

12.ES. EXECUTIVE SUMMARY

12.ES.1. Introduction

The Río Puerco y Río Jemez Subregional Water Plan is a part of the Middle Río Grande Regional Water Plan. Revealing the distinctions, as well as the ties, with the Middle Río Grande Subregion, the subregional plan was bound as a separate volume of the Middle Río Grande Plan. The Interstate Stream Commission (ISC) expects that a regional water plan will answer five questions:

1. What is the water supply available to the region?
2. What is the region's current and projected water demand ?
3. What alternatives are available to meet the projected demand with available supplies, including management alternatives to increase supply and reduction of demand via conservation or other measures?
4. What are the relative advantages and disadvantages of each alternative?
5. What is the selected set of alternatives that comprise the plan and how will those the alternatives be implemented?

To the extent possible, information has been gathered to answer those questions. As knowledge has been gained, it became clear that more information will be needed in order to gauge progress and implement the plan.

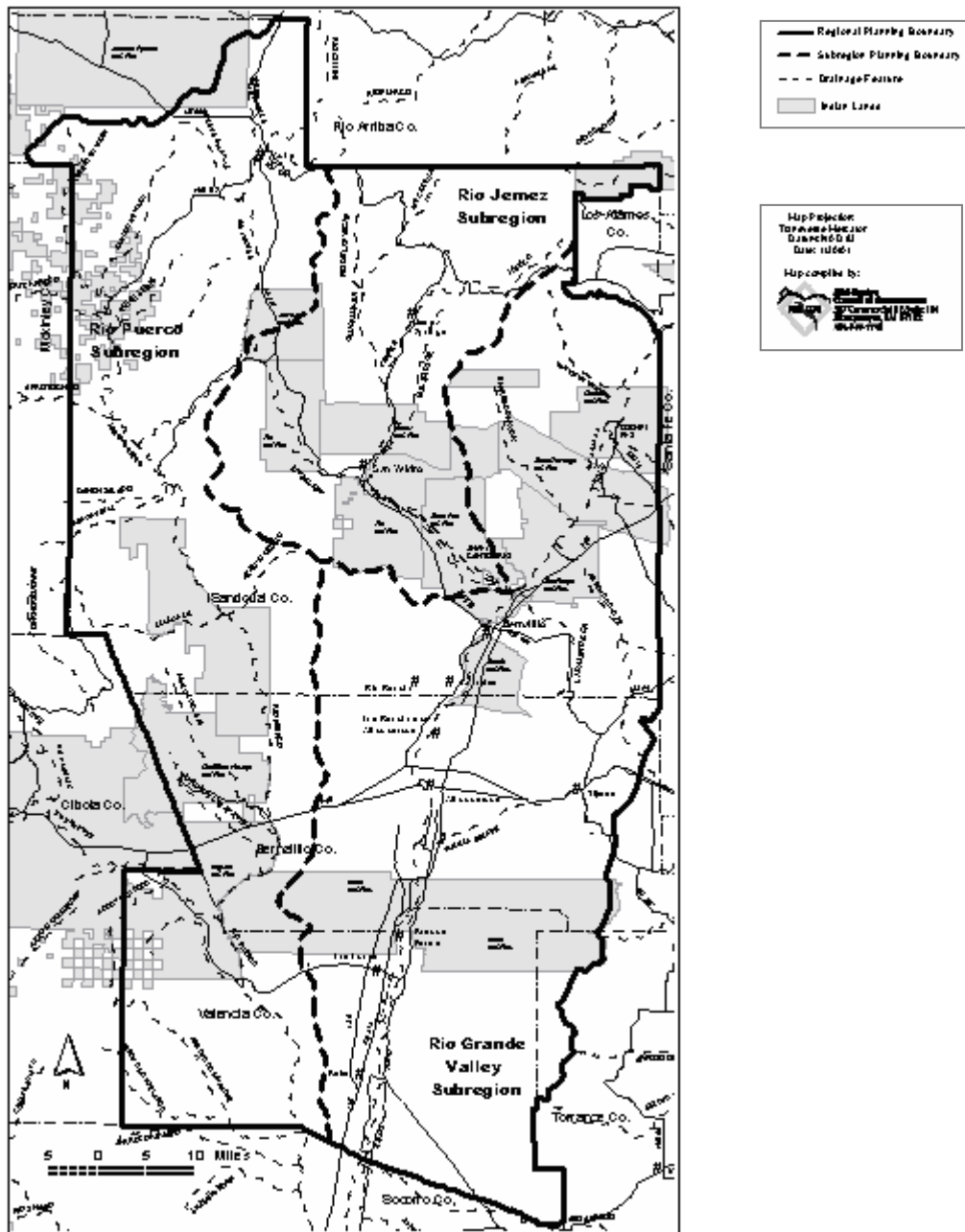
The planning was conducted by Steering Committees made up of residents in the two watersheds, with Cuba Soil & Water Conservation District acting as the fiscal agent. Phase I, which ran from January 2000 to December 2002, and Phase II, which has now been completed, resulted in the accomplishment of several planning tasks: agreeing upon a mission, establishing goals and objectives, and prioritizing alternatives. The matrix, found in the general plan and the general summary, comes directly from the participation of residents in the watersheds, and contains Goals, Objectives, Actions, Length, Funding/Policies and Benefits.

The intention in providing the information, including extensive appendices on the accompanying cd-rom, is to provide a resource document with the expectation that additional information will be added as collected. The next phase should address the need for better data to establish baselines, for evaluation of the alternatives, and for implementation.

12.ES.2. The Region

Figure 12.ES-1 depicts that the Río Puerco and Río Jemez watersheds are part of the Middle Río Grande Region, which in turn is one of 16 water planning regions in New Mexico. For this phase, the focus was on the portions of the Río Puerco and Río Jemez watersheds located in Sandoval County.

Figure 12.ES-1 Subregional Planning Boundaries



Elevations range from over 11,000 ft. at the headwaters of the watersheds to 5,000 ft. at the respective confluences with the Río Grande. Depending on the elevation, the average rainfall in the basin varies annually between about 10 to 20 inches, but recent drought has reduced that substantially. Surface water supports the region’s industry, agriculture, commerce, environment and people, augmented with ground water.

Water use is constrained by physical and legal factors, not to mention cultural and religious ones. The arid climate is quite variable. Neighbors are entitled to their share. Downstream users may

also be impacting water resources, particularly in the Río Jemez. Due to increases in demand within and without the basins, the subregions must take steps now to protect and conserve available water resources.

12.ES.3. What Was Learned And Accomplished

During the planning process, information was gathered and analyzed, and alternatives posed and recommended. In order to answer the supply question, the way water is used must be considered. And the way water is used is partly a function of the land itself, partly of the land uses and partly of the administrative functions overlaying it all. As such, an investigation to the extent practical was performed. Better information will provide a better basis for future decisions. To ensure that the alternatives reflect the visions and values of the residents, public involvement is key. Watershed planning and management is a cooperative effort by stakeholders, municipalities and government agencies to create a long-term management plan for water resources within the watershed.

12.ES.3.1. Water Management

Two agencies, the Office of the State Engineer (OSE) and the Interstate Stream Commission (ISC), have the primary responsibility for managing the water. The New Mexico Environment Department (NMED) has lead supervision over water quality.

To administer the water, the Office of the State Engineer (OSE) issues a permit for the right to use a certain amount. These permits, or “water rights,” are assigned a date, the priority of which governs administration. Currently, the OSE is proceeding to adjudicate, or judicially determine, water rights in the state. A slow process, this has yet to be done in the Middle Río Grande. Pueblo water rights, not managed by the OSE, are paramount (have the most seniority), and have not been quantified, nor have the future needs and thus uses been quantified for tribal entities. Water rights in the Río Puerco, except for the Nacimiento Ditch, have not been adjudicated, while those in the Río Jemez, with the exception of federal and Pueblo rights, have.

Water rights to all of the surface water have been issued – so new users have to acquire permits from existing users. Transfers of use or transfers from one point of diversion to another are regulated. The State Engineer has the authority to deny an application if it impairs other water rights holders, is contrary to conservation of water or is detrimental to the public welfare. Domestic well permits are issued by the OSE. Providing further constraints for the Río Jemez, a water shortage-sharing agreement -- a delicate balance between users when water is scarce-- has been signed.

