTrujillo@mrgcog.org)>.

## Middle Rio Grande Water Budget Facts

*The Middle Rio Grande is part of the Rio Grande Basin, which stretches from the San Luis Valley of Colorado to the Gulf of Mexico.*

*The water from the basin is shared by millions of people as well as fish, animals, insects, and plants in two countries and seven states.*

*It is our lifeblood.*



- The Middle Rio Grande Water Budget is a balance sheet showing the inflows and outflows from Cochiti Dam to Elephant Butte Reservoir measured in acre-feet of water.
- Water use in every sub-region of the Middle Rio Grande affects the water availability to the entire region.
- The Middle Rio Grande gross water income is the annual surface flow of the Rio Grande and its tributaries into the region.
- The Middle Rio Grande disposable water income is the water that remains after satisfying the treaty obligation to Mexico and ensuring deliveries to southern New Mexico and Texas under the legal obligation called the Rio Grande Compact.
- The Middle Rio Grande water savings accounts the stock of groundwater in the aquifer under the Middle Rio Grande region.
- The average annual gross water income available to the Middle Rio Grande Region (calculated from 1972 to 1997) was 1,200,000 acre-feet.
- After deducting Rio Grande Compact deliveries the average annual disposable water income for the Middle Rio Grande region is 414,000 acre-feet.
- Average annual depletions include evaporative losses from Elephant Butte Reservoir, and evaporation from the greenery in the bosque, irrigated farms, golf courses, parks, and residential lawns.
- All uses have caused a reduction in the water savings account by an average of 55,000 acre-feet per year.
- Most recent calculations indicate that more surface water is used in the Middle Rio Grande region than it is entitled to under the Compact and treaty obligations. Additions from wastewater return flows and water imported from the Colorado River Basin by the San Juan-Chama Diversion Project do not entirely make up this deficit.
- Collectively, the people of the Middle Rio Grande region are chronically overspending the annual disposable water income and covering the annual deficit by persistently drawing down the water savings account.
- The population of the Middle Rio Grande region is estimated to double by year 2050. Other cities along the Rio Grande, such as Santa Fe, Las Cruces, Pasa and Ju rez, are anticipated to grow and will have increasing water needs.
- If the Region takes no action, the regional consumption deficit is predicted to increase to approximately 107,000 acre-feet by the year 2050 (with the cumulative amount adding up to over 4 million acre feet).

It is imperative that all the people of the Middle Rio Grande Region work together to develop a plan for our future water needs and to balance the water budget.

THE MIDDLE RIO GRANDE WATER ASSEMBLY

# Water Budget Fact Sheet

## Balancing Water Uses with Renewable Supplies A Fact Sheet

### *The demands on our water resources exceed the renewable supply.*

- Prior to the 1990's water supply estimates for the Middle Rio Grande Region indicated our water supply was significantly larger than demand.
- More recent estimates show that we are using up our water faster than it can be naturally replenished.
- We are using 55,000-acre-feet of water per year of groundwater that is not being replenished. An acre-foot is 326,000 gallons, or enough water to cover one acre one foot deep. We are using 18 billion gallons of water annually that is not renewable.
- The population in our region is expected to double by 2050.

CoA's use of gw is ~110 kaf alonge, ~60kaf of which is not replenished, right? It also is not right to say that gw is non-renewable. The Compact language is also troublesome.

### *We can think of our water supply as a checking account – filled with water instead of money.*

- Our water account has an existing balance of groundwater. Groundwater is non-renewable. We want to preserve as much of this existing balance as possible.
- Additional, renewable water comes into our account from the Rio Grande, various forms of recharge, storm water runoff, and water we have contracted for that is imported from the San Juan/Chama water project.
- We receive renewable deposits of about 1,424,000 acre-feet of water per year. However, we have to deliver 1,094,000 acre-feet of this amount to counties in southern New Mexico, as well as Texas and Mexico. This is required by the Rio Grande Compact agreement.

- more-

**DRAFT**

- That leaves 385,000 acre feet for our annual use in the Middle Rio Grande Region. But we are using 440,000 acre-feet or more each year. We are dipping into the existing balance of our account and using up an additional 55,000 acre-feet of water each year.

***How are we “spending” our water?***

- Our water expenses can be itemized into six major areas:
  - Riparian environment (**26%**),
  - Open water evaporation (**11%**),
  - Irrigated agriculture (**19%**),
  - Office/municipal/industrial purposes (**6%**),
  - Domestic purposes (**11%**), and
  - Evaporation at Elephant Butte Reservoir (**27%**).
- In addition, our water inflow can be reduced by things like diversions, drought, water quality concerns, and the quality of the river ecosystem itself. Our “budget” doesn’t take these and other factors such as water rights into account.

***What can we do to address our water deficit?***

- Just as families have to come together to make joint decisions about their spending and living within their financial budgets, we have to come together as communities to address living within our water budgets.
- The state has designated 16 regional water planning areas. The Middle Rio Grande Region includes Bernalillo, Sandoval, and Valencia counties. The Water Assembly and the Middle Rio Grande Water Resources Board are charged with developing a water plan for our region. The plan must be based on public input and take into account the attributes and feasibility of proposed solutions.
- The final water plan will be submitted to local governments **and the Governor** later this year for approval and implementation. In addition, it is likely that the implementation of the plan will require federal, state, or local funding. Likely funding sources will be identified as part of this process.

