12.11. ISSUES AND CONSTRAINTS

12.11.1. Introduction

The dawn of the 21st century provides a litany of issues regarding water supply and demand in the Southwest. Management of changing water supplies must contend with many traditional arrangements and demands as well as new values that are not explicitly recognized in the current approach to water resource management.

12.11.1.1. Water 2025

The national focus of the U.S. Secretary of Interior, in the program Water 2025, raised the level of consciousness with respect to water. From 2003 her presentation come the following gems:

> Today, in some areas of the West, existing water supplies are, or will be, inadequate to meet the water demands of people, cities, farms, and the environment even under normal water supply conditions.
>
> Water is the lifeblood of the American West and the foundation of its economy. ... Today, the American West is the fastest growing region of the country. Water is its scarcest resource.
>
> Water 2025 is intended to focus attention on the reality that explosive population growth in western urban areas, the emerging need for water for environmental and recreational uses, and the national importance of the domestic production of food and fiber from western farms and ranches are driving major conflicts between these competing uses of water.
>
> Water 2025 recognizes that state and local governments should have a leading role in meeting these challenges, and that the Department of the Interior should focus its attention and existing resources on areas where scarce federal dollars can provide the greatest benefits to the West and the rest of the Nation.
>
> - Existing water supply infrastructure must be maintained and modernized so that it will continue to provide water and power.
> - Enhanced water conservation, use efficiency, and resource monitoring will allow existing water supplies to be used more effectively.
> - Collaborative approaches and market based transfers will minimize conflicts between demands for water for people, for cities, for farms, and for the environment.
> - Research to improve water treatment technology, such as desalination, can help increase water supplies in critical areas.
> - Existing water supply infrastructure can provide additional benefits for existing and emerging needs for water by eliminating institutional barriers to storage and delivery of water to other uses while protecting existing uses and stakeholders.

- Explosive population growth is occurring in areas where water supplies are limited and the demand for water is increasing.

Urban growth in the West presents water management challenges that must be met if we are to avoid bitter conflicts that may have significant adverse social, economic, and environmental impacts.

Some areas in the Western United States receive less than one-fifth of the annual precipitation that other areas of the country enjoy. Adding explosive urban growth to existing uses in these areas increases pressure on a limited resource – water.

In some areas the water supply will not be adequate to meet all demands for water even in normal water years. Inevitable droughts merely magnify the impacts of water shortages.

The Five Realities

Five interrelated realities of water management are creating crises in important areas in the West. These realities are:

1. Explosive population growth
2. Water shortages exist
3. Water shortages result in conflict
4. Aging water facilities limit options
5. Crisis management is not effective

Four Key Tools to Prevent Water Crises

Water conflicts can have serious social, economic, and environmental impacts. Through Water 2025, the Department of the Interior identifies four key tools to help prevent future conflict and crises over water in the West.

1. Conservation, Efficiency, and Markets
2. Collaboration
3. Improved Technology
4. Remove Institutional Barriers and Increase Interagency Coordination

Congress, states, tribes, and interested citizens have over the years sought to define and refine water policy in the West. Many studies and other processes have assessed these issues at a conceptual level. Collectively, these studies would fill entire rooms. However, in reality, the options for addressing water supply crises are fairly well known and understood. In the long run, shortages in water quantity can be met only by increasing efficiency of existing uses, transfers of water between uses, reducing or eliminating existing water uses, the development of alternatives sources of water such as desalination, or by storing additional water in wet years for use in dry years.

Interior Department Identifies Likely Sites of Western Water Wars

SAN DIEGO - The Interior Department has identified cities across the West that are likely to experience conflicts over water during the next 25 years.

The department's map shows Western communities where conflict is "highly likely" by 2025: Las Vegas, Carson City, Nev.; Albuquerque, N.M.; Denver; Houston and Salt Lake City.

By Seth Hettena, Associated Press, Friday, May 02, 2003

12.11.2.2. State wide

As seen in the box, issues raised in the planning process as well as covered in Water 2025 have similarly been recognized throughout the Southwest. The State, too, has recognized the seriousness to the situation, creating a State Water Plan within a year.

Changing Water Use and Demand in the Southwest

Jon Unruh & Diana Liverman, University of Arizona

Water exceeds demand
Threats to ecological and human communities
Climate change and future water supply and demand
Changing Water Supply: Underlying Issues
Uncertain Supply
Salinity
New values for water
Changing Water Demand: Underlying Issues
Population Increase
Institutional Structure
Water rights of Indian tribes
Legislation affecting demand
Climate Change and Future Water Supply and Demand

In December of 2002, the New Mexico Office Of The State Engineer And The Interstate Stream Commission announced that "growing and increasingly diverse demands for water in the Middle Río Grande region—including the State's needs for water supply for about half its population and economy, and for wildlife and ecological uses—cannot all be met. ... Current water consumption exceeds the long-term average supply that is legally available for use in the Middle Río Grande. "

Depending on the point of view, the water will be there, but perhaps at someone else's expense.

- The ecological health of the hydrological system, while necessary, has no water right. Overdue decisions to address one specific part, such as the requirements of an

endangered species, may actually exacerbate the disequilibrium, particularly if reactions occur in anger and in haste.

- "A ten percent reduction in agricultural water use could allow the state's population to double." A popular sentiment, without asking from where and who does the water come and what effects does such a transfer have?

- "It's time to discuss population limits before we run out of water." Popular with different groups, but seen to be against the economic health of the region.

- The need for economic development, competing for investment and jobs with other similarly-situated communities, may temporarily overrun the need to maintain a balance in natural resource use.

12.11.2.3. Subregional

Many of those self-same issues could be said to be driving forces for water management in the two watersheds comprising the Río Puerco and Río Jemez subregions. Lack of information and understanding as to water management has added to concerns. Water use arrangements - tribal, acequia, state law, Treaty of Guadalupe Hidalgo, Land Grants, United States v. Abousleman, Nacimiento Community Ditch Association, Rio Grande Compact, and water quality information, has been summarized.

12.11.2. Water Use Arrangements

As with other sections in this report, this section on arrangements guiding water usage is not meant to be all inclusive. Rather, it is hoped that this section too will be added onto in the future.[1]

12.11.2.1. Tribal

Three Pueblos share the waters of the Río Jemez, and share them with many other users, most of who live upstream. In addition to the water uses reported by the State Engineer, the Pueblos also rely on the Jemez River stream flows for religious and cultural purposes. Parts of the Navajo and Jicarilla Apache Reservation lie in the Río Puerco, as do some of the Jemez Pueblo lands (other tribal lands are located in the Río Puerco, outside of Sandoval County). Not consistently reported, or perhaps not reported at all, are the variety of uses to which these different tribal entities apply water. Should Torreon Chapter House and the surrounding region receive water

[1] Within the Middle Rio Grande Water Planning Region, a variety of federal, state, county, and tribal laws and regulations govern the use of water. An overview of each of these areas of law, necessary in understanding the water planning efforts, can be found in "Overview of Water Law Applicable to The Middle Rio Grande Water Planning Region, " Susan C Kery, John W. Utton, Peter C. Chestnut, Sue E. Umshler, January, 2003. See also, "Legal Issues Specific to The Middle Rio Grande Water Planning Region", written in February, 2003 by Susan C. Kery, Esq., John W. Utton, Esq., Sheehan, Sheehan & Stelzner, P.A., Peter C. Chestnut, Esq. and Sue E. Umshler, Esq. for the Middle Rio Grande Regional Water Plan. Both reports are available either at www.waterassembly.org or from the Mid-Region Council of Governments.

from the San Juan River (see Section 12.8.6), the economic development ideas listed in their land use plan may receive a boost.