The Río Grande Compact helps to ensure that water is shared by three states. The share of the Middle Río Grande, including the subregions, is governed by this agreement, which the ISC administers on behalf of New Mexico.

NMED, along with the US Environmental Protection Agency, monitors water quality for various users and uses. After testing, if a stream is found to violate standards, then management plans

are to be written to deal with non-point sources and action taken with respect to source polluters. Water may be managed to benefit species listed as endangered due to human actions.

12.ES.3.2. Land Use

Land status governs water management regimes in place and potential for change. The Río Jemez watershed is approximately 1,017 square miles. The Río Puerco subregion extends from Sandoval County through Bernalillo County and into Valencia County, and has an area of approximately 2,119 square miles. The portion in Sandoval County is 22% of the total. As Table 12.ES-1 indicates, federal and tribal entities manage a large percentage of the lands in the two watersheds.

Table 12.ES-1 Land Ownership in the Río Jemez and Río Puerco

Río Jemez			Río Puerco (In Sandoval County)		
Ownership	Acres	Percentage	Ownership	Acres	Percentage
State Lands	7,027	1.05%	State Lands	43,848	5.16%
Tribal Lands	214,099	31.94%	Tribal Lands	150,130	17.65%
Private Lands	44,244	6.60%	Private Lands	257,161	30.23%
Bureau of Land Management	64,494	9.62%	Bureau of Land Management	335,990	39.50%
Forest Service	251,108	37.46%	Forest Service	63,460	7.46%
Valles Caldera Nat. Preserve	86,942	12.97%			
State Park	268	0.04%			
National Park Service	303	0.05%			
Dept. of Defense	1,809	0.27%			
Totals	670,294	100.00%		850,589	100.00%

Source: BLM (2003)

No attempt was made to establish economic values for activities, but with the creation of the Valles Caldera National Preserve and paving Highway 126 by Fenton Lake, recreation is certain to increase. In addition to recreation, land use on public lands includes logging and grazing by permittees. Land use on tribal lands and private lands include ranching, agriculture, residential and commercial uses.

12.ES.3.3. Water Supply

The Río Jemez contributes an average of 45,000 acre feet per year to the Río Grande, and the Río Puerco contributes an average of 30,000 acre feet per year. (Papadopoulos) Surface water in both basins is limited. The Río Jemez has "no flow for many days" beneath the Jemez Canyon Dam, and the Río Puerco has, "no flow for many days," to, "no flow for extended periods," along most

of its length. (Shomaker) Temperature, rainfall and snowfall vary within Sandoval County, depending particularly with elevation. However, this amount varies considerably from year to year, as shown by the next set of graphs. Figures 12.ES-2 and 12.ES-4 show the monthly streamflow cycles while Figures 12.ES-3 and 12.ES-5 show the annual variability for the respective watersheds. The source of the information is USGS, and the compilations were made for the years when data was available for all gages

Figure 12.ES-2 Río Jemez Monthly Mean Streamflow, in ft³/s

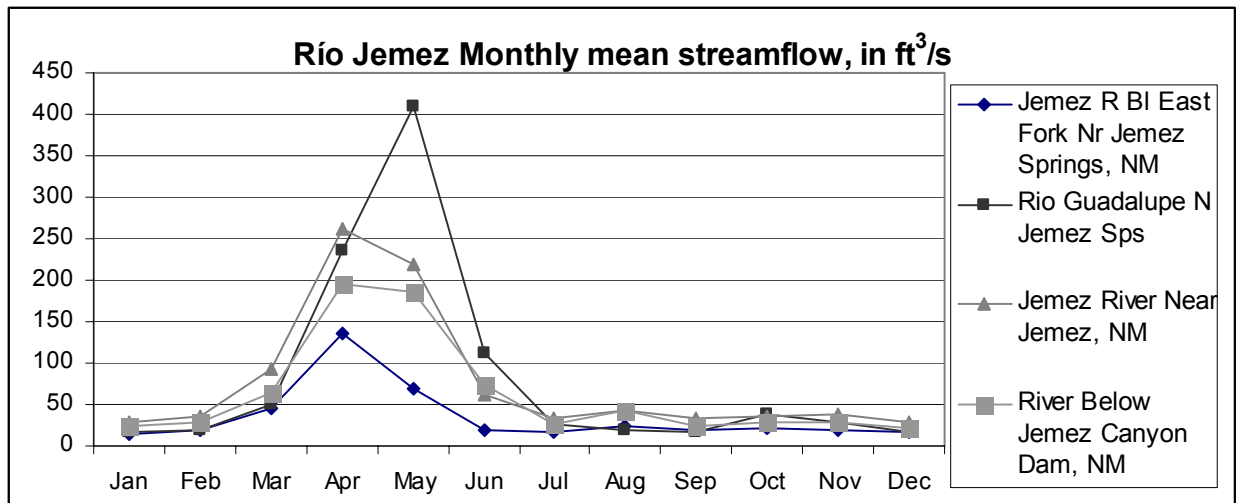


Figure 12.ES-3 Annual Mean Streamflow - Jemez River Compilation, in ft³/s, 1959 to 1990

