

Statewide Meeting Speakers Address 'Accountability'

by Lisa Robert

Dialogue facilitator and co-founder Lucy Moore had it right when she wrapped up yet another annual meeting hosted by the New Mexico Water Dialogue in January. "There was a lot of *grim* stuff today," Lucy said, "about climate change, about facts, about polarization, about tensions... It was just grim, and I feel *good!* I think there's hope out there. Somehow, we all came together and created the possibility that we can get over this grimness."

People involved in solving the problems associated with a finite amount of water in a very dry place have attended Dialogue statewide gatherings for 15 years now, and it's true that the clarion call has often been a 'grim' one. It is also true, as Lucy attests, that camaraderie and food and straight talk and hope are hallmarks that have helped us persevere, and that a strong tradition of resilience abides among water planners, despite dark headlines and dark times.

New Mexico Water Dialogue president Conci Bokum admits board members spent untold hours trying to develop the agenda for the annual meeting. "I think it's instructive that it took so long," she told conference goers. "While many areas in the state have made great progress in reducing demand and increasing supply, serious problems remain. We have plucked the low-hanging fruit, and future alternatives are likely to be more controversial and costly. Our

problems are also compounded by drought and climate change. Most of the regional water plans were completed before we understood how much of an impact that will have, and the money to update plans is not forthcoming anytime soon."



Kevin Flanigan, Lee Brown, and Alan Hamilton kick off the annual meeting.

Given those trends, the 2009 annual meeting examined what many believe is the first line of defense: taking responsibility for our excesses and budgeting every drop. "Bringing Accountability to Water Planning: Does It Take a Crisis?" asked a variety of water managers and users to assess the consequences of business as usual, and the dividends we might expect if we change our ways. What follows is a sampling of arresting comments from speakers at the daylong event. All of the presentations, along with responses from a wise and worldly audience, are available in full as they become available at the Dialogue's website www.nmwaterdialogue.org.

On 'The Consequences of Being Overdrawn':

Lee Brown, Professor Emeritus of Economics, UNM, and H₂O Economics:

"The combination of checking and savings accounts from an economic perspective still provides a useful analogy for looking at our water situation, if the checking account is interpreted as the means of tracking current water income and depletions, and the savings account is seen as a measure of our accumulated wealth or reserves, whether in aquifers or reservoirs... The biggest problem with surface overdrafts is when they become chronic, and when instead of keeping surpluses and deficits symmetric over time, we are continually overdrawing the savings account in order to meet

the chronic deficits in the surface account. While the aquifer may be very large and can tolerate a long period of overdraft, if the problem doesn't eventually abate, then we've transferred the problem of checking account mismanagement into the problem of savings account mismanagement. From my point of view, that's a much more fundamental problem, and we have a tendency to do that in the first place... When that problem has been identified and accountability has been in place, solutions have generally been found."



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Updates from the President

by Consuelo Bokum, President, Board of Directors

The Board of Directors met in April and we filled two of five open positions on the board. I would like to welcome to the board two new members: Joe Culbertson who is from Amistad and the chair of the Natural Resources Committee, New Mexico Cattle Growers Association, and Maceo Martinet who is from Albuquerque and a professional ecologist, environmental and conservation educator. We are very thankful to both of them for enriching the membership of the Dialogue's board of directors. We are also working on increasing the board's diversity with the remaining openings.

In January, the Dialogue held its 15th Annual Statewide meeting which focused on "Bringing Accountability to Water Planning: Does it Take a Crisis?" It was a full day. Once again, Lisa Robert has transcribed the conference, so you can find the full text of both of the talks and the rest of the conference on our web site www.nmwaterdialogue.org as the talks become available.

Despite a lot of progress, New Mexico remains vulnerable given its dependency on

scarce water resources. As noted in the article on the meeting in this issue, people at the meeting "examined what many believe is the first line of defense: taking responsibility for our excesses and budgeting every drop." It is clear that despite several major projects and many, many other actions over the last 15 years or so, we need to do more to prevent hardship as demand over takes supply. Certainly planning is an important tool for evaluating problems ahead of time and deciding on solutions.

The Interstate Stream Commission and the Office of the State Engineer are holding meetings around the state on the State Water Plan. The meetings focus on four issues: population growth, statewide conservation strategies, climate variability planning, and water projects and programs. These meetings and subsequent discussions, including those among Dialogue folks and regional water planners, will be an important opportunity to re-focus the state, both at the agency level and in each community and region, on moving toward ensuring a reliable water supply for the many needs in the state.



Conci Bokum was genuinely awed and surprised to be presented with the Person of the Year award. Here she is surrounded by current and former Board members, all of whom were pleased to be able to keep the secret.