None of the indigenous water rights have been adjudicated, making it perhaps more difficult for State agencies to acquire such information. Such non-adjudication makes water management more challenging, especially since future rights have not been quantified. [2]

Peter Chestnut, an Indian and water law expert, presented "A Pueblo Perspective on the Río Grande Compact" at the 44th Annual New Mexico Water Conference Proceedings which focused on the Compact. At that time, he referred to Article XVI (16) of the Río Grande Compact which states that

> Nothing in this compact shall be construed as affecting the obligations of the United States of America to Mexico under existing treaties, or to the Indian tribes, or as impairing the rights of the Indian tribes." Since only the Pueblos have an entitlement to receive Río Grande surface water as "prior and paramount" water rights holders, in dry or low-flow years, Pueblo water rights become a larger proportion of the total surface water available for irrigation in New Mexico. As New Mexico's share of the water under the Compact depends on the amount of flow in the river (Article IV of the Compact), Chestnut projected that future "water administration of the Río Grande Compact will see greater Pueblo involvement and attention to senior Pueblo priority and water delivery requirements. The challenge for 21st century lawyers and other water people [will be] to arrive at solutions that are fair and appropriately respectful of Indian Pueblo water rights and social needs. (Chestnut 2000)

12.11.2.2. Acequias

In the both the Río Jemez and Río Puerco, a number of *acequias* exist. These community irrigation ditches convey water to fields. Some of the *acequias* are in good condition, while others are in need of repair. Depending on this condition, or that of the diversion structure itself, may depend on how efficiently the water is used. Some ditches, perhaps due to this same inefficiency, have created wetlands and other habitat oases. This new "use" may cause new barriers to management. *Parciantes*, or ditch members, on the Río Puerco have less water, and thus the irrigation season is shorter than in the Río Jemez.

José Rivera, a well-known authority on *acequias* and much more (see Bibliography), shared a paper which he wrote with T. F. Glick, titled Local Control and Discretionary Authority: Protecting the *Acequia Bordo*.[3] In it he reports that prior to the New Mexico Water Codes of 1905 and 1907, community irrigation ditches controlled access to water, appropriated water available for new uses, and ranked uses in times of shortages. Citing G. Emlen Hall, he suggests that the Water Codes centralized these powers upon the creation of the Office of the Territorial

[2] This may soon change if the proposed settlement to the *Aamodt* case is accepted, as well as the proposed Navajo, Gila and Hopi settlements. What with new infrastructure being a basis, an uncertainty will be the ability to finance these proposals.

[3] An *acequia bordo* is the physical ditch as a transport canal and the integrity of operations and maintenance along its banks

Engineer. Rivera goes on citing Hall with "in 1912 the New Mexico State Constitution reiterated the public ownership of water with individual appropriators recognized as the water rights holders and not the community ditches: 'The state replaced the community ditch as the stakeholder, which would dole out the unappropriated water of the state. The individual held the rights so created.'" Under modern water laws, water rights in New Mexico are privately held by each *acequia* irrigator, but the physical canal is still a collective enterprise and is managed by the *comunidad* of irrigators known as the *parciantes* of the association.

The *prior appropriation* doctrine is common throughout the western part of the United States (see below). Suffering an erosion of control over the years, community *acequias* successfully lobbied the 2003 Session of the New Mexico State legislature to "restore some measure of control with respect to proposed water rights transfers out of an *acequia* system. The new legislation authorized ditch commissioners to enact bylaws governing transfers. Once in place, commissioners may deny applications for transfers if they determine that the proposed "change in point of diversion or place or purpose of use of a water right served by the *acequia* . . . would be detrimental to the *acequia* or community ditch or its members" (Rivera & Glick 2003). In these cases the State Engineer will have to honor the denials and not approve applications submitted to him by individual water rights owners.

73-3-4.1. Commissioners; additional duties; approval of changes in place or purpose of use of water; appeals. (Effective March 1, 2004.) (2003)

Pursuant to rules or bylaws duly adopted by its members, an acequia or community ditch may require that a change in the point of diversion or place or purpose of use of a water right served by the acequia or community ditch, or a change in a water right so that it is moved into and then served by the acequia or community ditch shall be subject to the approval by the commissioners. The change may be denied only if the commissioners determine that it would be detrimental to the acequia or community ditch or its members. The commissioners shall render a written decision explaining the reasons for the decision. If the person proposing the change or a member of the acequia or community ditch is aggrieved by the decision of the commissioners, he may appeal the decision in the district court of the county in which the acequia or community ditch is located within thirty days of the date of the decision. The court may set aside, reverse or remand the decision if it determines that the commissioners acted fraudulently, arbitrarily or capriciously or that they did not act in accordance with law. (*duplicate language* is included in 73-2-21. (E) Commissioners' powers and duties; mayordomo's duties. (Effective March 1, 2004.). (2003), NMSA 1978 Comp.

Questions this new provision provokes range from how would this be managed to claims that action would amount to a taking of property without compensation. Yet to be implemented, this will be an ongoing subject of interest.

12.11.2.3. Treaty of Guadalupe Hidalgo

Again, beyond the scope of a report on water use *per se* is a full discussion on the Treaty of Guadalupe Hidalgo. However, it has come up repeatedly in community meetings as an important underpinning of water rights. For that reason, it is included in the Appendices. Specifically Article VIII has been cited as protecting water rights:

Treaty of Guadalupe Hidalgo Article VIII

Mexicans now established in territories previously belonging to Mexico, and which remain for the future within the limits of the United States, as defined by the present treaty, shall be free to continue where they now reside, or to remove at any time to the Mexican Republic, retaining the property which they possess in the said territories, or disposing thereof, and removing the proceeds wherever they please, without their being subjected, on this account, to any contribution, tax, or charge whatever.

Those who shall prefer to remain in the said territories may either retain the title and rights of Mexican citizens, or acquire those of citizens of the United States. But they shall be under the obligation to make their election within one year from the date of the exchange of ratification's of this treaty; and those who shall remain in the said territories after the expiration of that year, without having declared their intention to retain the character of Mexicans, shall be considered to have elected to become citizens of the United States.

In the said territories, property of every kind, now belonging to Mexicans not established there, shall be inviolably respected. The present owners, the heirs of these, and all Mexicans who may hereafter acquire said property by contract, shall enjoy with respect to it guarantees equally ample as if the same belonged to citizens of the United States.

The Treaty is incorporated into the Constitution of the State of New Mexico. Article 5 states that "the rights, privileges and immunities, civil, political and religious guaranteed to the people of New Mexico by the Treaty of Guadalupe Hidalgo shall be preserved inviolate."

Another source of protection may come from another new piece of legislation-- §8-5-18. Guadalupe Hidalgo treaty division (2003):

> The "Guadalupe Hidalgo treaty division" is created within the office of the attorney general. The division shall review, oversee and address concerns relating to the provisions of the Treaty of Guadalupe Hidalgo that have not been implemented or observed in the spirit of Article 2, Section 5 of the constitution of New Mexico and Section 47-1-25 NMSA 1978.
> B. The division shall consist of such personnel and have such duties as the attorney general shall designate.
> C. The attorney general shall report the findings and recommendations of the division to the second session of the forty-sixth legislature. (Laws 2003, Ch. 101, §1)

A Legislative Committee returned in 2004 with a report, Land Grant Committee Report To The Forty-Sixth Legislature Second Session, (http://legis.state.nm.us/2003interreports/lgc03.pdf), as well as proposed legislation. Senate Bill 142 was signed into law on March 9, 2004, and modifies §49-1-1, and now specifically mentions the Treaty:

> Management Of Spanish And Mexican Grants.--All land grants-mercedes in the state or land grants-mercedes described in Section 49-1-2 NMSA 1978 shall be managed, controlled and governed by their bylaws, by the Treaty of Guadalupe Hidalgo and as provided in Sections 49-1-1 through 49-1-18 NMSA 1978 as political subdivisions of the state."

The impact of these actions is too soon to say. The residents of both watersheds were clear in wanting to "ensure that treaty, water and acequia rights to preserve and protect local agricultural traditions." Alternatives, such as protecting *the area of origin*, were considered.