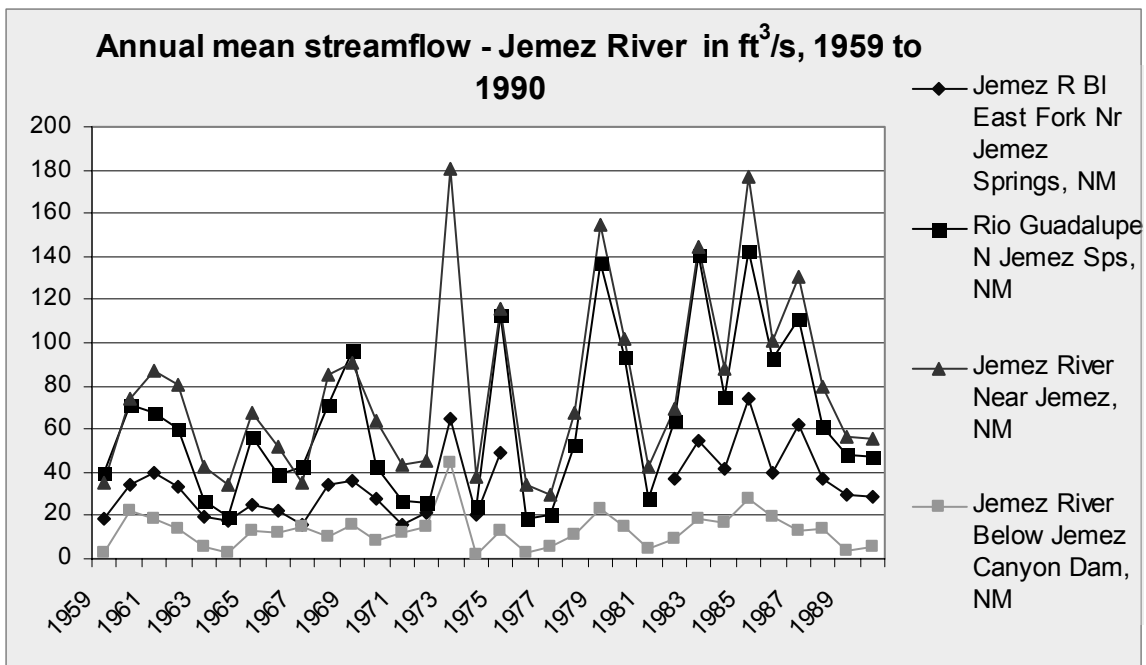


Figure 12.ES-4 Río Puerco Monthly Mean Streamflow, in ft³/s

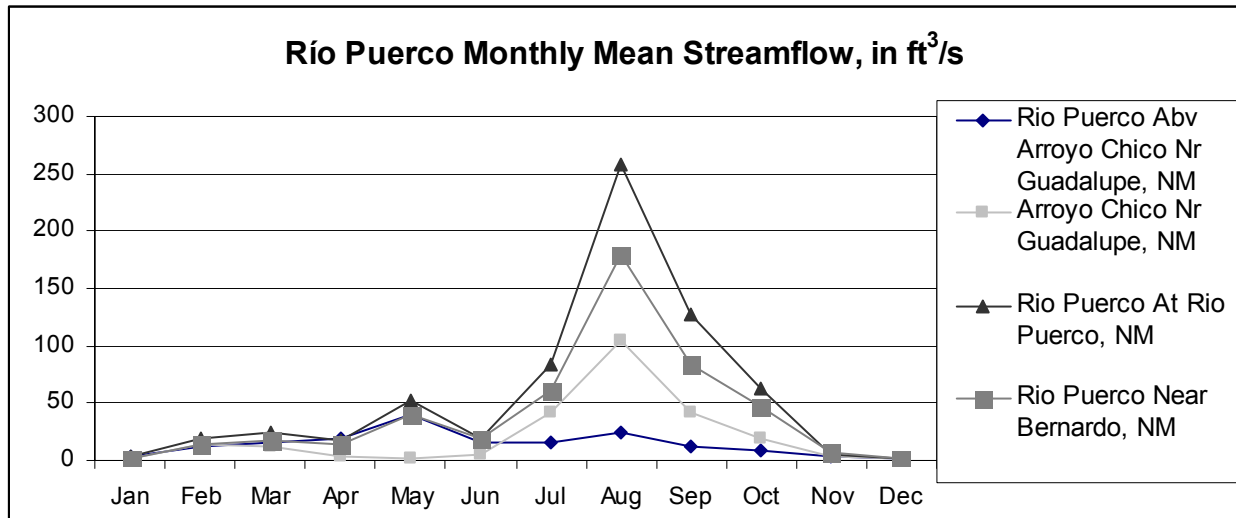
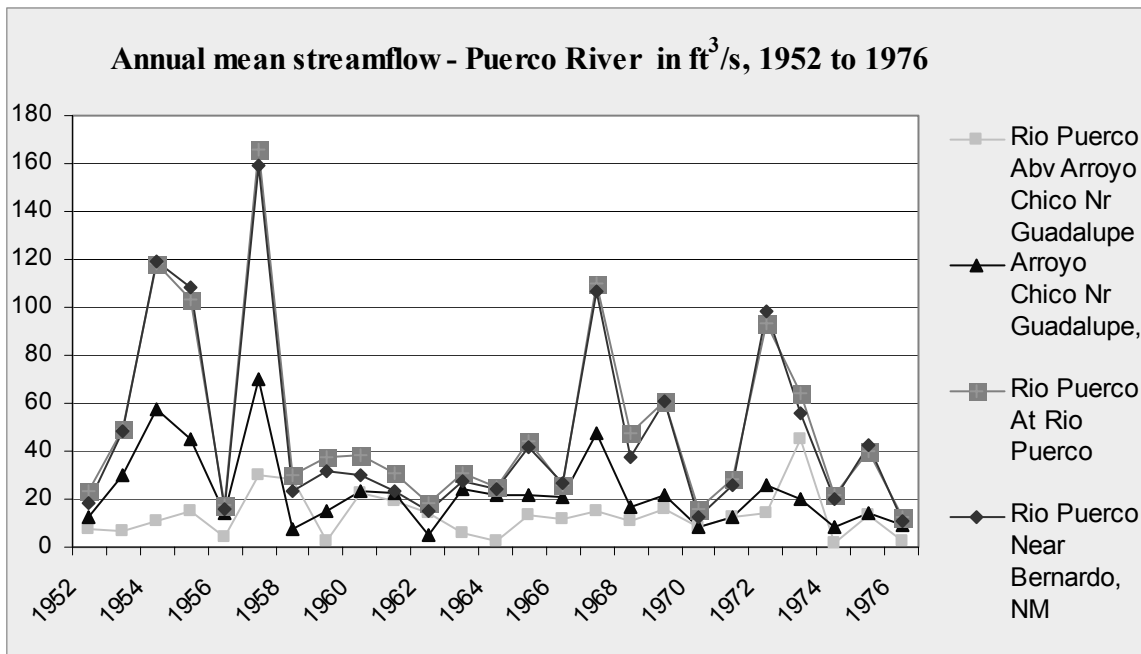


Figure 12.ES-5 Annual Mean Streamflow - Puerco River Compilation, in ft³/s, 1952 to 1976



What is clear is that, like other watersheds in New Mexico, in the Río Jemez and Río Puerco there is a wide variation as to water supply. Shortages may result in a water priority call on the river. If New Mexico is unable to meet its Río Grande Compact obligations, there will be a search for available water, as has occurred in the Pecos River Basin.

In addition to the variability of the climate under normal conditions, the region also regularly incurs drought conditions. In 2003, substantially less precipitation has been received than

normal. For example, from October 2002 to September 2003, Jemez Springs received 65% of its average. Ultimately, a Drought Plan and a Conservation Plan are expected to be included.

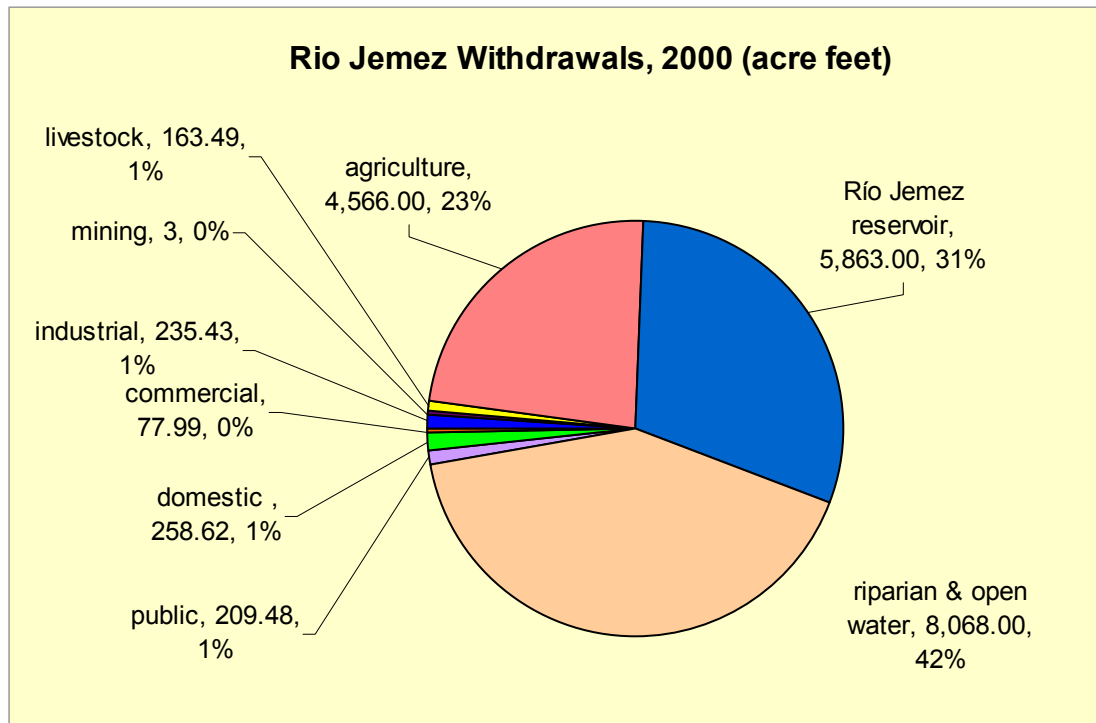
12.ES.3.4. Water Use

How water is used is in great part framed by how water has been used in the past as well as being a response to the topography and climate. Comparing supply with use, or demand, gives a water budget of inflows and outflows. The challenge here is the lack of specific data, making it difficult to reconcile supply and demand. Particularly lacking is data as to the water usages and needs of the watershed itself. In meeting after meeting, concerns were raised about springs drying up, about the number of trees in the forest, and about new users and uses in the watershed and downstream. Suggestions were made to restore the watershed, such as reducing the number of trees by logging or fire, so as to build back the "sponge." In turn, the watershed would be better able to supply the needs of those in its folds. Better information and understanding with respect to water usage will in turn provide better guidance to decision-makers.

Every five years, the OSE reports water usage in New Mexico. The two pairs of figures show withdrawals and depletions for each of the watersheds. Water withdrawn is that which is either diverted from its natural path in the surface-water system or pumped from wells.