- more-

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- To date, 44 water management ideas have been proposed that address ways to
  - Increase our water supply
  - Decrease or regulate our water demand
  - Change how our water is used
  - Improve water rights regulation
  - Protect water quality
  - Implement and manage water resources
  - Provide funding for our water planning and projects

###

# Water Budgeting and Planning for the Middle Rio Grande Information Summary

*The demands on our water resources exceed the renewable supply. We are now trying to determine how to share this critical resource. We need broad public decision-making to achieve this goal.*

## **The Problem -**

- Our rivers and aquifers are a limited resource.
- Our population is projected to double in fifty years.
- No meaningful additional water supplies can be assumed.
- Significant reductions in our water consumption will be necessary.
- Our region is using an estimated 55,000 acre feet per year more water than is recharged.

## **Our Major Water Consumers-**

- Natural/riparian uses
- Elephant Butte Lake evaporation uses
- Other open water evaporation uses
- Irrigated agriculture uses
- Industrial/municipal uses
- Domestic uses
- Fixed obligations to our neighbors downstream

## **Our Major Water Sources -**

- Native Rio Grande water flow
- Tributary and groundwater inflows
- Imported San Juan/Chama inflows
- Urban storm drain inflows

## **The Water Assembly is Seeking a Wise, Inclusive Solution -**

- Obtain broad-based public participation in all decisions.
- Understand the water supply and demand balances.
- Budget the available water resources among users.
- Identify and define possible actions.
- Understand the values and impacts from possible actions.
- Obtain preferences from a wide span of public/special interest.
- Select preferred actions that collectively meet the water budgeting.
- Implement actions within present hydrological, technical, political, social, legal, and economic realities.
- In summary, determine how to share the shortage.

## **Public Participation is Now Being Sought for the Alternative Action Review -**

- Public meetings and technical input provided 271 possible actions
- Those alternative actions were refined to the 44 described in the "Candidate Alternative Actions" booklet
- A technical analysis of the attributes and feasibility of the alternative actions is in process
- Public preferences for alternative actions will be determined through community conversations and other means
- Technical feasibility and public preferences will be combined to create alternative water use scenarios
- The selection of a preferred scenario or scenarios will lead to the regional water plan

## **Six Community Conversations are now scheduled from 6:30 to 9:00 pm:**

- § Sept. 4, Los Lunas Village Hall, 660 main NW, Los Lunas
- § Sept. 5, Bernalillo Elementary School, 301 Calle de la Escuela, Bernalillo
- § Sept. 10, South Valley Sheriff's Substation, 2039 Isleta SW, Albuquerque
- § Sept. 16, Rio Rancho City Council Chambers, 3900 Southern Blvd. SE, Rio Rancho
- § Sept. 17, Indian Pueblo Cultural Center, 2401 12th St. NW, Albuquerque
- § Sept. 19, Belen Senior Center, 715 S. Main St, Belen



Water Resources Research Institute Annual Water Conference  
Rio Grande Compact: It's the Law  
December 3, 1999

**New Mexico's Obligations and Compliance under the Rio Grande Compact**

Norman Gaume, P.E., Interstate Stream Engineer  
New Mexico Interstate Stream Commission

The Rio Grande Compact was signed in Santa Fe, New Mexico in 1938 following more than a decade of negotiations and four decades of controversy regarding the relative shares of three states and two countries of this desert river. The controversies regarding use of water from the Rio Grande prior to the compact resulted in the "Rio Grande Embargo" by the Secretary of the Interior in 1896, a treaty with Mexico requiring delivery of 60,000 acre feet annually at Juarez signed in 1906, an interim compact which froze water development in 1929, and a United States Supreme Court lawsuit by the State of Texas against New Mexico and the Middle Rio Grande Conservancy District in 1935. The Rio Grande Compact became law in 1939 when it was approved by the legislatures of the three signatory states and the United States Congress.

The compact was developed for the purposes described in its introduction:

- "to remove all causes of present and future controversy among these States and between the citizens of one of these States and citizens of another State with respect to the use of the waters of the Rio Grande above Ft. Quitman, Texas"
- "for the purpose of effecting an equitable apportionment of such waters"
- for interstate comity

The Rio Grande Compact apportionment of water reflects uses at the time it was being negotiated. Large scale irrigation systems were developed in the San Luis Valley in Colorado in the late 1800s. By 1890, most large canal and ditch systems now in use had been constructed. Colorado lands irrigated from the Rio Grande totaled more than 600,000 acres prior to the Rio Grande Compact. The Rio Grande Project, including Elephant Butte Reservoir which was completed in 1916, was developed by the Bureau of Reclamation to serve more than 155,000 acres of irrigated land in New Mexico and Texas. (The majority of this irrigated land—57%—is in New Mexico.)

In contrast, acequias in the Middle Rio Grande in New Mexico were irrigating approximately 40,000 acres, far less than Colorado and the Rio Grande Project. The Middle Rio Grande Conservancy District began construction in 1930 to consolidate most of the acequia systems and provide flood control and drainage services. Much formerly irrigated land during the time of the Rio Grande Compact negotiations had been abandoned due to water-logging. Subsequent reclamation and irrigation system development activities in the Middle Rio Grande between Cochiti Dam and Elephant Butte Reservoir irrigated a maximum of perhaps 80,000 to 90,000 acres of the approximately 123,000 acres that were permitted by the State Engineer. Middle Rio Grande total irrigated land today may be about 60,000 acres.