For further reading, several articles are listed in the Bibliography section. Of note is that under Spanish and Mexican laws, land and water were not severable. Also, a traditional sharing of the waters by *parciantes*, known as *repartimiento*, is not the same as prior appropriation, as discussed below.

12.11.2.4. Adjudications

Adjudications, or judicial determination of rights, are made pursuant to §72- 4-17 NMSA 1978 Comp. In general, the process of an adjudication includes the State Engineer preparing a hydrographic survey, identifying and investigating the legal bases and characteristics of each and every water right claim within the basin, and then reducing that finding into a written offer, with the goal to obtain a judicial determination and definition of water rights within each stream system and underground basin.[4] With the exception of the Pueblo Indians and certain federal reserved rights, the water users in the Río Jemez have had their water rights adjudicated.

* *United States v. Abousleman* , U.S. District Court No. CIV 83-1041-SC

This is a suit filed by the United States in its own behalf and on behalf of the Jemez, Santa Ana and Zia Pueblos to adjudicate water rights in the Jemez River system. In 1988, hearings were held on questions related to the historic use of water. In 1990, the Special Master also recommended rulings to the Court on Summary Judgment motions argued by the state, United States, Pueblos and non-Indian defendants. During the 1996 summer drought, the Pueblos of Jemez and Zia moved for a temporary restraining order (TRO) and preliminary injunction seeking to cut off irrigation uses above the Pueblos which the Pueblos claimed diminished surface water supply for their agricultural activities. No TRO or preliminary injunction was granted by the Court. Instead, an Order was entered adopting a stipulation between the Pueblos and the community acequias (see Shortage Sharing Agreement, below). An offer was made to each *parciante* for a specific amount of water usage. Each Ditch's Agreement and the Partial Final Judgment and Decree on Non-Pueblo, Non-federal Proprietary Water Right have been entered. The Court and the parties entered into a partial Final Decree embracing all non-federal, non-Pueblo rights in December, 2000. (cf 1999-2000 Annual Report, Appendix A, Status of Active Adjudications, NMOSE). Still to be finalized are the Pueblo and Federal water rights.[5]

Made a part of the Court Order are two Addenda. The first contains six sections of information

[4] The NMOSE's publication, "What is an adjudication?", is included in the appendices.
[5] US. vs. Abousleman Final Orders with Appendices showing the amount of water adjudicated can be found at the NMOES's web site, www.seo.state.nm.

in 198 pages:

Section 1: Ditch Diversion Information. This section is organized by ditch name, and contains information specific to each ditch such as point of diversion, source of water, total acres irrigated under the ditch, etc.
Section 2: Individual Irrigation Rights - Ditch. This section contains information on all individual rights for which a ditch is one of the points of diversion. It is organized by ditch name and then by map and tract.
Section 3: Individual Irrigation Rights - No Ditch. This section contains information on all individual rights for which a ditch is *not* one of the points of diversion. It is organized by map and tract.
Section 4: Domestic Rights. This section contains information on all domestic rights. Post Basin (Basin declared as of September 7, 1973) Domestic rights summarized as having a diversion amount of 3.0 acre feet per year are governed by NMSA 1978, §72-12-1 (1959) and are non-transferable. The diversion amount for such a right is limited by historical beneficial use.
Section 5: Miscellaneous Rights. This section contains information on other water rights including commercial uses, community domestic water systems, etc.
Section 6: Impoundment Rights. This section contains information on all rights to impound for various uses (e.g., storage in reservoirs for irrigation, stock ponds).

The second Addendum is 189 pages and contains the Interim Orders Establishing Priority Dates, Net Evaporative Loss Zones for Impoundments, and Exempting Minimal Water Rights, as well as including each Ditch's Consent Agreement as to the number of acres and rights assigned. Tables 12.11-1 and 12.11-2 set out the priority dates and rights assigned to the *acequias*.

Table 12.11-1 Priority Dates and Acres of Pueblos [6]

Date	Ditch	Pueblo Acres*	Date	Ditch	Pueblo Acres*
First Priority			1932		
a.	Jemez Pueblo	1537.1	a.	Jemez Pueblo	126
b.	Zia Pueblo	416.8	b.	Zia Pueblo	112.5
1902	Zia Pueblo	82.6	1935		
1915	Jemez Pueblo	425.9	a.	Jemez Pueblo	60.6
1917	Jemez Pueblo	96.5	b.	Zia Pueblo	167.7
1925			1983	Jemez Pueblo	126
a.	Jemez Pueblo	59.5			
b.	Zia Pueblo	324.2	**Totals**		**3,535.40**

Source: the acreage for the Pueblos was supplied by Gilbert Sandoval, Jemez Water Users Association,

[6] In 1989 the Special Master, Judge Zinn, conducted hearings on the Pueblo's historic irrigation acre (HIA) claims. His report to the trial judge (1991) recommended HIA rights to Pueblo lands. The Special Master did not hear the PIA claim of the United States on behalf of the Pueblos, but did make recommendations to the trial judge which must be ruled on before the PIA is addressed. The PIA claim is in excess of current irrigation depletions. There is also a large reserved right claim for ground water which current municipal users are impacting or will impact. (Rio Jemez (Abousleman) Indian Water Rights Settlement Proposal For Investigation, February 12, 2001)

on August 26, 2003, which information came from the *Abousleman* decree.

Table 12.11-2 Priority Dates and Water Use for Non-Pueblo Acequias in Río Jemez Basin

Date	Ditch	Stream	OSE File No.	PDR	FDR	CIR	Total Acres	Total PDR
1768	Ponderosa Community	Vallecitos Creek	00973	4.03	2.82	1.41	47.41	191.06
1786	San Ysidro	Río Jemez	00646	4.94	3.46	1.74	507.84	2,508.73
	Nestor Padilla	Río Jemez	02652	4.94	3.46	1.74	1.78	8.79
1798								
a.	Cañon Community	Río Guadalupe	03094	4.03	2.82	1.41	201.48	811.96
b.	Pueblo	Río Jemez	00115	4.03	2.82	1.41	17.00	68.49
c.	West Main#	Río Jemez	00115	4.03	2.82	1.41	10.57	42.60
1815	Ponderosa Community	Vallecitos Creek	00973	4.03	2.82	1.41	252.18	1,016.29
1865								
a.	West Lateral	Río Jemez	04515	4.03	2.82	1.41	7.41	29.86
b.	East Lateral	Río Jemez	04516	4.03	2.82	1.41	11.41	45.98
c.	West Side	Río Jemez	04520	4.03	2.82	1.41	9.65	38.89
d.	Jemez Springs	Río Jemez	04517	4.03	2.82	1.41	8.95	36.07
e.	South Upper	Río Jemez	04518	4.03	2.82	1.41	45.89	184.94
f.	West	Río Jemez	04519	4.03	2.82	1.41	20.85	84.03
1873								
a.	Upper West	Río Jemez	04513	4.03	2.82	1.41	6.92	27.88
b.	Upper East	Río Jemez	04514	4.03	2.82	1.41	1.97	7.95
1882	Nacimiento Community Ditch Association		0580					
a.	Domingo Vigil		"	3.26	2.28	1.14	46.61	151.95
b.	Nerio Montoya		"	3.26	2.28	1.14	14.68	47.86
c.	Francisco Chavez # 6		"	3.26	2.28	1.14	195.58	637.59
d.	Gabriel Montoya # 7		"	3.26	2.28	1.14	47.97	156.38
e.	Nacimiento		"	3.26	2.28	1.14	247.19	805.84
f.	Ballejos # 4		"	3.26	2.28	1.14	9.86	32.14
g.	Copper City		"	3.26	2.28	1.14	130.72	426.15
h.	Madalena Atencio # 2		"	3.26	2.28	1.14	23.01	75.01
1886 -	La Cueva	San Antonio Creek	02541 A-G	2.37	1.66	0.83	53.94	127.84
1899								
a.	George E. Fenton	Río Cebolla	00602	2.37	1.66	0.83	5.45	12.92
b.	Fenton	Río Cebolla	02818	2.37	1.66	0.83	6.50	15.41
1902	Zia Pueblo							
	Pueblo	Río Jemez	00115	4.94	3.46	1.74	7.62	37.64
8/12/1948	Nestor Padilla irrigation	Río Jemez	02652	4.94	3.46	1.74	9.43	46.58
Totals							**1,949.87**	**7,676.82**

* West Main Ditch - PDR north of the Jemez Pueblo boundary is: 4.03 acre feet per acre per year. PDR south of the Jemez Boundary is 4.94 acre feet per acre per year. No acreage in this addendum is located south of the Jemez Pueblo boundary.