Acre Foot: The amount of water that will cover one acre to a depth of one foot— 325, 851 gallons.

Figure 12.ES-6 Water Withdrawals in the Río Jemez, 2000



Depletions or Consumptions are that part of a withdrawal that has been evaporated, transpired, or incorporated into crops or products, consumed by people or livestock, or otherwise removed

from the water environment. A percentage of the withdrawals may return to either the surface-water or groundwater system, which is why depletions are a more accurate measure.

Figure 12.ES-7 Water Depletions in the Río Jemez, 2000

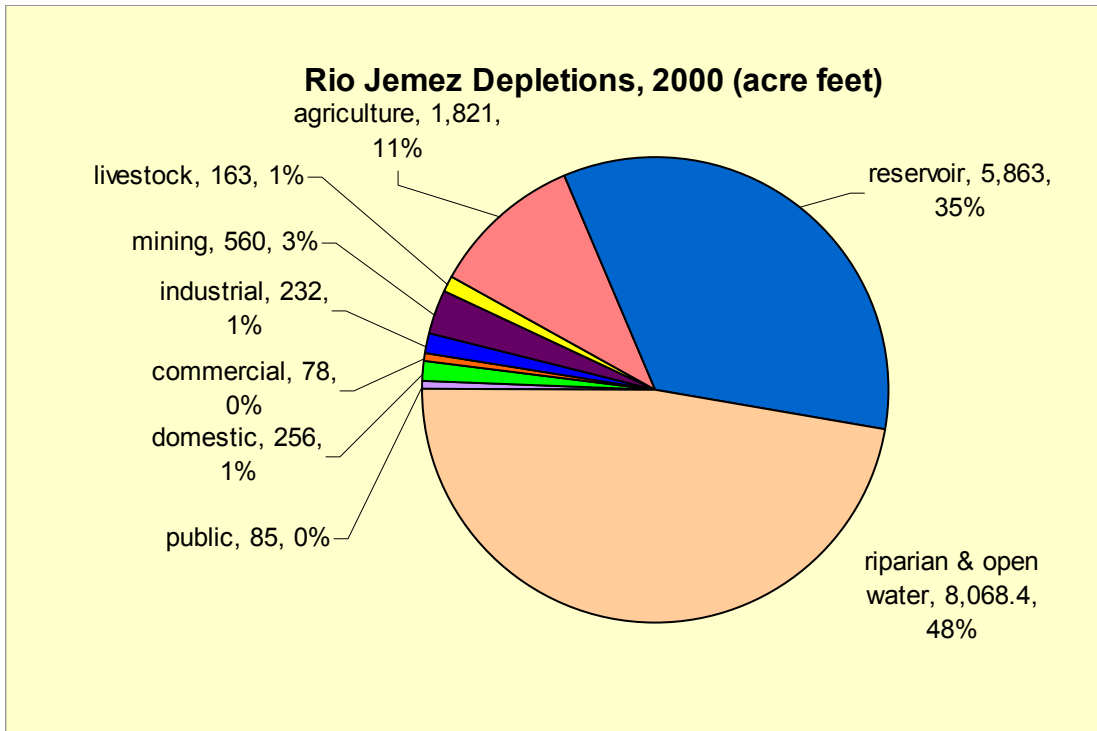


Figure 12.ES-8 Water Withdrawals in the Río Puerco, 2000

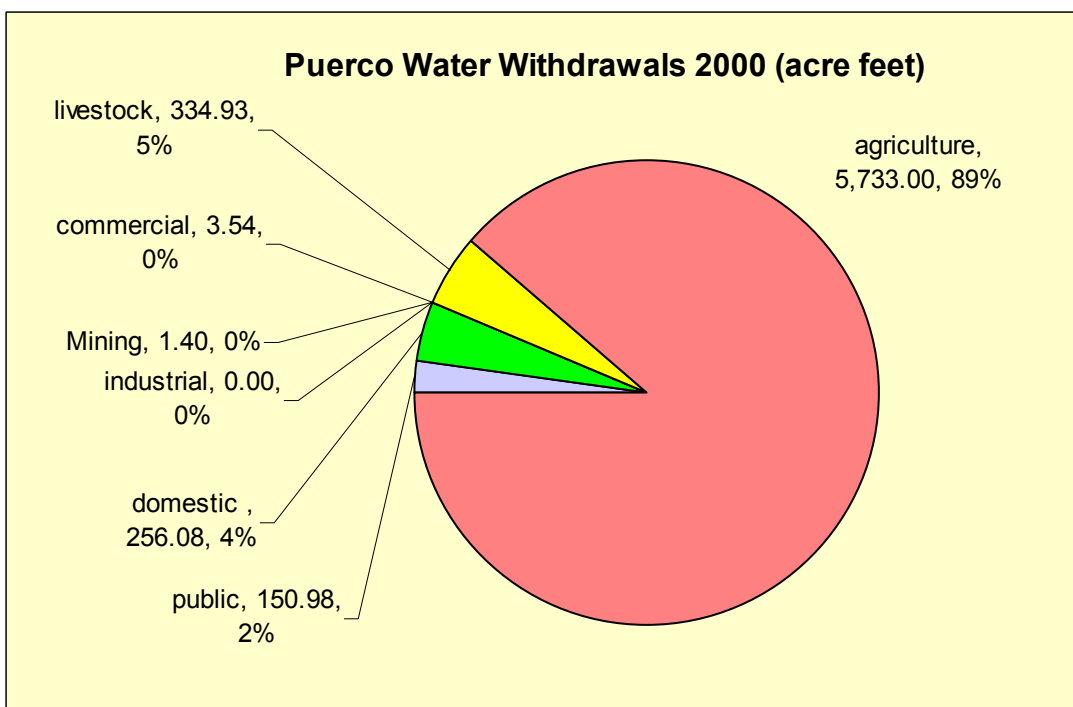
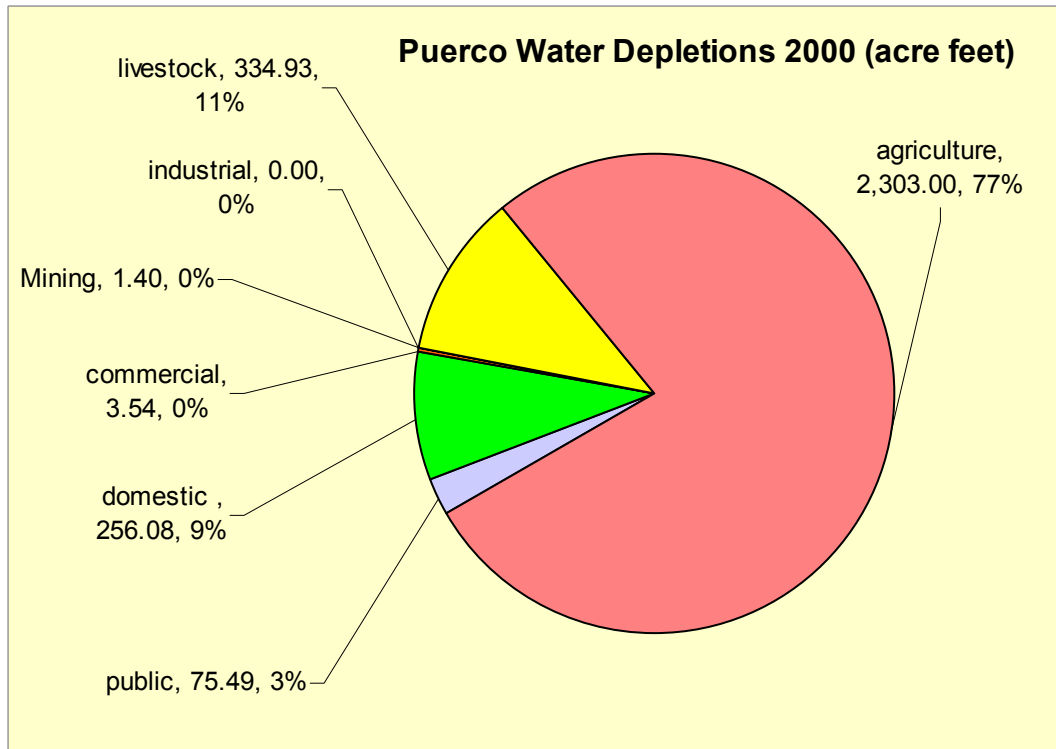
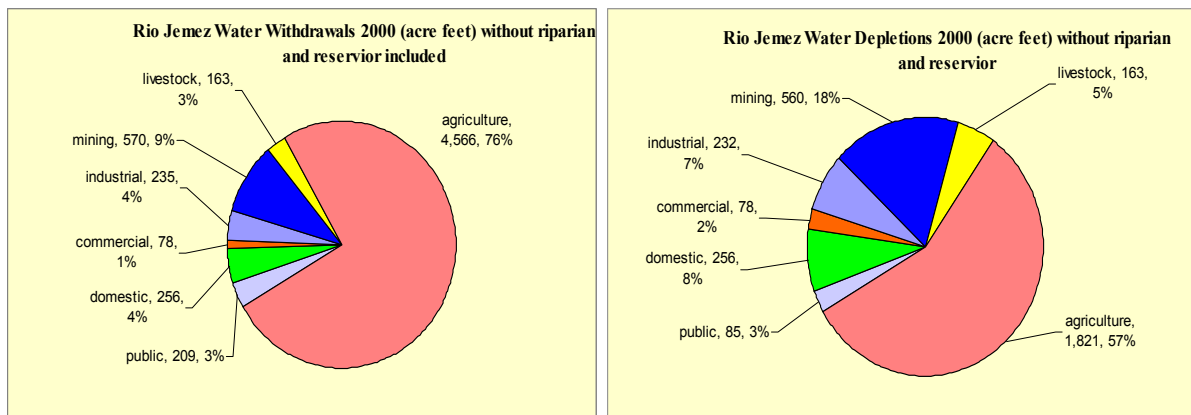