Major features of the Rio Grande Compact include the following:

- Colorado is required to deliver water to New Mexico at the state line. Colorado's annual delivery obligation is based on the annual flow of the Rio Grande at Del Norte and the flow of three tributaries.

- New Mexico's annual water allocation reaches a maximum of 405,000 acre feet of the flow of the Rio Grande measured at Otowi index gage plus the inflow to the Rio Grande between the Otowi gage and Elephant Butte Dam. New Mexico is obligated to deliver the remaining portion of the annual Otowi gage inflow to below Elephant Butte Dam. In an average year, when 1.1 million acre feet of Rio Grande water flow past the Otowi gage, New Mexico is entitled to consume 393,000 acre feet of that amount. See Figure 1.
- When the annual flow of the Rio Grande at the Otowi Gage is very low, New Mexico's may consume 43% of that water and must deliver the remaining 57% to below Elephant Butte Dam.
- When the annual flow of the Rio Grande at the Otowi Gage is very high, New Mexico may consume only 13% of that water and must deliver the remaining 87% to below Elephant Butte Dam.
- New Mexico's deliveries are measured as the releases from Elephant Butte Dam plus the change in storage in Elephant Butte Reservoir.
- Evaporation from Elephant Butte Reservoir is accounted against New Mexico's compact allocation of Rio Grande water.
- New Mexico is also allowed to consume all of highly variable tributary inflows to the Rio Grande between the Otowi gage and Elephant Butte Dam. This includes flows from the Rio Jemez, the Rio Salado, the Rio Puerco, Galisteo Creek, and the Santa Fe River. In an average year, tributary inflows total about 100,000 acre feet plus an unknown and small amount from minor ungaged tributaries.
- If depletion of Rio Grande flows in New Mexico above the Otowi gage change, the Otowi "index" flow is adjusted accordingly. No adjustments of this nature have been needed.
- The compact requires annual water accounting and provides for a system of annual debits and credits.
- Colorado may accumulate up to 100,000 acre feet of debits in its deliveries to New Mexico. New Mexico may accumulate up to 200,000 acre feet of debits in its deliveries to below Elephant Butte Dam.
- Water must be retained in storage in reservoirs constructed after 1929 to the extent of each state's respective debits and cannot be used. It must be released upon demand by the downstream states under conditions specified in the compact. Reservoirs constructed after 1929 in New Mexico include El Vado Reservoir, owned by the Middle Rio Grande Conservancy District, and Nichols and McClure Reservoirs, which provide a large portion of the Santa Fe municipal water supply.
- If storage in Elephant Butte Reservoir is less 400,000 acre feet, neither Colorado nor New Mexico may increase the amount of water stored in reservoirs constructed after 1929.
- Spills from Elephant Butte and Caballo Reservoirs are an important element of the compact. Credit water spills first. Debits are reduced as the reservoirs approach full capacity to the point of elimination when the reservoirs are completely full.
- Normal total releases from Elephant Butte Dam and Caballo dam are defined as 790,000 acre feet per year. Releases in excess of that amount affect the calculation of spills.
- Water imported from the Colorado River Basin, including the San Juan-Chama Project supply, is not subject to Rio Grande Compact apportionment.

- The Rio Grande Compact does not affect the obligations of the United States to Indian Tribes or impair their rights.

Figures 2 and 3 illustrate New Mexico's historical annual water supply under the Rio Grande Compact. Figure 2 shows the variability in the amount of the flow of the Rio Grande at the Otowi index gage that New Mexico has been entitled to deplete. Figure 3 adds two other sources of water—that yielded by the tributaries between Otowi and Elephant Butte and the San Juan-Chama Project deliveries past the Otowi gage.

It should be emphasized that the Rio Grande Compact, and the State Engineer's duty to see that New Mexico complies with it, not only is an interstate commitment but also a commitment by New Mexico to see that New Mexicans living below Elephant Butte Dam receive their apportioned share of the river. The Compact provides an allocation of Rio Grande water inflows to New Mexico, not between New Mexico and Texas, but among water users in New Mexico above Elephant Butte Dam and water users in New Mexico and Texas downstream from the dam. However, it is the Texas Compact Commissioner that will see that the compact is enforced if New Mexico does not comply with its obligations. That was the case when the State of Texas sued the State of New Mexico in the United States Supreme Court in 1951.

Figure 4 illustrates New Mexico's historical compliance with its Rio Grande Compact delivery obligations expressed as cumulative debits and credits. New Mexico is currently in a net credit situation, but that is not the usual historical condition. The largest single factor in New Mexico's compliance has been the control of "natural" depletions. This has involved control of evapotranspiration from riparian vegetation, construction and maintenance of drains to "salvage" water that otherwise would be lost to evapotranspiration, maintenance of the river channel, and construction and use of man-made channels to deliver water downstream with fewer losses and depletions than transmission via the natural river channel. Conveyance of water via these more efficient channels has been an essential component of New Mexico's compact compliance.

Casual observers may think that New Mexico's compliance with the compact is seemingly unmanaged and without effort. Nothing could be farther from the truth. Major federal projects, including the Joint Middle Rio Grande Project and the Low Flow Conveyance Channel, have been and continue to be essential to New Mexico's recent and contemporaneous compliance. The Interstate Stream Commission has sponsored and providing funding for major water salvage and drainage projects that have contributed substantial amounts of water for beneficial uses and compact deliveries. Ongoing river channel maintenance activities are essential to deliver water downstream and reduce depletions of that water.