Key:

Area Surface area of an impoundment expressed in acres.
Acres Number of irrigated acres
cfs Flow rate expressed in cubic feet per second
CIR Maximum Consumptive Irrigation Requirement expressed in acre-feet per acre per year for irrigation
CU Maximum consumptive use expressed in acre-feet per year for non-irrigation uses
Depth Dept of an impoundment expressed in feet.
Div. Amt Maximum diversion amount expressed in acre-feet per year for non-irrigation uses
FDR Maximum Farm Delivery Requirement (also referred to as headgate delivery amount or duty of water) expressed in acre-feet per acre per year for irrigation uses
Map-Tract Hydrographic Survey map and tract numbers
OSE File No. NM Office of the State Engineer's surface or groundwater file number
PDR Maximum Project Delivery Requirement (also referred to as ditch diversion amount) expressed in acre-feet per acre per year for irrigation
POD Point of diversion
Total Acreage Total number of irrigated acres served by a particular ditch
POU Place of Use
Priority Date of first appropriation or date of application for State Engineer permit

Source: U*nited States, et al. v. Abousleman, et al; Jemez River Adjudication*, United States District Court CIV. NO. 83-1041 JC.

** Shortage Sharing Agreement*

Outside the scope of this subsection is a complete description of the process the parties went through during the adjudication process. Of interest is that the non-Indian irrigators formed the Jemez River Basin Water User's Association (Jemez Springs Ditch Association, Nacimiento Ditch Association, San Ysidro Community Ditch Association, Cañon Ditch Association and Ponderosa Ditch Association). After various court proceedings, the Association entered into a Consent Decree with the Pueblos of Santa Ana, Río Jemez and Zia. Prior to then, much education and learning about history and each other took place - so much so that an Agreement was entered into on July 2, 1996 to address irrigation in times of varying shortages. The Agreement was renewed in 2002 and reads as follows:

> WHEREAS, the parties hereto state as follows:
>
> A. The Pueblo of Jemez and the Pueblo of Zia and the Jemez River Basin Water User's Association (Jemez Springs Ditch Association, Nacimiento Ditch Association, San Ysidro Community Ditch Association, Cañon Ditch Association and Ponderosa Ditch Association) rely on the surface waters in the Jemez River Basin for irrigation purposes, and the Pueblos also rely on the Jemez River stream flows for religious and cultural purposes.
>
> B. The Jemez River does not always have sufficient water to fully meet the irrigation requirements of the Pueblos and the Associations, and the religious and ceremonial requirements of the Pueblos.
>
> C. The Pueblos and San Ysidro Ditch Association are at the end of the Jemez River system, and thus are often water short even in years of average moisture.

D. The Pueblos have certain water rights, which, although not declared by final court decree, are senior in priority to any other irrigation right in the Jemez River basin.

This Agreement recognizes water is used in different ways by the different entities who must share it. It is a tribute to the residents who share the knowledge and understanding of the land and of the people.

The Agreement is to use the US Department of Agriculture Natural Resource Conservation Service's "New Mexico Water Supply Basin Outlook," for the beginnings of March, April and May, since this report predicts surface water runoff based on snow pack information. (http://www.nm.nrcs.usda.gov/snow/watersupply) The Water Master, with the Pueblos and the Associations, determines the beginning rotation schedules:

3. In the event of a dispute between the Pueblos and Associations concerning the appropriate rotation schedule to implement under paragraphs 5, 6, 7 and 8, it shall be the duty of the Water Master to determine which rotation schedule set forth in Attachment 1 to the Agreement to implement. The rotation schedule set forth in Attachment 1 is as follows and results in the following percentage calculations:

Schedule	Calculation of Percentage
Schedule A: Indian 6 days, non-Indian 1 day	(6*1)/6 = 1.17
Schedule B: Indian S days, non-Indian 2 days	(5+2)75 = 1.40
Schedule C: Indian 4 days, non-Indian 3 days	(4+3)/4 = 1.75
Schedule D: Unlimited Irrigation	> 1.75
Schedule E: Indian 7 days, non-Indian 0 days	(7+0)/7 = 1.00

4. In the event of a dispute between the Associations and Pueblos as to which schedule should be implemented, the following parameters, established by consent of the parties' hereto, shall control:

Water Supply (Percent of Pueblo need based upon crops planted and cultivated)	Schedule
Less than 100% of Pueblo need	E (Pueblo 7 days; Non-Pueblo 0 days)
101% -116% Pueblo need	E, A or variation; Water Master's discretion
117%	A (Pueblo 6 days, Non-Pueblo 1 day)
118%-139%	A, B or variation; Water Master's discretion
140°%	B (Pueblo 5 days; Non-Pueblo 2 days)
141%-175%	B, C or variation; Water Master's discretion
175%	C (Pueblo 4 days, Non-Pueblo 3 days)
175% or greater	D (Unlimited)

5. A Technical Memorandum to assist the Water Master is attached hereto as Attachment 1 and is made a part of this Order. In the event of a dispute in determining Pueblo need based upon the technical memorandum, the Water Master shall consult with the Technical Team. Input from the Technical Team shall be advisory.

Entering into this agreement began the process of the parties sharing their interests and concerns. The process in turn opened the door to the ditch agreements now adopted as a part of the court

record. These agreements and sharing arrangements brought these irrigators together. Together, they could see that actions needed to be taken to improve the situation so that downstream irrigators and Pueblo members had water. Not only did they agree in writing to "take steps to improve the efficiency of their diversion and irrigation systems, to work together to seek funding necessary to implement improvements, and to address the need for a storage facility (ies)," they have taken subsequent steps in fulfillment. One tangible result is the joint lobbying effort, receipt of $1.2 million and a list of projects (See the *Río Jemez (Abousleman) Indian Water Rights Settlement Proposal for Investigation,* February 12, 2001, in Section 12.13 Example Projects and Groups).

As part of the exploration of settlement options for the negotiation of the Pueblos' historic, present and future use claims, the parties prepared a list of projects which was presented to Congress and funded, as more fully set out in Section 13 Sample Projects.