Figure 12.ES-9 Water Depletions in the Río Puerco, 2000



While the OSE does not report riparian usage, it was reported for the Río Jemez by the Bureau of Reclamation. Unknown is the amount consumed by riparian vegetation in the Río Puerco, though it is likely to be substantial. To illustrate the difference, the next set of figures has removed the riparian and open water, and reservoir evaporation from the Río Jemez water withdrawals and depletions. While agricultural water usage is 10% of the overall usage, it is well over 50% if riparian and open water (47%) and reservoir (34%) evaporation are removed. Knowing that there is riparian usage in the Río Puerco yet be accounted for is an indicator of data needs.

Figure 12.ES-10 Water Withdrawals and Depletions in the Río Jemez, 2000, removing riparian and open water, and reservoir evaporation as uses



Noteworthy is the household water usage, sometimes approximately 40 gallons per capita per day. When compared to the per capita usage in urban areas, upwards of 175 gpcpd, it provides a platform when considering conservation.

No category exists to account 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." Other participants felt strongly that the river had a right to have water.

12.ES.3.5. Water Use Arrangements

Found in the main text is a brief discussion highlighting issues of Tribal, Acequias, Treaty of Guadalupe Hidalgo and Adjudications. As noted above, part of the region has been adjudicated. During that process, much education and learning about history and each other took place, bringing the 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 (*Río Jemez (Abousleman) Indian Water Rights Settlement Proposal For Investigation*, February 12, 2001.).

12.ES.3.6. Water Quality

There are numerous water use strictures to be found, often in connection with land use. One perhaps often overlooked entails water quality standards. The designated uses of a given reach of stream has may well influence present activities and regulations. Every other year, the New Mexico Environment Department, Surface Water Quality Bureau, publishes a list of streams which do not meet federal standards. The *Approved 2002-2004 State Of New Mexico §303(D) List For Assessed River/Stream Reaches Requiring Total Maximum Daily Loads (TMDLs)* (June 2003), includes listings for both watersheds. A more in-depth TMDL report was released in 2002 for the Río Jemez, updating the information with concentrated testing and monitoring. The reports further set out the particular pollutants examined (such as turbidity, stream bottom deposits, temperature, and pH) for each reach and the current TMDL status. In the Río Jemez, the streams listed are:

1. Calaveras Creek (Rio Cebolla to headwaters) Stream Bottom Deposits* ¹
2. Clear Creek (Rio de las Vacas to San Gregorio Lake): Turbidity & Total Organic Carbon ²
3. East Fork of the Jemez River: Turbidity
4. Jemez River (HWY 4 near Jemez Springs to East Fork): Chronic aluminum, Turbidity, Stream Bottom Deposits ²
5. Jemez River (Rio Guadalupe to HWY4 nr Jemez Springs) Turbidity, Stream Bottom Deposits ²
6. Lower Río Cebolla (Rio de las Vacas to Fenton Lake): Stream Bottom Deposits
7. Redondo Creek (Sulpher Creek to headwaters): Temperature & Turbidity
8. Rio de las Vacas (Rio Cebolla to Rito de las Palomas): Temperature & Total Organic Carbon²
9. Rio Guadalupe (Jemez River to confl with Río Cebolla): Chronic aluminum and Turbidity ²
10. Rito Peñas Negras (Rio de las Vacas to headwaters): Stream Bottom Deposits, Temperature & Total Organic Carbon³

11. San Antonio Creek (East Fork Jemez R to headwaters): Temperature & Turbidity
12. Sulphur Creek (Redondo Creek to headwaters): pH & Conductivity
13. Upper Río Cebolla: (Fenton Lake to headwaters) Stream Bottom Deposits & Temperature
14. Fenton Lake: *Stream Bottom Deposits & Plant Nutrients*^{*1}

¹ Asterisked = Not listed in TMDL Report

² Italicized = found in TMDL Report and not in §303(D) List

³ Underlined = Found in §303(D) List and not in TMDL Report

Sources: Jemez Watershed TMDLs report (NMED SWQB, 2002); *Approved 2002-2004 State Of New Mexico §303(D) List For Assessed River/Stream Reaches Requiring Total Maximum Daily Loads (TMDLs)* (NMED SWQB, 2003)

The following are from the §303(D) list, since the updated TMDL report has not been prepared for the Río Puerco:

1. Nacimiento Creek (USFS bnd to San Gregorio Reservoir): Stream Bottom Deposits & Plant Nutrients
2. Río Puerco (Rito Olguin to headwaters): Temperature & Stream Bottom Deposits
3. Rito Leche (Perennial reaches above Río Puerco): Stream Bottom Deposits
4. San Pablo Canyon (Río Puerco to headwaters): Stream Bottom Deposits & Plant Nutrients

With TMDLs established in the Río Jemez, the next steps, just now underway, are to create water management plans to address the water quality issues. The increased testing and monitoring cycle is now beginning in the Río Puerco, which has a Watershed Restoration Action Strategy (WRAS) now being funded and implemented.

12.ES.3.7. Population

Population statistics play an important part in water planning. People use water in a variety of ways, most of which change the water from a primal state. The population in the subregions is shown in Table 12.ES-2.

Table 12.ES-2 2000 Data For Data Analysis Subzones (DASZs)

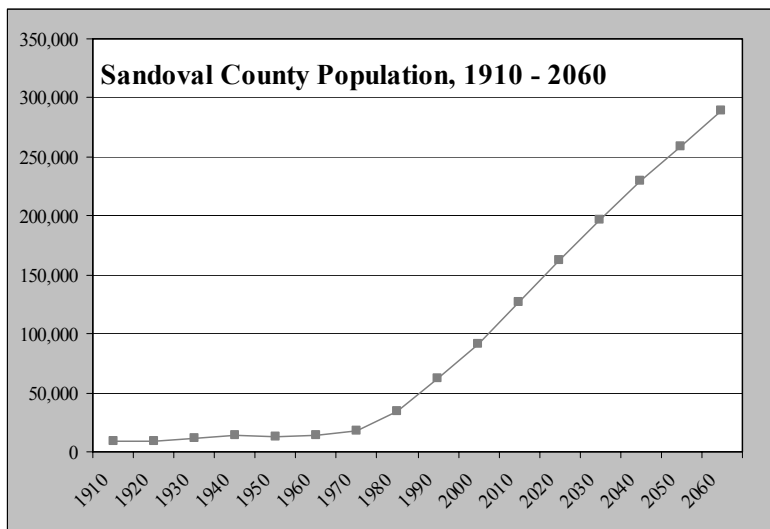
Geographic Name	DASZ	Total Acres	Total Population
Torreon	2011	302,665	2,958
San Luis	2012	572,404	115
La Ventana	2041	36,607	0
Cuba	2061	93,031	1,478
Jicarilla	2071	135,990	11
La Jara, Regina	2072	40,866	454
Western Río Rancho	2111	62,124	17
		1,243,687	5,033
Western Río Rancho	1011, 1012, 1021, 1022	35,910	120
Jemez	2031	43,254	1,958
San Ysidro & Zia	2032	62,082	891
Salado	2042	41,500	0
Jemez Springs	2051	303,312	1,956
		450,148	4,805

Source: DASZ Projections, Mid-Region Council of Governments--January 2003.