New Mexico's activities associated with its compliance with its Rio Grande Compact deliver obligations also have been highly controversial. Major litigation and legislative initiatives resulted from State Engineer Reynold's decision in 1956 that the effect of ground water pumping on the river must be offset by the retirement of equivalent surface water uses. Supreme Court litigation brought by Texas during the drought of the 1950s and the associated Texas demand for release of water from the post-compact El Vado Reservoir was complicated by the Middle Rio Grande Pueblos water rights and issues and ultimately was resolved by the results of the federal projects cited above.

"Natural" evapotranspiration of water dominates the depletions in the Middle Valley supplied from New Mexico's compact share of the Rio Grande. In 1947, the Bureau of Reclamation concluded that

riparian vegetation, wetted sands, and the river were losing more than 300,000 acre feet annually to evapotranspiration. Water budget information from a 1992 Reclamation study indicates non-crop evapotranspiration, including evaporation from the river and the associated irrigation infrastructure, was about 250,000 acre feet per year, compared to crop water depletions of about 130,000 acre feet per year. “Natural” depletions charged against New Mexico’s apportioned share of the Rio Grande also include evaporation from Elephant Butte Reservoir, which has averaged about 100,000 acre feet per year over its history but has been much higher recently, about 180,000 acre feet per year over the past 15 years.

This is very different from the situation in Colorado and the Rio Grande Project area below Elephant Butte Dam. Irrigated crop water depletions are predominant in those areas and reservoir evaporation is much lower.

Two factors in New Mexico’s recent history of annual compact delivery credits include augmentation of the river flows from (1) municipal pumping of groundwater and discharge of some of that mined groundwater to the Rio Grande as treated wastewater effluent, and (2) increased return flows from irrigation diversions that have been substantially augmented by San Juan-Chama project supplies. Neither of these will continue indefinitely into the future. Figure 5 shows cumulative losses and gains in three reaches of the Middle Rio Grande during the winter season when neither irrigation diversions nor riparian evapotranspiration are taking water from the river. The San Felipe to Bernardo reach shows significant changes from the pre-1972 flow regime that may be associated with return flows from municipal and industrial groundwater pumping in the metropolitan Albuquerque area and from return flows associated with irrigation applications of San Juan-Chama Project water. The San Acacia to San Marcial reach shows reduced depletions over the 1960s and 1970s that are associated with the full operation of the Low Flow Conveyance Channel in comparison with the earlier and later periods before the channel was constructed and diversions to the channel ceased in the mid 1980s.

Albuquerque and Santa Fe originally intended complete consumptive use of their allocations of San Juan Chama water associated with pumping groundwater interconnected with the Rio Grande. Both cities now plan to construct facilities for direct diversions of their allocations associated with the recent scientific conclusions regarding the ability their wells to divert river water that can be offset with release of San Juan-Chama project water.

New Mexico’s contemporaneous compliance with its Rio Grande Compact delivery obligations will be challenged by either drought, or planned municipal direct use of San Juan-Chama water, or the water demands of the Rio Grande silvery minnow and avoidance of adverse impacts to its declared critical habitat if those demands are satisfied by conservation of existing irrigation losses and use of that conserved water in a manner that converts existing losses, which remain in the hydrologic system, to new depletions.

Non-compliance is outcome that New Mexico must strive to avoid. Under-delivery resulting in net debits as allowed by the compact will lock-up water in reservoirs constructed after 1929 upon which the Middle Valley and the City of Santa Fe depend. Debits exceeding the 200,000 acre feet cumulative amount allowed by the compact will land New Mexico in the United State Supreme Court. Texas officials in recent conversations with the State Engineer and with me have made that very clear.

Active River Management is the term State Engineer Turney has used to describe the general system of water use measurement and controls that New Mexico must define and implement. This system must:

- recognize the limits and variability of New Mexico’s compact-apportioned share of the river;

- effectively utilize the system of debits and credits the compact provides; and
- maximize average water supply through conjunctive use of ground and surface water and the continued control of natural depletions.

As I see it, active river management has three main components:

- measurement and forecasting of annual river flows, New Mexico's depletion entitlement that can be taken from those river flows, and the portion of those river flows that must be delivered through New Mexico to downstream water users
- management and control of depletions, including the depletion of river flows caused by pumping groundwater that is hydrologically connected to the river and the depletions of river flows due to natural causes
- markets that work to transfer water from New Mexico's finite share to new uses

The first two components both require metering of water. River flow forecasting is dependent upon measurement of river flows. State of New Mexico 50% cooperative funding for essential New Mexico stream gaging is not achieving as much actual measurement as federal expenses increase and federal funding is curtailed. Some gages that would provide needed information today have been abandoned. For example, tributary inflows to the Middle Rio Grande are much less thoroughly measured now than they were 30 years ago, even though our need for water and dependence on those tributary inflows is increasing.

Management of water depletions is essential. In the Middle Rio Grande, natural depletions are predominant. The State of New Mexico has depended on control of water depletions through water drainage, salvage, and construction and operation and maintenance of "efficient" water conveyance facilities. Continued control of natural depletions with these or other equivalently effective tools is essential to New Mexico's compliance with its compact obligations.

In her opening remarks for this conference, New Mexico Riparian Council President Andrea Linderoth-Hummel said that "riparian equals water." That is certainly true. Actually, to be more precise, riparian equals depletion of water. Andrea said "we need to know how much water is being used where" and we need to know "how much is needed for this habitat which is so near and dear," referring to the Middle Valley's bosque. I couldn't agree more. Additionally, we need to determine how we will allocate New Mexico's limited compact share between natural depletions and beneficial uses.