** Nacimiento Community Ditch Association (NCDA) and the United States Forest Service*

Of note is that the *Abousleman* adjudication included the Nacimiento Ditch on the Río Puerco, as part of its headwaters begins on the Río Jemez. The Nacimiento accounts for approximately 22% of the acres irrigated by the *acequias* in the Río Puerco. As part of the agreement reached in 2000 with Pueblo representatives, NCDA officials agreed to regulate the Jemez River waters more efficiently by replacing their traditional dam with a modern diversion structure at one of the headwater creeks. The dam was located within the San Pedro Parks Wilderness Area, managed by the United States Forest Service. The Wilderness Act of 1964 directs the Forest Service to regulate uses permitted and prohibit the use of mechanical or motorized equipment anywhere the boundaries. The agreement, with a penalty clause, was incorporated into a Consent Order in the adjudication law suit. Hence, the NCDA was mandated to complete the diversion within two years. But, to do so meant that NCDA would have to haul construction materials and build the structure in compliance with the policies and regulations of the Forest Service applicable to lands located in Wilderness Areas. They argued that access to the site was protected by an existing easement, thus not needing a special use permit. After two years, the parties arrived at a settlement, but there are still issues outstanding. While a negotiated outcome was reached in order to comply with the *Abousleman* decree, discussions continue between the Forest Service and NCDA. The ditch association wants to protect its property and access rights while the Forest Service needs to ensure that the Wilderness policies are complied with, in part because of the implications to other situations with easement rights, balancing its duty to protect Wilderness areas for the general public. (Rivera & Glick 2003)

12.11.2.5. Prior Appropriation and Beneficial Use

In 1851, the Territorial Assembly of New Mexico adopted the Acequia Laws, published in Spanish, guaranteeing the continuation of the traditional arrangement for irrigation, "as was established and exists to the present." (Rivera & Martínez 2000)

In 1907, a new Water Code was enacted, now found at NMSA 1978, § 72-1-1, et seq. It expressly recognized existing surface water rights, allowing for the filing of declarations with the

State Engineer stating the beneficial use of rights prior to 1907. In 1931, the Legislature extended the State water code to underground waters, declaring such to be public waters subject to appropriation for beneficial use.

Prior Appropriation and Beneficial Use - An Example

An example of how this system operates may be helpful. The day a person diverts water from a stream or from the ground becomes the "priority date" of the right. More priority dates are assigned as more people use the water source.

In New Mexico, water supply is often "feast or famine" and it is typical that in most years more rights to use water exist than is available. When there is insufficient water in a stream to meet the demand, the person with the oldest water right can use up to his or her full amount irrespective of geographical location.

The first user's right only limits other users to the extent that the first user can actually put water to use. For practical purposes, a senior water right is a "right of first refusal" to put water to use. The fact that the first user may not be able to use their full right all the time does not destroy the right. In New Mexico, there will be times, as to some water sources, where even the senior right cannot be fully met. Once the senior right is met, the next most senior right in time may be used to its full amount, and so on. Thus, persons with the newest rights potentially get no water.

Prior Appropriation and Beneficial Use - A definition

Because water is an essential but scarce resource in New Mexico, the State has a compelling interest in regulating water use. No individual owns the water. However, one may acquire a real property right to use the water consistent with the procedures under State law, up to the amount which can be put to a beneficial use.

New Mexico's Constitution recognizes beneficial uses as the basis, the measure, and the limit of the right to use water. Beneficial use means application of water to a lawful purpose that is useful to the appropriator and at the same time is a use consistent with the general public interest.

The State of New Mexico, like most Western states, uses the doctrine of prior appropriation to allocate water use. This doctrine has these essential principles: (1) the first user (appropriator) in time has the right to take and use water; and (2) that right continues against subsequent users as long as the appropriator puts the water to beneficial use.

Source: Overview of Water Law Applicable to the Middle Rio Grande Water Planning Region, page 3, citations omitted.

12.11.2.6. Río Grande Compact

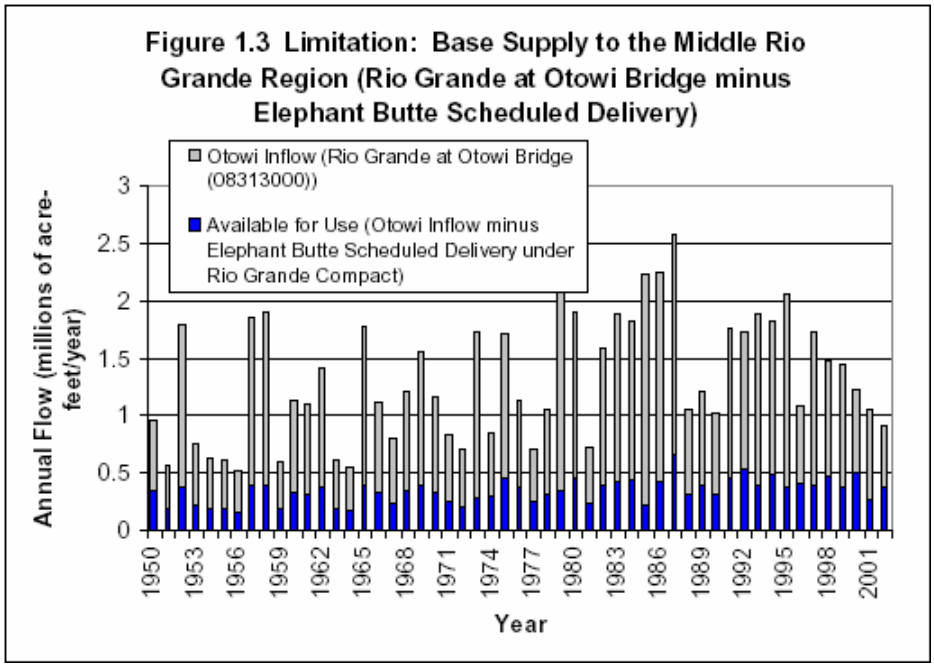
Around the turn of the century, farmers in the southern part of New Mexico, Texas and Mexico began to complain that farmers in Colorado and northern New Mexico were diverting all of the water. These complaints resulted in the 1906 and then the 1944 Treaty with Mexico and the 1938 Río Grande Compact between Colorado, Texas and New Mexico.[7] The Compact allocated

[7] See "Other Public Entities Regulating Water Rights, in Kery, Susan C et al, "Overview of Water Law Applicable to The Middle Rio Grande Water Planning Region, January, 2003, supra. For more discussion of legal issues, also

water among the three states, with the delivery point for the southern users being at Elephant Butte Reservoir. Of note to this region, the Compact constrains the amount of water which can be consumptively used between Otowi Gauge (at the Los Alamos Bridge) and the Reservoir. It further constrains the construction of impoundments; and any that are so constructed after 1929 cannot be utilized to hold back water if the water quantity in the Butte drops below a certain level.[8]

The effects of the Rio Grande Compact on both the Río Jemez and the Río Puerco must be considered. If development on either substantially decreases the flows, if any, into the Rio Grande, this could hinder the ability of the State to meet its delivery obligations. Furthermore, the State does not have the authority to require Pueblos to meet the terms of these interstate and international compacts, so non-tribal users of water are responsible for meeting the terms of the compacts. Should it be determined that the Río Jemez and/or the Río Puerco basin must provide additional water to meet the Rio Grande Compact, water supply in the region will be reduced.

Limitation on the useable supply for the Middle Rio Grande region is derived from physical and institutional bases. Figure 1.3 illustrates the portion of the Otowi inflow historically available for use in the Middle Rio Grande region. This graph shows the



see "Issues Specific to The Middle Rio Grande Water Planning Region", supra. An excellent source of materials on the can be found at *Rio Grande Compact: It's the Law*, Water Resources Research Institute, Annual Water Conference Proceedings, December 3, 1999, wrri.nmsu.edu/publish/watcon/proc/proc44/contents.html.

[8] In the summer of 2003, the water level was so low that no water could be retained in either of Santa Fe's two reservoirs. Because there was "credit" water stored at the Butte, which was released, Santa Fe was able to store water upstream. However, not only were there ramifications to recreational users at the lake but the reduction of credit water may have serious consequences if the drought continues another year. In March 2004, New Mexico released the credit water stored in Elephant Butte. As of March 11, there was 13.3% of combined storage capacity for Elephant Butte and Caballo. With the arid conditions forecast, it is not likely that the lake will build up to 400,000 acre feet - being the level needed to attain in order to store water upstream.

> allocation of the gaged flow at Otowi (including trans-mountain diversion water) into the quantity available for use in the Middle Rio Grande region, and the quantity required to be delivered for use below Elephant Butte Reservoir. The portion of the Otowi inflow available to the Middle Rio Grande region is augmented by tributary inflow and groundwater. While these sources offer significant potential to increase or manage the supply, neither fully removes the effect of limitations on supply imposed by physical conditions and institutional constraints. Papadopolus 2003, Regional Water Supply Study (Interim Draft of August 6, 2003, page 4)

Water not counted toward the Otowi-gauged water includes that from both subregions. Such water then could be available for needs within the Middle Rio Grande Basin or to assist in making deliveries down stream.