Except domestic well users, in order to pump groundwater, since the pumping affects the surface water supply, groundwater users have to obtain existing surface water rights. The rationale is that the surface water will replenish the water being removed. For example, Rio Rancho relies on groundwater for its public water supply and Intel relies on groundwater for its industrial processes. Since all of the surface water has been allocated, surface water rights will have to come from other users and perhaps for elsewhere to meet additional needs. Population growth and new urban uses in these downstream areas then affect the water resource and thus water planning in the subregions.

Figure 12.ES-8 shows the growth seen in Sandoval County since 1910. Rio Rancho, located just south of where the Río Jemez enters the Río Grande, accounts for much of the sharp growth curve after 1970. According to US Census statistics, in 1980, Rio Rancho accounted for 29% of the County's population, in 1990, it was 51% and in 2000 it grew to 58%. Together, the communities of Bernalillo, Corrales and Rio Rancho accounted for 22% of the County's population in 1970, 46% in 1980, 69% in 1990 and 73% in 2000. In comparison, the population in the subregions was 11% of the 2000 County Census, but steadily increasing.

Figure 12.ES-11 Sandoval Population, 1910 to 2060

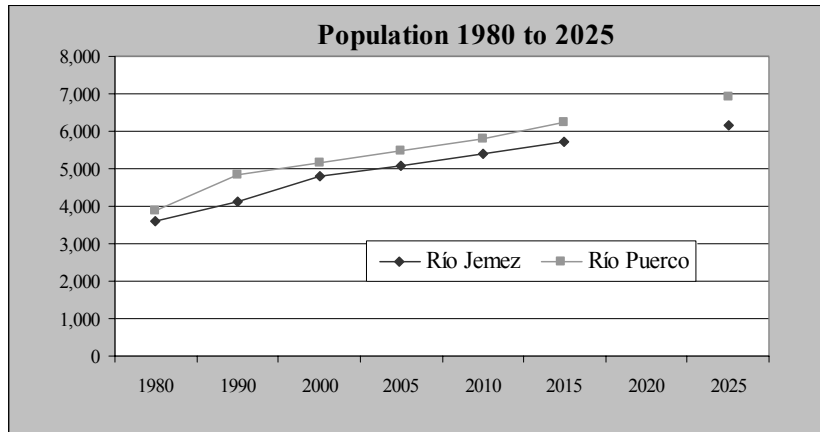


Source: BBER (2003)

12.ES.3.8. Quantifying Future Water Demand

A basic question to be answered in regional water planning is "what is the region's projected water demand?" Often that is answered by projecting population trends, recognizing population to be a driving force. Population increases in the subregion are projected to be approximately 25% in the next 25 years (Figure 12.ES-9), and for the County as a whole more than 50% (Figure 12.ES-8). Future demand can be a function of future activities. For example, if improving Highways 550 and 26 brings more tourism to the subregions, the water usage may well increase. Usage by second home owners will not be reflected in the census figures. Visions of how a region might grow are important considerations in projecting future water usage. Scenarios were created by teams in each watershed envisioning how it might look in 50 years.

Figure 12.ES-12 Subregional Population Trends and Projections, 1980 to 2025



Source: DASZ Projections, Mid-Region Council of Governments--January 2003.

Population increases, likely as they are to occur, will increase demands on water. If all of the water is allocated, and demand already exceeds supply, where will that water come from? Conservation measures, while important, may not be enough. A unifying theme, as expressed in the Public Welfare Statement, was the desire to have the ability to plan for the future with water available for that future. The present lack of water in ditches and wells underscores the fears that already the water budget is overdrawn. If the budget is to be fixed, the prevailing wisdom was that the watershed would need to be restored. Restoring it would not necessarily result in increased stream flow as much as springs would be replenished and could satisfy needs of a growing community. Another consideration for the regions is the unquantified water rights and future water rights of the Pueblos. Although the rights of the non-Indians have been adjudicated with respect to the Río Jemez, there is uncertainty as to what the final amounts will be and how will adjustments be made. Only by being conservative in future planning can this be incorporated.

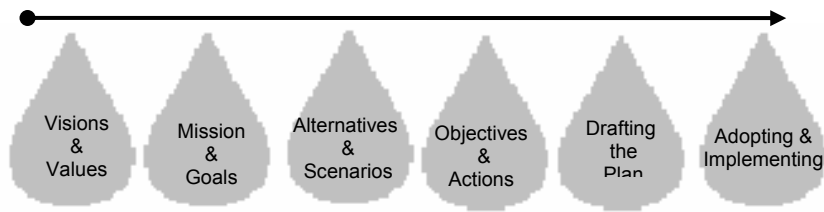
12.ES.4. Why Plan?

Summing up the above information, often there is not enough water to meet current needs. Watershed deterioration, erosion and forest density affect the quantity and quality of water. At the same time, water usage is increasing and new water uses are seeking water from present users. Water use is constrained by supply, as well as water rights holders and Compact obligations. Future water use is impacted by growth within the subregions as well as downstream. Traditional cultures and values, highly desired by workshop participants, may conflict with newer values and uses. Drought exacerbates the situation further. The subregional water plan is an effort to counter current trends by planning for the future, together.

12.ES.5. Public Involvement

Developing the Subregional Water Plan was an open, inclusive and participatory process. More than 175 people contributed time, energy and effort in its creation. All parts of the process encouraged public involvement, input and discourse on the contents of the plan.

12.ES.13. The Planning Process



Some of the activities included:

- Steering Committees made up of diverse constituencies representing a variety interests
- Monthly memos - used to ensure input to plan was broad based and timely
- Workshops - meetings to obtain input from the public.
- Annual Assemblies - Subregions provided updates to the entire MRG Region.
- Public Opinion Survey - One survey recording regional public opinions on water issues
- Web site and Newspaper Articles - used to inform the public

At the February 2003 Workshop, the participants adopted the Mission and Goals of the Plan, and prioritized Alternatives.

12.ES.6.1. Mission Statement

The residents of the Río Puerco y Río Jemez Sub-watersheds promote a sustainable balance between the availability and use of water, promote healthy watersheds, and promote retention of a rural lifestyle to benefit local communities and residents.

12.ES.6.2. Non-Prioritized Goals

- Restore and manage the watersheds on public and private land to enhance water production, retention, and quality, to reduce the threat of wildfire, and to preserve natural systems dependent on water.
- Support the cultural and spiritual values of water, and the universal need for and importance of water.
- Ensure treaty, water and acequia rights to preserve and protect local agricultural traditions.
- Retain land use patterns that support and ensure a rural lifestyle and economy.
- Promote the conservation of water.
- Promote education for area residents regarding the connection between land use, water and environmental health, and ways to conserve water. These concepts should be incorporated into the curriculum of area schools.
- Provide for monitoring the implementation of the water plan.

12.ES.6.3. Alternative Actions

At many public meetings and workshops across the region over the past four years, the general public developed suggestions to manage the regions' water, and prioritized them:

1. Protect Water Rights
2. Manage and Restore our Watersheds
3. Manage Growth and Land Use Together
4. Reduce Water Demand
5. Increase Water Storage Capacity in Rural Areas
6. Manage Drought
7. Reuse Wastewater (Gray)
8. Identify fire-fighting water
9. Prohibit sale of water from region
10. Implement Public Education Program
11. Install Domestic Supply Wells
12. Reduce Water Loss in Acequias
13. Capture Flood Flows
14. Use Surface and Groundwater in Combination
15. Remove Trace Elements From Water to Increase Supply

12.ES.7. Scenarios And Visions

Scenarios are descriptions of possible futures. They attempt to identify different assumptions about how current trends will unfold, how critical actions may play out, and what additional factors may 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 for 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 are descriptive, written narratives (qualitative scenarios), and tables and figures incorporating numerical data, often generated by sophisticated computer models (quantitative scenarios).