New Mexico must also manage and limit depletions for human uses, both in the Middle Rio Grande and here in the Lower Rio Grande. This will require metering of diversions of water, deliveries to farms, and return flows. I know this is controversial in areas where metering has not been required. However, in river basins such as the Pecos and with users including Carlsbad Irrigation District and the Pecos Valley Artesian Conservancy District, metering is totally accepted and viewed as necessary to see that users of a common but limited water supply receive their due share.

Other elements of active river management to limit total uses of water to New Mexico's allocation include, by law, priority administration so that junior users are cut off when the supply is insufficient to supply the water rights that are senior. An effective system of enforcement will also be required, at least initially.

Other speakers at this conference have shown that Middle Rio Grande water supplies are highly variable. Contemporaneous supplies are higher than historical averages. The Rio Grande is visited routinely by severe drought. Planning is needed to determine the most effective conjunctive use of ground water and New Mexico's compact allocation of surface water and San Juan-Chama water to serve needs in years when the water supply is limited.

Finally, an effective market is essential for transfer of water from water right owners who will forego their use of water to those who have insufficient or junior or no water rights but need water. Categories of users who need additional water might include farms where high water use crops require more water than available water rights will provide, growing municipalities, economic development industries, and environmental uses and users. However, markets cannot supply new uses of water without foregoing an equivalent amount of water use elsewhere. The capital of these markets must be wet water and specifically must not be dormant and unused water rights.

I was directed by the Interstate Stream Commission at its last meeting to prepare a plan for the Commission's use of accumulated balances in the two permanent income funds that it controls, subject to appropriations by the Legislature, to improve stream gaging and diversion and return flow metering throughout the state over the next few years. That plan is intended for presentation to the Legislature at its next session. The Interstate Stream Commission has requested substantial appropriations to address inadequate flow measurement in the Middle Rio Grande and to perform a detailed evaluation of current water depletions associated with beneficial uses and natural causes.

Thank you for the opportunity to speak to you regarding these critically important matters.

# Water Budgeting and Planning for the Middle Rio Grande

## Questions & Answers

*The demands on our water resources exceed the renewable supply. We are now trying to determine how to share this critical resource. We need broad public decision-making to achieve this goal.*

### 1. WHAT IS REGIONAL WATER PLANNING?

Answering five questions: What is the supply? What is the demand (now and future)? What choices can balance supply and demand? Which are acceptable? How can they be effected?

The New Mexico Interstate Stream Commission oversees and partially funds the planning effort. According to their *New Mexico Regional Water Planning Handbook*, water planning is "the budgeting of an essential and finite resource," and it may be used together with other planning tools at a local, regional and state level. The Handbook also strongly urges "participation, awareness and involvement of the people in the region," saying that "successful plans are marked by the support, understanding and consensus generated by the planning process." A copy of the Handbook can be obtained from the Interstate Stream Commission (505) 827-6161 or [www.seo.state.nm.us/doing-business/water-plan/rwp-handbook.html](http://www.seo.state.nm.us/doing-business/water-plan/rwp-handbook.html).

### 2. WHY DO REGIONAL WATER PLANNING?

For three main reasons: To reduce or eliminate ground water depletions, to protect our regional water interests, and to retain control of our water future. If we don't plan, someone else will make the decisions for us. Currently the average annual deficit for water consumption is estimated at 55,000 acre feet per year.

From earlier Community Conversations, where values and visions were discussed, a set of mission and goals were developed. The mission of the Middle Rio Grande Region is to "balance use with renewable supply."

### 3. WHAT IS THE MIDDLE RIO GRANDE (MRG) REGION?

Consisting of Sandoval, Bernalillo, and Valencia Counties, the MRG includes a wide variety of communities and interests. One of 16 regional water planning areas within the state, it is to develop a regional water plan which will contribute to a statewide water plan.

The MRG regional water plan is being developed by a partnership, consisting of the Water Assembly and the Mid-Region Council of Governments, representing local governments. The purpose of the Water Assembly, a non-profit, citizen-based, all-volunteer organization incorporating a broad array of water interests and knowledge, is the development of a Regional Water Plan through an open, inclusive and participatory process.

### 4. WHAT IS A WATER BUDGET?

Similar to a household budget, it lists annual water income and expenses --including external delivery obligations-- resulting in a net surplus or deficit. In the long run, income and expenses must balance out. In response to the first two questions about supply and demand, a Water Budget for the MRG Region was published in 1999, a copy of which can be obtained by contacting MRCOG at 247-1750.

### 5. WHAT IS INCLUDED IN THE WATER BUDGET?

a. The *water income* consists of the Rio Grande, with additional amounts received through various forms of recharge, storm water runoff, and contracted import water from the San Juan/Chama project. Many of the Region's water users depend on non-renewable ground water.

b. The *water expense*, or *consumption*, can be broken down into six major uses: riparian environments (26%), open water evaporation (11%), irrigated agriculture (19%), office/ municipal/ industrial purposes (6%), and domestic purposes (11%). Elephant Butte Reservoir evaporation (27%) is also charged to the Region.

c. Most of the Region's *external delivery obligation*, per the *Rio Grande Compact*, is to users below Elephant Butte Reservoir. These deliveries also support the Socorro and Sierra counties. A substantial portion of the water delivered to Elephant Butte Reservoir is lost to evaporation, charged by the *Compact*, to the Region.