12.11.2.7. Water Quality Regulations

There are numerous water use strictures to be found, often in connection with land use. One perhaps overlooked entails water quality standards. As discussed in Section 7, the designated uses of a given reach of stream may well influence present activities and regulations. Though somewhat simplified from the published rules, Table 12.11-3 gives some sense of how uses might changes with a different part of the river.

Table 12.11-3 - Water Quality Standards on the Río Jemez

NMAC Río Grande Basin	**Reach**	**Designated Uses**	**pH ranges**	**Temper-ature Ranges**	**Turbidity**	**fecal coliform bacteria**
20.6.4.105	The main stem of the Río Grande from the headwaters of Elephant Butte reservoir upstream to Alameda Bridge (Corrales Bridge), the Jemez River from the Jemez Pueblo boundary upstream to the Río Guadalupe, and intermittent flow below the perennial reaches of the Río Puerco and Jemez River which enters the main stem of the Río Grande.	irrigation, limited warmwater fishery, livestock watering, wildlife habitat, and secondary contact.	within the range of 6.6 to 9.0	shall not exceed 32.2°C (90°F)		shall not exceed 1,000/100 mL
20.6.4.10	Jemez River from its confluence with the Río Guadalupe upstream to State Highway 4 near the town of Jemez Springs and perennial reaches of Vallecito Creek,	coldwater fishery, primary contact, irrigation, livestock watering, and wildlife habitat	pH shall be within the range of 6.6 to 8.8	shall not exceed 25°C (77°F)	shall not exceed 25 NTU	shall not exceed 200/100 mL
20.6.4.108	The Jemez River and all its tributaries above State Highway 4 near the town of Jemez Springs, and the Guadalupe River and all its tributaries.	domestic water supply, fish culture, high quality coldwater fishery, irrigation, livestock watering, wildlife habitat, and secondary contact.	pH shall be within the range of 6.6 to 8.8,	temperature shall not exceed 20°C (68°F),	shall not exceed 25 NTU.	shall not exceed 100/100 mL

Water quality regulations may place a considerable constraint on water supplies in the region. Regulations imposed by the EPA and the NMED may make it impossible for small water systems to serve their customers. For example, many small systems can not afford to conduct the testing required by the state.

12.11.3. Issues

The above discussion considered several constraints on water use. There are a number of other issues to consider with respect to water availability and management.

12.11.3.1. Inadequate Data

Anecdotal evidence is that supply doesn't meet demands. In order to manage water resources, data should be sound, enabling confident choices. As noted throughout the subregional plan, there are data discrepancies and lack of basic data. Without a firm foundation, it will be hard to agree upon management choices and difficult to monitor implementation. It also damages a region from being able to plan for its water future given the fluidity of the water market. Better information and understanding with respect to water usage will in turn provide better guidance to decision-makers. The next planning phase for this subregion should focus on filling in the gaps in water supply and water use information.

12.11.3.2. Future trend data

Population is a driving factor of use -- and looking at past and future trends help to plan wisely for that use. However, basing trends only on recent history, such as building permits and plat plans, may be too limiting. Given that the surface water alone cannot sustain the current population and other users, and given that the pumping cannot continue at the same rate without severe consequences, something has to give. One may be the way houses are built, or communities are planned. With solid population data to go with the supply and demand data, various trend scenarios could be considered prior to selecting a course of action.

12.11.3.3. Unknown water rights

While the non-Indian water users have had their water rights adjudicated on the Río Jemez, tribal and federal reserve water rights have not been, nor have future rights been quantified. On the Río Puerco, no rights have been quantified or adjudicated, other than the Río Jemez waters used by the Nacimiento acequia. The uncertainty this provides makes it difficult to plan.

12.11.3.4. Overgrown watersheds

One concern expressed in the steering committee meetings, as well as in the workshops, is the overgrowth in the watershed at the higher elevations. Not only do the trees evapotranspire the water, but the snow never reaches the ground before melting. As shown in Figure 12-11-1, currently there is a great deal more vegetation in the forests than found early in the last century. Part of that is a result that wood no longer is a primary fuel for many that logging has been limited and fires have been prevented. An alternative high on everyone’s list is to restore the

watershed which may augment the supply in the future. This will be difficult to monitor without formal data collection.

Figure 12.11-1 Jemez Forest in 1930 and 2000

Circa 1930 Today

12.11.3.5. Environmental Concerns

The Endangered Species Act has been a powerful determinant of water use and the distribution of water resources in areas outside of the Río Jemez and the Río Puerco. The Middle Río Grande is a clear example of the impact endangered species may have on the available water supply. Such considerations should not be ignored in subregions, as endangered species do exist which could impact water supply availability, and/or water development projects. An example has been the spotted owl, which has caused curtailment of logging and consternation among residents.

While not known specifically what the effect on water supplies may be, such as with watershed restoration, endangered, threatened and rare species in Sandoval County include:

Table 12.11-4 U.S. Fish & Wildlife Service Endangered Species List

Common Name	Scientific Name	Listing Status	More Info
bald eagle	Haliaeetus leucocephalus	AD, T	P
black-footed ferret	Mustela nigripes	E, EXPN	P
Mexican spotted owl	Strix occidentalis lucida	T	P
Rio Grande silvery minnow	Hybognathus amarus	E	P
southwestern willow flycatcher	Empidonax traillii extimus	E	P
whooping crane	Grus americana	E, EXPN	P
yellow-billed Cuckoo	Coccyzus americanus	C	P

Source: http://ifw2es.fws.gov/endangeredspecies/lists/ListSpecies.cfm

Table 12-11-5 NM Rare Plant Species by County

Abronia bigelovii	Rio Arriba, Sandoval, Santa Fe
Astragalus feensis	Bernalillo, Hidalgo, Sandoval, Santa Fe, Torrance
Astragalus knightii	Sandoval
Dalea scariosa	Bernalillo, Sandoval, Socorro, Valencia
Delphinium robustum	Colfax, Rio Arriba, Sandoval, Taos
Delphinium sapellonis	Bernalillo, Los Alamos, Mora, Sandoval, San Miguel, Santa Fe
Hackelia hirsuta	Colfax, Mora, Rio Arriba, Sandoval, San Miguel, Santa Fe, Taos
Heuchera pulchella	Bernalillo, Sandoval, Torrance
Mentzelia springeri	Los Alamos, Sandoval, Santa Fe
Puccinellia parishii	Catron, Cibola, Grant, Hidalgo, McKinley, Sandoval, San Juan
Silene plankii	Bernalillo, Doña Ana, Sandoval, Sierra, Socorro, Torrance
Townsendia gypsophila	Sandoval

Source: New Mexico Rare Plant Technical Council. 1999. New Mexico Rare Plants. Albuquerque, NM: New Mexico Rare Plants Home Page. http://nmrareplants.unm.edu (15 March 2002).

The Jemez Mountains salamander is a rare species on New Mexico's threatened species list (see http://www.fw.vt.edu/fishex/nmex_main/species/020060.htm). Critical habitat of the spotted owl may include the Jemez Mountains.

> U.S. Fish & Wildlife Service, Southwest Region 2
> New Mexico Ecological Services Field Office
> Endangered Species
>
> On November 18, 2003 (68 FR 65020), we reopened the public comment period on our July 21, 2000, proposed rule to designate critical habitat for the owl (65 FR 45336). The proposal included approximately 5.5 million hectares (ha) (13.5 million acres (ac)) in Arizona, Colorado, New Mexico, and Utah, mostly on Federal lands. On November 12, 2003, the United States District Court for the District of Arizona, (Center for Biological Diversity v. Norton, Civ. No. 01-409 TUC DCB), ordered the Service to submit a final rule for designation of critical habitat for the owl to the Federal Register by August 20, 2004.