Using the mission, goals and top three alternatives, teams created scenarios reflecting an environmental view, an agricultural/ranching view, and a rural community (Río Puerco) or exurban (Río Jemez) view. The scenarios were then “converged” to become the framework for the subregional plan. The following vision statements were part of the scenarios presented at the May Workshops.

12.ES.7.1. Río Jemez Vision Statements

Agricultural And Ranching- Agriculture and ranching are a part of the whole ecosystem. For us, they are both a part of our livelihood and of our culture. We highly value the rural nature of the region. Our group would like to see that agriculture and ranching continue to function as an integral part of our region. As stewards, we recognize the importance of nurturing the land and husbanding the water.

Environmental Perspective - The environmental vision reflects a shift in attitude from exploitation of the land to stewardship of forests, rangeland and riparian areas. Our children and their children will have the economic and spiritual benefits of ancient forests, free-flowing rivers, living deserts and the abundance of life flourishing in all these areas. The water plan preserves the greatest amount of biological diversity (domestic and wild) while restoring and maintaining a healthy ecosystem. The water plan protects local history and traditions and our land-based economy (including tourism). We envision keeping people on the land by integrating conservation and environmental issues with best management practices in forestry, ranching and agriculture

Exurban/Suburban/Development/Growth - In the next 5-10 years one can imagine a vision in which better-planned regional suburban growth occurs in the Jemez and Nacimiento mountain areas to the north of Albuquerque. This plan would try to encourage areas of higher density where there is the most water available, so that water rights need not be transferred. North of Rio Rancho, this growth would gently interact with the existing rural pueblo and ranching lifestyles allowing the area to maintain cultural and religious traditions as well as to maintain the environment. Education of newcomers and tourists will help to minimize conflicts. Water use will be coordinated among the various municipal water systems and the pueblos, and conservation practices (industrial, farming, ranching and domestic) will be mandatory.

12.ES.7.2. Río Puerco Vision Statements

Agriculture & Ranching - The vision of the Cuba area's agricultural community is to perpetuate the area's historical, cultural, agricultural, economic and ecological values by becoming actively involved in strategic planning of natural resources, implementing adaptive, viable, effective, and sustainable management practices, rehabilitating farm and range lands, and reducing, and planning rotation of, fallow acres within the area. We envision preventing conversion of agricultural land to housing and, despite the increasing demand for water in urban areas, keeping water and agriculture in our area. We envision planning and implementing projects that will improve our lands and help to enhance and sustain the community's agrarian economy into the next century, serving as a role model to adjacent areas in their agrarian and ecological enhancement efforts, providing support to these efforts.

Natural Balance Scenario - People living within the watershed will understand and live within the natural constraints of climate, fire, soils, and biological communities. Everyone will benefit from a fire-adapted watershed with enhanced water retention and healthier forests, grasslands and watercourses. The landscape will balance wild and cultivated lands that accommodate drought, fire, wildlife, and limited human populations.

Rural Communities Scenario - A Rural Community vision foresees a future for the Río Puerco watershed which reflects its unique prehistoric and historic, natural, cultural, and economic traditions. This vision takes advantage of modern innovation to accommodate a shift to an ethic that upholds respect for land, water, air, and all living things.

12.ES.8. The Plan

After the May 2003 workshops, the Scenarios were amended to reflect input from workshop participants. Over the next several months, the scenarios were blended and refined by members of the Steering Committees until a Combined Río Puerco and Río Jemez Sub-Regional Scenario was achieved. The result was presented at Open Houses in November.

Fifty Year Water Plan For The Río Puerco And Río Jemez Sub-Regions

From start to finish, the resultant product reflects the words of the watersheds. The final matrix contains the mission, goals, objectives, potential actions, length of time, funding and policies, and benefits. Summarized, goals with their supporting actions are set out below.

Goal: Restore and manage the watersheds on public and private land to enhance water retention and quality and to reduce the threat of wildfire, and to preserve natural systems dependent on water.

- Restore a fire-adapted watershed
- Decrease soil erosion and increase water retention and infiltration
- Reduce, prevent and repair incising of arroyos
- Reduce, prevent, and repair habitat loss along streams, arroyos, and in wetland and riparian areas
- Increase the bio-diversity and production on public and private lands including wild and domestic species
- Provide, consistent and sustainable sources, and adequate distribution of rangeland water
- Maintain agriculture and ranching as part of the whole ecosystem
- Maintain the scenic and ecological conditions which attracted our ancestors and us to the area

Goal: Support the cultural and spiritual values of water, and the universal need for and importance of water.

- Realize the spiritual benefits of ancient forests, free-flowing rivers, living deserts and the abundance of life flourishing in all these areas, aside from the economic benefits

Goal: Ensure treaty, water, and acequia rights to preserve and protect local agricultural traditions

- Maintain the integrity of the traditional acequia systems that have existed for generations.
- Promote agriculture and its beneficial use of water
- Increase efficiency of irrigation ditch systems
- Keep water with the land
- Promote respect for rural, tribal, farming, and ranching lifestyles

Goal: Retain land use patterns that support and ensure a rural lifestyle and economy.

- Base regional growth, planning, and zoning on retaining the health of the entire ecosystem
- Develop a program that systematically fosters cooperation among various sectors of the sub-regions with water as a primary focus

- Create a sustainable economy that bolsters self-sufficiency of the sub-regional communities, and helps prevent loss of the agrarian lifestyle
- Protect agricultural lands from development
- Protect and improve the quality of the domestic supply of surface and ground water
- Provide for increased, consistent and sustainable sources of both domestic and agricultural water

Goal: Promote conservation of water.

- Develop water-wise residents and communities
- Increase efficiency of water use

Goal: Promote education for area residents regarding the connection between land use, water and environmental health, and ways to conserve water.

- Create water conscious communities and assist future generations in learning about water
- Educate people (farmers and non-farmers) about the importance of land and water stewardship, and farming and ranching

Goal: Provide for monitoring the implementation of the water plan.

- Public participation in the water planning process and water management

12.ES.9. Río Jemez y Río Puerco Public Welfare Statement

A Public Welfare Statement provides guidance to the State Engineer when making decisions concerning applications for transfer and new appropriations of water rights that affect the subregions. The Steering Committees reworked the Middle Río Grande's and then presented it for comments at the November Open Houses. Incorporating the comments received, the final version was adopted in December.

Introduction

This public welfare statement is for the Río Jemez and Río Puerco watersheds, being subregions to the Middle Río Grande Regional Water Planning Region. It is part of our subregional water plan to provide guidance to the State Engineer in decisions concerning applications for transfer and new appropriations of water rights that affect the Río Jemez or the Río Puerco. This public welfare statement will accomplish its purpose if conflicts are reduced in the subregions, and if decisions reflect the long-term future needs of the subregions, rather than merely responding to immediate demands. This must not be a static, final statement, but an iterative and evolving declaration which is continuously monitored by the public to ensure that it accurately reflects the welfare of the public, always remembering that there are unknown users and perspectives concerning our water resources that will need to be given a voice in the future.

General Statement

Water has many important values to the people in our subregions which need to be appreciated and fairly balanced to ensure the overall safety, security and well-being for the subregions. Such

values include cultural, spiritual, economic, environmental and hydrologic viability for the subregions. In times of scarcity, everyone must share the responsibility for living within the shortage. We recognize the current deficit situation and have a duty to balance water use with renewable supply, starting now and in the future. Decisions should be made so as to keep as many options as possible open for future generations.

Process

We believe the “public welfare” must be safeguarded by the State Engineer through active management of our limited water resources in the decision-making process used to evaluate new appropriations and transfer of water rights. A strong decision-making process supports “public welfare”. Public welfare is equal in importance to the other two statutory criteria (impairment and conservation). Transfers of water rights must be open to all affected stakeholders and use the best available science. The public will be better served if the process encourages negotiation, not litigation. The process must provide reasonable and timely notice to and allow participation by all parties. The process must avoid automatic (or exempt) transfers or permits made outside of public review. Wet water use must be consistent with the administrative transfer of water rights (Double and triple dipping should be avoided). The evaluation of transfer must consider both the positive and negative impacts of the transfer of water rights on both the area of origin as well as the area receiving the water rights.