### 6. WHAT IS NOT INCLUDED IN THE WATER BUDGET?

Being an average summary of supply and demand, the budget does not include key issues such as water rights, diversions, withdrawals and re-use, variability in supply especially due to drought, water quality, the quality of the river ecosystem, and other essential topics, which will be considered presently.

**7. WHAT ARE THE CURRENT AVERAGE BUDGET NUMBERS?**

Based upon averages from period of 1972 to 1997, the Region’s average water income is 1,424,000 acre feet per year (afpy), downstream delivery requirements are 1,094,000 afpy, and the Region’s current consumption is 385,000 afpy. (An acre-foot is about 326,000 gallons, or enough water to cover one acre one foot deep.) The average net deficit or shortage amounts to an unsustainable 55,000 acre-feet per year.

While various studies may report specific water income and expense amounts differently, one consistent result reported is that the water budget is balanced by the pumping more ground water than is renewed.

**8. WHAT IS THE NO-ACTION PREDICTION FOR THE FUTURE?**

If the Region takes no action, the regional consumption deficit is predicted to increase to approximately 107,000 afpy by the year 2050 (with the cumulative amount adding up to over 4 million acre feet).

**9. WHAT ARE THE CONSEQUENCES OF CONTINUED PUMPING?**

Consequences of deficit spending range in possibilities from an impact upon future generations, land subsidence, water quality degradation, high cost for water extraction, and inability to meet the Rio Grande Compact obligation.

**10. WHAT MUST BE DONE ABOUT THE DEFICIT?**

Communicate, collaborate, cooperate, and compromise. We need to plan how to share the pain of shortage while maintaining the diverse life-styles and cultures that make this Region what it is.

We are solving this problem by working on it together. Through an inclusive and participatory process, a list of Alternative Actions for achieving the plan's mission of "balancing use with water supply" has been developed.

**11. WHAT ARE THE ALTERNATIVE ACTIONS?**

The alternative actions represent the range of options for balancing water use and supply, with varying implications for our economy, environment and agriculture, and for our lifestyles and quality of life. They include demand reduction and supply enhancement measures, and regulatory and educational actions. The list currently consists of 44 alternative actions.

**12. WHAT ARE SCENARIOS?**

Scenarios are descriptions of journeys to possible futures, how the future might unfold.. They reflect different assumptions about how current trends will unfold, how critical uncertainties will play out and what new factors will come into play. While scenarios do not predict, they may paint pictures of possible futures and explore the differing outcomes that might result if basic assumptions are changed. They form an appropriate tool in analyzing how driving forces may influence the future and in assessing the associated uncertainties. The role of policy choices in shaping the future is highlighted wherever possible. Using the alternative actions, scenarios can be told in many ways. The two most common methods used in scenario analysis have been descriptive, written narratives (qualitative scenarios) and tables and figures incorporating numerical data, often generated by sophisticated computer models (quantitative scenarios).

**13. WHAT HAPPENS NEXT?**

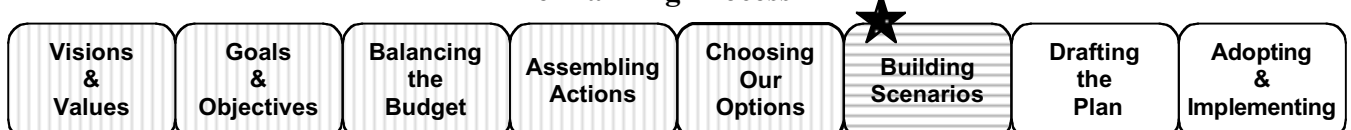
Using the input from the region, there will be a preferred scenario chosen, which in turn will form the backbone of the Regional Water Plan. In September, the draft Plan will be presented to the public in the three county planning area for comment. As documents are drafted, they will be available for review and comment at [www.WaterAssembly.org](http://www.WaterAssembly.org) or by contacting MRCOG at 247-1750.

Coordination with our partners is needed. Municipal, county, and regional plans will be mutually adapted so as to present a single unified vision of our future in the critical area of water management. Only if the water plan, with its recommendations, stems from a public process and earns broad public support, decision makers will be willing, perhaps even eager, to adopt and implement it.

**Regional Water Planning needs all of us to develop a plan to balance our water budget!**

Water Assembly, P.O. Box 25862, Albuquerque, NM 87125-5862

**The Planning Process**





## **Middle Rio Grande Regional Water Plan Interim Mission and Goals**

### **Preamble:**

The Water Assembly and the Water Resources Board have adopted the following interim overriding **preamble** for Middle Rio Grande water planning process mission and goals:

**Recognizing the limited resource and consistent overuse of the region's water, the following interim mission and supporting goals are established for the regional water plan.**

### **Mission:**

The Water Assembly and the Water Resources Board have adopted the following interim overriding **mission** for Middle Rio Grande water planning process:

**Balance Water Use with Renewable Supply**

### **Goals:**

Based upon extensive public input, the Water Resources Board and the Water Assembly have adopted the following ten interim **goals** to support the mission of the Middle Rio Grande water planning process:

- A. Ensure that the Mission is fulfilled through fair, open and inclusive public planning and implementation processes**
- B. Preserve Water for a Healthy Native Rio Grande Ecosystem**
- C. Preserve Water for the Region's Agricultural, Cultural, and Historical Values**
- D. Preserve Water for Economic and Urban Vitality**
- E. Preserve Water for the Qualities of Life Valued by Residents in the Region**
- F. Develop Broad Public and Official Awareness of Water Facts and Issues, Especially the Limited Nature of Water Resources**
- G. Conserve Water**
- H. Promote a System of Water Laws and Processes that Support the Regional Water Plan and its Implementation**
- I. Provide Appropriate Water Quality for Each Use**
- J. Manage Water Demand Consistent with the Stated Mission**

26 Dec 01 - Below is listing of the proposed criteria (column headings) to evaluate the Alternative Actions

## EVALUATION OF ALTERNATIVE ACTIONS

- 7.1 Technical Feasibility**
  - 7.1.1 Availability
  - 7.1.2. Reliability
  - 7.1.3. Applicability
  - 7.1.4 Total time and duration
  - 7.1.5 Complexity
  - 7.1.6 Water Quality Management Plan
  - 7.1.7 Enabling new technologies and their status
  - 7.1.8 Initial cost to implement (with payer)
  - 7.1.9 Ongoing cost (with payer),
  - 7.1.10 Water Saved/Lost (Withdrawals vs Depletions for Surface and Ground Water
  - 7.1.11 Cost/Benefit Analysis
- 7.2 Political Feasibility**
  - 7.2.1 Local support
  - 7.2.2 Local opposition
  - 7.2.3 Interagency conflicts
  - 7.2.4 Political Issues
  - 7.2.5 Availability of funding
  - 7.3.6 Means of Implementation (Management Component)
- 7.3. Economic Feasibility**
  - 7.3.1 Jobs per capita gains/losses
  - 7.3.2 Who pays?
  - 7.3.3 Who gains?
  - 7.3.4 Who loses?
  - 7.3.5 Lifetime O&M costs
  - 7.3.2 Local/regional business economic gains/impacts/disruptions
- 7.4 Social and Cultural Feasibility**
  - 7.4.1 Social Costs/Issues
  - 7.4.2 Preservation of traditional values
  - 7.4.3 Quality of life impacts
  - 7.4.4 Equity/Justice
  - 7.4.5 Institutional Issues
- 7.5. Physical, Hydrological, Environmental Feasibility**
  - 7.5.1 Infrastructure Development Requirements
  - 7.5.2 Effect on water demand
  - 7.5.3 Effect on water supply (surface and ground)
  - 7.5.4 Effect on water quality
  - 7.5.5 Impact to ecosystems
  - 7.5.6 Watershed/geologic impacts
  - 7.5.7 Public health effects.
- 7.6. Legal Implications, Issues and Solutions
  - 7.6.1 Federal**
  - 7.6.2 Tribal**
  - 7.6.3 Interstate (Compact)**
  - 7.6.4 State**
  - 7.6.5 Local**
- 7.7. Overall Scores
  - 7.7.1 Overall Technical Feasibility Score**
  - 7.7.2 Overall Political Feasibility Score**
  - 7.7.3 Overall Economic Feasibility Score**
  - 7.7.4 Overall Social and Cultural Feasibility Score**
  - 7.7.5 Overall Physical, Hydrological, Environmental Feasibility Score**
  - 7.7.6 Overall Legal Implications Score**
  - 7.7.7 Overall overall score

- 7.1.1 Availability
- 7.1.2. Reliability
- 7.1.3. Applicability
- 7.1.4 Total time and duration
- 7.1.5 Complexity
- 7.1.6 Water Quality Management Plan
- 7.1.7 Enabling new technologies and their status
- 7.1.8 Initial cost to implement (with payer)
- 7.1.9 Ongoing cost (with payer),
- 7.1.10 Cost/Benefit Indicators
- 7.1.11 Cost/Benefit Measurements
- 7.1.12 Overall Technical Feasibility Score

**MRGWA/MRGCOG**  
**Some Statistics on Attitudes and Preferences of**  
**Residents of the Middle Rio Grande Water Planning**  
**Region Regarding Water Issues.**

In December 1999, the Middle Rio Grande Water Assembly (MRGWA) in conjunction with the Middle Rio Grande Council of Governments (MRGCOG) recognized that a public opinion survey could be an effective means of determining public views on pertinent water issues. The MRGWA Action Committee believed that such views could be used, in part, to help shape a regional water plan. In turn, in order to achieve this objective, the MRGCOG contracted with the University of New Mexico Institute for Public Policy (UNM/IPP) to survey an “oversample” of residents in the Middle Rio Grande (MRG) water planning region as part of a broader statewide survey. Between March 21 and May 15, 2000, UNM/IPP conducted its semiannual statewide *Public Opinion Profile* survey of New Mexico Residents. Its major focus was water issues, and its results included responses from individuals in 1156 households randomly drawn from throughout the three counties in the MRG region.

To pinpoint what water issues people find important, the UNM/IPP asked respondents to rate seven potential issues on a one-to-seven scale, where one meant “not an important problem” and seven meant “an extremely important problem.” Table 1 presents the results in order of MRG respondents’ evaluation of their importance.