Other recent activities involving threatened and endangered species include the New Mexico Department of Game & Fish (http://www.gmfsh.state.nm.us/PageMill_Images/Commission/April7-2004/ai13.pdf).

> April 7, 2004
>
> The Department will present its initial draft of the 2004 Biennial Review for Threatened and Endangered Species of New Mexico to the New Mexico State Game Commission, and recommend that the Commission open a required 90-day public comment period on the initial draft of the Biennial Review. The Biennial Review of the status of all state-listed wildlife, along with recommendations to uplist or downlist species, is mandated within the New Mexico Wildlife Conservation Act (WCA) (17-2-37 through 17-2-46 NMSA 1978). A

species is considered Endangered if it is in jeopardy of extinction or extirpation from the state; a species is Threatened if it is likely to become Endangered within the foreseeable future. Species may not be added to, nor removed from, the list through the Biennial Review. These other actions require separate processes that are described within the WCA.

The initial draft of the Biennial Review contains a recommendation to retain the status of 116 of the 118 species of wildlife listed as Threatened or Endangered under the WCA, and to retain the status of 7 Restricted Species, a category that allows the Department to assist in controlling traffic in federally protected species within New Mexico. The initial draft also includes a recommendation to uplist 2 species from Threatened to Endangered: the Jemez Mountains salamander and sand dune lizard.

Further sources of information about threatened and endangered species of New Mexico include:

- New Mexico Game & Fish
  http://www.gmfsh.state.nm.us/PageMill_TExt/NonGame/endangered.html

- USGS Jemez Mountains Field Station
  (http://www.mesc.usgs.gov/research/field_stations/jmfs/jmfs.asp) develops and maintains ecological research, inventory, and monitoring information needed to support effective ecosystem management action in southwestern landscapes.

12.11.3.6. Inadequate Infrastructure

Mutual domestics are facing new hookups without necessary infrastructure, or need more water rights. Acequia parciantes, interested in increasing efficiency, may lack funds and latest information.

12.11.3.7. Aging Infrastructure

Leaking tanks, pump failures, seepage from ditches or even washouts, are needs to be tackled.

12.11.3.8. Land Struggles

As elsewhere in New Mexico, traditional communities have struggled with federal land managers over how resources are allocated.

- One of the major employers in Cuba was the lumber mill, which closed down in part due to difficulties in obtaining logging permits.

- Drought has forced land managers to reduce grazing permits as well.

- Access for parciantes to maintain the *acequias* now on Forest Service land is not limited to the Nacimiento struggle. Plans to increase efficiency by concreting the ditch run counter to the now-created wetland, for example.

- Many farmers and ranchers mentioned the incursion of elk herds into their pastures and orchards as being an increasingly aggravating problem, with compensation not equal to their losses.

- Management of the range, depending on the viewpoint, could be improved, and thus the watershed improved.

All of these issues will be exacerbated without sound data and monitoring.

12.11.3.9. Other issues

- The lack of reliable and consistent data more than hamstrings the subregions in an effort to effectively plan for their water future. While many in the Río Jemez are learning to work cohesively, that necessity has not yet required residents in the Río Puerco to collaborate.

- In order to participate in Rio Grande basin-wide water discussions, there will need to be more equity in the data needs being fulfilled, as well as education throughout the basin as to what are the sensibilities, issues and concerns of each other.

- Noteworthy is the household water usage. When compared to the per capita usage in urban areas, it provides a platform to consider the notion of sharing conservation. Users of surface water are more vulnerable to drought conditions.

- No category of water usage as defined by the State Engineer exists for cultural and spiritual water usage. One goal of the two watersheds is to "support the cultural and spiritual values of water, and the universal need for and importance of water." The Shortage Sharing Agreement of July 2, 1996, acknowledges that "the Pueblos also rely on the Jemez River stream flows for religious and cultural purposes."

- While instream flow has been recognized by the State Engineer as a beneficial use, many consider it to be a threat to their usage and some claim there is no such category. This needs to be clarified. Likewise, concern over the possibility of an endangered species affecting water usage will need to be addressed.

12.11.4. External Forces

12.11.4.1. Market Demand

> Nonetheless, the traditional, self-governed acequias continued to function in watersheds outside the Middle Río Grande Valley. But in modern times, they are confronted with

> two major threats: the urbanization of acequia landscapes and pressures brought to bear on water, a limited resource, by other interests different from those of traditional irrigation, such as urban growth, industry, tourism, phenomena that have accelerated their impacts in recent decades. Urban growth in centers such as Santa Fe, capital of the state, or Albuquerque, the main population base with some 500,000 inhabitants, has caused the reduction of irrigated farmland by traditional systems. The economic value of acequia irrigated lands, that in former times restricted development alongside the main canals of the system, cannot compete in the modern era with the increased values obtained when these same lands are converted to housing or other urban uses. The pattern of sprawl development, based on homogenous neighborhoods, aggravates the situation. (Rivera & Martínez, October 5, 2000)

12.11.4.2. Ongoing depletions

Urban users, such as Albuquerque and Rio Rancho, rely completely on ground water to serve their drinking water needs. The pumping affects the river flow, as the river tries to fill in the holes created by the pumping. To offset those depletions, the NMOSE requires that groundwater users purchase surface water rights.

While originally believing and advertising that there was a never-ending supply of water below the region, more recently it has become clear that the earlier optimism was misplaced. Beginning in the 1990s, USGS began issuing reports of aquifer depletions.

As reported in several USGS reports (see Bibliography), the water table in the Rio Rancho to Albuquerque part of the basin has been lowered dramatically due to pumping for urban uses. Albuquerque acknowledges that the water table has been lowered 160' in some places (http://www.cabq.gov/waterconservation/insert.html). In 2000, the Water Supply Study by Papadopulos summarized that there was enough water to satisfy the Rio Grande Compact *if* the San Juan / Chama Diversion Project[9] water and the groundwater now entering via the wastewater plant were included. However, even when the City begins to use the Juan / Chama water, reducing the pumping, the depletions will continue. The river will still be trying to fill in the holes left by the pumping. USGS simulated three scenarios in "Simulated effects of ground-water management scenarios on the Santa Fe Group aquifer system, Middle Rio Grande Basin, New Mexico, 2001-40." (Bexfield & McAda, 2003) The result was best when Albuquerque urban users utilized the San Juan / Chama water, but the water table was still 110' down and more spread out.

> Many groundwater users, including municipalities and industries, in the Middle Río Grande were allowed to begin pumping without securing water rights. Because of return flows of treated wastewater and the delayed impact of groundwater pumping on river depletions, this practice has not resulted in net river flow diminishment. However, the accumulated eventual need for

[9] Since the mid-1970s, water from the San Juan River has entered the Chama River Basin through a series of tunnels. Coming downstream, the water flows into the Rio Grande for the benefit of Albuquerque and other contractees. This project is to alleviate much of the dependency on groundwater. Rio Rancho is not a contractee.

groundwater users to acquire and transfer water rights is very large and exceeds the quantity of currently transferable water rights. Under current practices, only pre-1907 water rights can be transferred. The 1930 water rights developed by the Middle Río Grande Conservancy District have never been available for transfer. Further, the ability of return flows from pumped groundwater to offset river depletions caused by pumping depends on ever increasing groundwater pumping. When pumping levels off, which it must, return flows will no longer be sufficient to offset the depletion of the Río Grande caused by historic pumping. (***Framework For Public Input To A State Water Plan***, December 2002)

12.11.4.3. New and Additional uses

Ongoing depletions do not include new uses or additional pumping. From the declines in the aquifer in the Middle Rio Grande seen to date, the amount of offsetting surface water does not appear to be adequate. If more groundwater is removed, at least the same if not additional surface rights will need to be acquired. And the long term effects on the region may not be known for years to come. Additional water requirements may appear from needs yet to be considered.