Future Use of Our Water Resources Consistent With the Public Welfare

The “public welfare” requires that our use of the water resources be consistent with five guiding principles:

- #1 - we respect the essential role of water in maintaining our spiritual and cultural values;
- #2 - we maintain and improve the health of our region’s water resources; i.e., the greatest benefit to water users in the watershed is to slow the rate of flow and keep as much water up here (in the mountains) and within the watersheds as we can;
- #3 - we encourage conservation and discourage waste (e.g., impractical or unreasonable use);
- #4 - we optimize the efficient use of our limited water resources in the context of restoring watersheds; and
- #5 - we enhance a rural agricultural economy as opposed to urban growth.

The state engineer should consider the following competing water demands when evaluating new appropriations and transfers of water rights: including but not limited to health and safety concerns, economic interests, agricultural interests, environmental interests, social and cultural interests, aesthetic interests, recreational interests, and municipal and domestic interests.

- When considering health and safety concerns, the state engineer should strive to maintain and improve the quality of our water resources as a basic human right to safe drinking water.

- When considering economic interests, the state engineer should evaluate both the positive and negative impacts of the transfer of water rights on both the area of origin as well as the area receiving the water rights. Economic concerns should not be a primary consideration.
- When considering agricultural interests, the state engineer should strive to develop and maintain a vibrant and efficient agricultural ecosystem, recognizing that agriculture has economic, ecologic, historic, and cultural values.
- When considering environmental interests, the state engineer should maintain and improve ecosystem biodiversity. The state engineer should also consider instream flows as being essential for the region.
- When considering social & cultural interests, the state engineer should protect water uses which support the diversity of communities, cultures and traditions existing in our region. The promises contained in the Treaty of Guadalupe Hidalgo should be acknowledged and honored.
- When considering aesthetic interests, the state engineer should strive to maintain and improve the agricultural and riparian greenbelts along the flowing waters and ditches in our communities.
- When considering recreational interests, low consumptive recreational uses should be encouraged.
- When considering municipal and domestic needs, the State Engineer should strive to sustain an adequate water supply to meet these needs. The State Engineer should connect water use decisions with local land use decisions.

12.ES.10. Issues

As previously mentioned, several issues with respect to land and water use arrangements and constraints --including the Treaty of Guadalupe Hidalgo, Rio Grande Compact, *United States v. Abousleman*, forest access, tribal claims and thirsty neighbors-- were discussed in the workshops and Steering Committee meetings. There are a number of other issues to consider with respect to water availability and management which arose during the course of the process. The following represents some broad categories, together with some recommendations:

Inadequate Data - In order to manage water resources, data should be sound, enabling confident choices. 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. Given the data discrepancies, a better picture of how land is used is also needed.

Future trend data - With solid population and other trend data to go with the supply and demand data, various scenarios could be considered prior to selecting a course of action.

Establish Benchmarks - in order to monitor and perhaps adjust the plan in the future, better data is also needed to observe changes.

Unknown federal and tribal water rights - The uncertainty this provides makes it difficult to plan.

Overgrown watersheds - Common to many residents was the desire to restore the watershed, which may augment the supply in the future. This will be difficult to monitor without formal data collection and baseline establishment.

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. Uncertain is the effect that it might have within the watersheds.

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.

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

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

External Demands - The residents in the Río Puerco and Río Jemez do not reside in a vacuum. Not only is their water affected by their activities, but those outside the two watersheds. These external forces --whether market demand, ongoing depletions in the Río Grande, or new and additional uses-- also put demands on the water.

Other issues - Several issues have been expressed such as a lack of education, particularly of newcomers, which hinder collaboration. No category of water usage as defined by the State Engineer exists for cultural and spiritual water usage, which was important to the subregions. How will drought be managed within the region is still to be considered.

12.ES.12. Acceptance and Implementation

The Subregional Water Plan is an excellent reflection of public input. With the scenarios being the basis of the matrix, the suggestions are from residents envisioning the future of the area and suggesting ways to get there. It will be up to individuals and organizations to carry through with those portions of the “plan” that they feel is most critical to them. The Plan is advisory, not a directive. Several of the governing entities within Sandoval County have endorsed the plan. It is neither law nor rigid. The plan will not take away water rights, nor absolutely protect them. The public welfare statement and the goals will give the State Engineer guidance as to the community's desires.

Regional water planning activities to meet the needs of the subregions will need to be ongoing. Data gaps are substantial, making projections not as reliable as desired. The alternatives were not analyzed to the extent of those in the Middle Río Grande Valley, so that the impacts of conservation on water use and water savings are yet to be accomplished. As such, the regional water planning questions were not answered with as much specificity as considered necessary.

In the near future, a Phase III process will need to be developed in order to implement the Subregional Plan's goal to "provide for monitoring and implementation of the water plan. Next steps should include ever-broader acceptance of the plan, data gathering and analysis, and implementation of the actions needed to meet the mission and goals of the plan. Implementation may include increased public awareness and education, incentives, policies, publicity, ordinances, laws, regulations, taxes, water rights purchases, pricing, and other means of managing the consumptive use of water within the subregions. Additional studies and projects that could enhance water supplies may also be required.

In order to continue the planning process the Steering Committees will need to continue, being expanded to include local government officials, domestic water associations, tribal members, *acequia parciantes*, environmental organizations, land use managers (including Forest Service and Bureau of Land Management), teachers and students, and residents from all walks of life. Partnering with entities engaged in water planning will leverage time and funds.

The plan is not static. As time goes on, the objectives and actions may change to fit the circumstances. Rather than being a mandate, the plan is the concept that a regional water plan is a manual. It can lay out a long-term process towards finding answers and improving solutions, while establishing a vision and context for the entire watershed. Each area, such as La Jara or Jemez Springs, may want to have its own water plan. Together they should ensure that the goals of the subregional water plan are met.

12.ES.11. Potential and Example Projects

Included in the plan is a list of potential water projects, as well as examples of efforts underway. The latter provides a clearinghouse where information of successes and failures can be exchanged.

12.ES.13. Further Information

Many of the studies referenced are available either on-line at www.waterassembly.org or for cost from the Mid-Region Council of Governments. Referenced material includes:

- NMED SWQB (2002). *Jemez Watershed TMDLs Report*, http://www.nmenv.state.nm.us/swqb/Jemez_Watershed_TMDLs/Index.html.
- NMED SWQB (2003). *Approved 2002-2004 State Of New Mexico §303(D) List For Assessed River/Stream Reaches Requiring Total Maximum Daily Loads (TMDLs)*, www.nmenv.state.nm.us/swqb/2000-2002_New_Mexico_303d_List.pdf.

- S.S. Papadopulos & Associates, Inc.(2000). *Middle Río Grande Water Supply Study*, Boulder, Colorado, <http://www.seo.state.nm.us/water-info/mrgwss/mrgwss-final-rpt.html>
- Shomaker et al, (2000). *Historical And Current Water Use In The Middle Río Grande Region*, <http://www.mrgcog.org/images/Documents/Shomaker%20Water%20Report.pdf>
- Wilson, Brian, C., et al (2003). *Water Use by Categories in New Mexico Counties and River Basins, and Irrigated Acreage in 2000*, New Mexico State Engineer Office, Technical Report 51, Santa Fe, NM., <http://www.seo.state.nm.us/water-info/water-use/county00/mcounty.html>

The subregional and the regional water plan are available on line at www.WaterAssembly.org and www.mrgcog.org. The reports and analyses prepared during the subregional planning process are available at cost from Mid-Region Council of Governments at 247-1750 or from Cuba Soil & Water Conservation District, P.O. Box 250, Cuba, New Mexico 87013.

Project Coordinator: Elaine Moore Hebard, with Jennifer Johnson coordinating outreach. Cuba Soil & Water Conservation District Project Contact: Peggy Ohler.

Thanks to the Steering Committee members, and special thanks to Elaine Hebard, Judith Isaacs, Jennifer Johnson, Charlotte Mitchell, Peggy Ohler and Steve Lucero.