**Table 1**  
**Relative Importance of Specific Listed “Water Issues”**  
**(1 = “not an important problem”; 7 = “extremely important problem”)**  
 (All results reported are “means,” i.e. average responses)

	MRG	Statewide
The quality of the water that my family and I drink and bathe in.	6.19	6.09
Having enough water in our rivers to protect endangered fish and to keep the trees, vegetation, and other wildlife along the riverbanks healthy.	5.80	5.74
The rate at which we are using up the underground water supply.	5.67	5.67
Whether population and economic growth are out of balance with the limited water resources of the state.	5.14	5.23
Whether New Mexico can meet its legal obligations to Texas and Mexico, and still have enough water to meet the needs of New Mexicans.	4.96	4.98
Making enough water available to attract and keep high-tech industries that offer good-paying jobs in the region.	4.88	4.97
Whether there is enough water to maintain residential lawns and gardens.	4.14	4.27

Another section of the survey required respondents to make implicit choices among competing demands for a limited supply of water by rating the importance of various uses. The wording of the set-up question was as follows:

As you probably know, there are many competing demands for the water found underground and in New Mexico’s rivers, lakes, and streams. These demands come from cities, households, agriculture, industry, and from the environment. I will read you a list of possible uses of water. Using a scale from **zero** to **ten** where **zero means that you do not care whether water is available for that use** and **ten means that you want to be sure that water is available for that use**, please rate the value you personally place on each of the following uses of water.

In table 2, we summarize the results from thirteen possible water uses. The neutral or midpoint on this 0 to 10 scale is 5. Results are presented in order of the value assigned by MRG respondents.

**Table 2**  
**Values Assigned to Various Uses of Water**  
**(Scale: 0 = “don’t care whether water is available for that use;**  
**10 = “want to be sure water is available for that use”)**  
 (All results reported are “means,” i.e. average responses)

	MRG	Statewide
Indoor use in existing homes	8.17	8.32
Preserving the native cottonwood forest and vegetation along river banks known as the bosque, that creates habitat for a variety of different animal species	7.69	7.50
Irrigation for farms	7.59	7.99
Providing food and refuge for fish, birds, and other animals	7.54	7.56
Indoor use in new housing developments	6.62	6.94
Cultural and religious uses in some villages and pueblos	6.38	6.34
Recreation, such as fishing and rafting	6.14	6.40
Community parks and sports fields	5.66	5.52
New industrial uses, such as manufacturing processes	5.29	5.41
Watering existing yards and landscaping	4.40	4.57
Use for yards and landscaping in new developments	3.82	4.14
Watering golf courses	3.18	2.93
Swimming pools for individuals homes	2.68	2.58

Reference: **Attitudes and Preferences of Residents of the Middle Rio Grande Water Planning Region Regarding Water issues: Summary Report to the Action Committee of the Middle Rio Grande Water Assembly and the Middle Rio Grande Council of Governments** (UNM Institute for Public Policy/The University of New Mexico; Albuquerque, New Mexico, June 2000).

# MIDDLE RIO GRANDE WATER PLAN

## ∇ Selected Key Words

- ∇ **Wet Water** – The kind you can drink
- ∇ **Paper Water** – License to use it if it's there
- ∇ **Ground Water** – Content of aquifers
- ∇ **Surface Water** – Springs and streams
- ∇ **The Region** – 3 Counties, Surface and Ground Water
- ∇ **Inflows** – Precipitation, surface flow, and underground flow
- ∇ **Withdrawals** – Extractions from aquifers
- ∇ **Diversions** – Extractions from streams
- ∇ **Return Flows** – Give-backs from extractions
- ∇ **Depletions/Consumptions** – Water lost “forever”  
(evaporation or evapotranspiration)
- ∇ **Water Budget** – Inflows less depletions P&L

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**NEWS RELEASE**

**February 21, 2002**

**PUBLIC ASKED TO WRESTLE WITH WATER BALANCE**

The "water budget" for the Middle Rio Grande must be balanced. On average, the region uses more water -- 70,000 acre feet more -- than is available to it on an annual basis. Much of the deficit is made up by pumping groundwater. Continued depletion will have long term consequences. Hard choices and difficult trade-offs will be required to manage this problem.

The Middle Rio Grande Water Assembly -- a citizen-based, non-profit organization -- and the Middle Rio Grande Council of Governments are working in collaboration to develop a regional water plan. They are sponsoring the fourth series of Community Conversations to engage the public in the regional planning process. The conversations will take place during the month of March in Bernalillo, Sandoval, and Valencia Counties. Public input obtained from previous conversations was used to craft a mission statement and goals for the regional water plan.

These sessions are but one component in developing a water management strategy for the region. The strategy, in part, must be based upon a water budget -- inflows, consumption, outflows and the resulting surplus or deficit.

Studies through the past several years of effort in water planning have brought us well along in understanding our current supply and how our water's being used today. We have a deficit that is unsustainable. Estimates of the future budget are based upon no new action and our past performance. These show a still further imbalance as demand grows without increase in renewable supply.

This next round of Community Conversations, one in each of the region's counties, will focus on the question, "How will we share the water?" At the heart of these meetings will be an interactive water balancing exercise. Members of the public will get to experience the difficulties and complexities involved in trying to balance our water budget in the short and long term. These Community Conversations are intended to provide initial information about the kinds of trade-offs that will be required to "balance all uses with renewable supply," the overall goal of the region's water plan.

**The Community Conversations will be held on March 4 at the Indian Pueblo Cultural Center in Albuquerque, March 6 at the City Council Chambers in Rio Rancho, and March 12 at the Fred Luna Senior Center in Los Lunas.** Each session will begin promptly at 6:30 in the evening and last for two hours. Light refreshments will be provided. For further information, call Bob Wessely 867-3889 or Bob Prendergast at 857-9225 of the Water Assembly, or Mike Trujillo at the Middle Rio Grande Council of Governments at 247-1750.