The desire to remain rural and to protect the region's rural ambiance pervades the public welfare statement and the goals adopted by the subregions. Outside their planning sphere, plans for new urban growth are underway.

> *Suburbia's tide threatens identity of rural America***,** By Mark Sappenfield, Staff writer of The Christian Science Monitor, April 28, 2003

As a comparison to the uses in the Río Jemez watershed, two major ground water users downstream are Rio Rancho and Intel:

Table 12.11-4: Major Water Users Downstream (acre feet)

	WGW	DGW		WGW	DGW
Intel	3,376.38	506.46	Rio Rancho	10,492.17	9,023.26

Source: Wilson, 2003.

Concern has been raised as to the impact that such drawdowns might have, particularly on the groundwater table of the Jemez. To offset increases in pumping, as well as increase its current amount of pumping, Rio Rancho is in the market for surface water rights.

> **Water Right Notice For Publication**
> Last Modified: 03/10/2003
>
> Sandoval County
> Name: City of Rio Rancho\Coda C. Roberson and Reba D. Roberson Revocable Trust UTA\Max Lee Kiehne and Barbara C. Kiehne
> File Number: RG-6745 et al. into 0646, Subfile Number 29.9-T

REVISED NOTICE is hereby given that on February 14, 2003, City of Rio Rancho, c/o Peter B. Shoenfeld, P. O. Box 2421, Santa Fe, New Mexico 87504-2421\Coda C. Roberson and Reba D. Roberson Revocable Trust UTA dated September 27, 2000, Max Lee Kiehne and Barbara C. Kiehne, filed Application Number 0646, Subfile Number 29.9, into RG-6745 et al. with the State Engineer for permit to change point of diversion and place and purpose of use from surface to ground water in the Rio Grande Underground Water Basin of the State of New Mexico, and on February 14, 2003, the City filed companion Application number RG-6745 et al. into 0646, Subfile Number 29.9-T with the State Engineer for permit to retain the subject water rights at their move-from location until the water rights are required to offset depletions caused by the City's wells. These applications will be considered and acted upon by the State Engineer together.

The applicant proposes to discontinue the diversion of 345.76 acre-feet of surface water per annum, inclusive of a consumptive use amount of 172.88 acre-feet of water per annum, from the San Ysidro Ditch with a point of diversion on the Jemez River, a Tributary of the Rio Grande, in the NW¼ NW¼ NE¼, Section 29, Township 16 North, Range 2 East, NMPM, for the irrigation of 99.93 acres of land owned by Coda C. Roberson and Reba D. Roberson Revocable Trust UTA dated September 27, 2000, and Max Lee Kiehne and Barbara C. Kiehne as sellers and legal titleholders; and the City of Rio Rancho as purchaser and beneficial titleholder, described as Tract number 9, Map number 29, Rio Jemez Hydrographic Survey, further described as in Projected Section 31, Township 16 North, Range 2 East, NMPM, Sandoval County, generally located just north of the Town of San Ysidro on State Highway 408.

The applicants further propose to transfer the described water rights to the following permitted wells in the Town of Alameda Grant: (23 wells listed) and from wells sought to be permitted by the State Engineer located as follows: (12 wells listed) Central Zone, Town of Alameda Grant, NMCS, and all located within the service area of the City of Rio Rancho municipal water system, on land owned by the City of Rio Rancho and others, for domestic, irrigation, municipal, industrial and commercial use within the service area of the Rio Rancho municipal water system, within the Town of Alameda Grant, west of the Rio Grande and surrounding areas in Sandoval County.

The subject water right will be retired to offset the depletion effects on the Jemez River above the Zia Supply Canal of pumping wells RG-6745 through RG-6745-S-22, and, if permitted RG-6745-S-23 through RG-6745-S-34. To the extent that the City's water right under these permits is greater than the amount of offset required on the Jemez River, the amount in excess of the Jemez River offset requirement will be used to offset effects on the Rio Grande.

Under Application number RG-6745 et al. into 0646, Subfile Number 29.9-T, the City requests that the water rights transferred under Application 0646, Subfile Number 29.9, into RG-6745 et al., be retained at their move-from location until such time and to the extent the water rights are required to offset depletions caused by the City's wells after approval of the transfer by the State Engineer

To allow the temporary retention of the water rights at their move-from location for up to fifteen years under Application No. RG-6745 et al., into 0646 Subfile No. 29.9-T, the City requests that the use for offset purposes of water rights under Application No. 0646 Subfile No. 29.9 into RG-6745 et al., take effect as required for offset purposes up to fifteen years after approval of this application. Once the water rights are required for offset purposes the City requests that the consumptive-use water rights that are subject to this application No. RG-6745

> et al., into 0646 Subfile No. 29.9-T, be added to the existing consumptive-use rights within Permit RG-6745 et al., and in all events that the water rights automatically revert to RG-6745 et al., at the end of fifteen years. If for any reason the Applicant desires that any or all of the water rights revert to RG-6745 et al. before the expiration of this permit No. RG-6745 et al., into 0646 Subfile No. 29.9-T, then the Applicant will advise the State Engineer in writing of the amount and location of water rights to revert to RG-6745 et al., whereupon this temporary transfer shall terminate to the extent the right stated in such notice.
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> No increase in diversion or consumptive use is contemplated by the transfer of water rights under this application to the City of Rio Rancho municipal water system. This application is made to partially comply with the conditions of permit RG-6745 et al. approved on October 26, 1979, and later permits 02997 into RG-6745 et al. approved August 2, 1997 and RG-6745 et al. approved September 14, 2001, for a maximum diversion of 24,020.16 acre-feet per year.

While an old user, new water uses are being implemented at Pueblo of Santa Ana.

Pueblo of Santa Ana

- In 1709, the pueblo purchased 5,000 acres along the Río Grande to increase its agricultural production. The pueblo's 15,000 acre Spanish land grants and additional land purchases brought the reservation to its present size of 63,000 acres.
- Santa Ana Agricultural Enterprises (SAAE) grows blue corn for the domestic and international food and cosmetic markets. SAAE is also the parent company of the Santa Ana Native Plant and Tree Nursery and of the Santa Ana Garden Center. These two businesses specialize in Native New Mexican plants. SAAE oversees 90 acres of blue corn production. Agricultural production is concentrated along the east side of the Río Grande.
- To the southwest lies the grand Río Jemez Canyon Reservoir and an exciting recreational hot spot: a 27-hole golf course, a 24-hour casino, a 22 field soccer complex, and a four-star restaurant, the Prairie Star.
- The Santa Ana Star Casino opened in May of 1994. The 27-hole Santa Ana Golf Course, woven through high desert and intermixed with eight crystal blue lakes, is a gem of the Río Grande Valley.
- This recreational hot spot includes twenty-two soccer fields (2 of which will be lighted), parking and concession areas, and most importantly, a stadium with a 7,000-person seating capacity. The site is located on the west side of the Río Jemez Dam Road, north of the Prairie Star Restaurant. The fields will have controlled access for high school soccer games and other events. Youth leagues will have primary access, professional and adult recreational leagues will also be served.
- Rich agricultural lands make up only half of the pueblo's natural resources. Sand, gravel, and the Río Jemez Canyon Reservoir have enabled Santa Ana Pueblo to diversify its business interests. East of Interstate 25 are the large sand and gravel mines currently leased to Western Mobile. Those mines supply more than one million tons of sand and gravel annually. They have substantial impact on Sandoval county's economy for Western Mobile employs more than 30 persons directly and as many as 50 individual contract haulers indirectly.
- Río Jemez Canyon reservoir lies on tribal lands, and under an agreement with the pueblo, is operated by the U.S. Army Corp of Engineers. Foreseen by the active planning team at Santa Ana is a destination resort featuring conference facilities, a hotel, and a marina. The lake is currently closed to the public but day picnic sites are open.

www.santaana.org, accessed October 2003; since removed in website redesign