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Kevin Flanigan, Senior Hydrologist with the Interstate Stream Commission:

"I want to go through several factors that I believe are potentially a threat to New Mexico's future compliance with the Rio Grande compact... The first is the murky water rights situation in the middle valley. The number of pre-1907 surface water rights that exist—there is no real handle on that number. The best estimates are that there are roughly 100,000 acre-feet or so. The surface water rights of the Middle Rio Grande Conservancy District have not been quantified under State Engineer permits 0620 and 1690, and although I'm sure there are some people in the room that have very strong opinions about this, the senior water rights of the six Middle Rio Grande Pueblos have not been quantified or characterized as to their exact nature. And finally, the State Engineer has issued groundwater-pumping permits for up to 230,000 acre-feet per year. Currently, I believe, on the order of 140,000 acre-feet per year of pumping is going on. What will happen if and when all those permits are fully exercised? The point of this is it's hard to administer a basin for compact compliance when the water rights situation in that basin is so murky. The other potential threats are from two categories of what I'm calling 'unadministered water.' Domestic wells out there—the best estimates are maybe 20,000 to 30,000 acre-feet coming from domestic wells in the valley bottom, up and down the valley. All of that has a direct impact on flow in the river. And, over the last two years, Notices of Intent have been filed to appropriate deep saline groundwater on the western side of Albuquerque, totaling up to 210,000 acre-feet per year. If all that deep pumping were exercised, would there be impacts on the Rio Grande, or the Puerco, or the Rio Jemez? That is something no one knows, and something that the Interstate Stream Commission is very concerned about."

Alan Hamilton, Conservation Director, New Mexico Wildlife Federation: "In spite of our big brains and our capacity to make rational predictions based on sound scientific studies and sound data,



Regis Pecos and Jean Witherspoon explore the topics of sustainability and conservation.

crisis may be a necessary catalyst for change. Our capacity to reason—impressive as it is—is, in my experience, used more often in justifying *not* taking action, in *not* making necessary changes in one's life when it becomes apparent that we need to. In my profession we refer to this as rationalization, and it is uncanny how effectively this is used in maintaining destructive patterns and in keeping us from making necessary changes in one's life, or maybe even in

Crisis—the falling-apart process—is often the first necessary step toward healing.

—Alan Hamilton

one's water policies... On a positive note, it has become increasingly apparent to me over the years that crisis—or what we refer to as the de-integration process, the falling-apart process—is often the first necessary step toward healing. Once a breakdown in normal functioning has occurred, the psyche, just like the body when it's broken or hurt, has an innate capacity to reorganize and reintegrate in a more healthful way."

Regis Pecos, former Governor of the Pueblo of Cochiti, and a member of the Tribal Council: "The ultimate question for all of us here is what do we want our great, great grandchildren to inherit from us? ...If one of the things that we

treasure is the incredible beauty of connection to the environment, the incredible beauty of the relationship when one takes a walk along the river and what it feels like to be that close to something as profound as that spirit that we define as the Water Serpent, would you want your grandchildren and their children to have that same experience? ...How are we going to articulate a vision so that our great, great grandchildren will

in time speak kindly of our contribution and our response to this crisis? When are we going to take the stand and be courageous enough to say, 'Let's stop and reassess what we're doing, not to the environment, not to water, but what are we doing to ourselves?' Keep that in mind, because that is not just our tribal sacred trust and responsibility; that is our *collective* sacred trust and responsibility."

Jean Witherspoon, N.M. Water Conservation Alliance, former Water Conservation Manager with the Albuquerque Water Utility Division: "Population is the driver of demand. If we did what China did—which, of course, we're not going to—we could, (at least in urban areas where it was successful in China,) cut back on or stabilize demand by not allowing people to have children. But that's not going to happen in this country. That's what's driving demand, and people's desire to move to urban areas where there are services and education and whatnot available... Often the Albuquerque urban area is attacked as the gorilla, implying that we're all inherently evil. I just wanted to point out to you that we're not. I spent twenty years trying to plan water so that we wouldn't have a crisis but could still meet the de-

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mand. There are a lot of other people doing the same thing. So I think you need to be careful. People don't move here because we're big. They move here for economic security and other reasons, and it's probably going to keep growing..."

Janet Jarratt, MRGCD Board of Directors; N.M. Farm Bureau; Middle Rio Grande ESA Collaborative Program: "What are the consequences of being overdrawn? One thing from an agricultural economic perspective is that it doesn't go away. When you build a house, it's done, and people aren't going to be employed to rebuild that same house over and over again. But the 50,000 jobs that are connected to agriculture in this state are *permanent* jobs. This is a recurring source of economic wealth, and \$6.1 billion is a low estimate because it hasn't been adjusted for factors that affect New Mexico. That number will get much larger. The other thing to remember is that agriculture is a 'raw material industry,' and it's being compared to final-product businesses, which really does underestimate the economic value of ag. So when we're talking about being overdrawn and taking water away from ag, it's affecting more than just the land you see. The other thing you're affecting—and this is particularly interesting in these days of economic stress—is what does it really cost for community services to maintain agricultural land? For every tax dollar that agricultural land pays, it only costs 37 cents in community services, which means it's a net growth industry for the tax base of communities, unlike residential uses, which cost more than their net income... We don't know what land is going to be needed for in the future...seeing what's happening in China and Africa and South America and Australia, we are so fortunate here because our water woes are nothing compared to a lot of those places. They have people literally starving because they outgrew their resources in the areas where they could farm. Chicago is

Janet Jarratt discusses farming and economics.



People move someplace because they can survive, because they can grow food, but then they pave over the finest land. That's the cusp we're on now.

—Janet Jarratt

sitting on the finest farmland in the world. People move someplace because they can survive, because they can grow food, but then they pave over the finest land. That's the cusp we're on now. We can make a decision. Do we really want communities that have good core values and can sustain themselves into the future and not be dependent on foreign countries for food? Or do we make a few bucks now and not worry because maybe we'll be dead by the time it really hits, and it will be our kids' problem?"

Peter Pino, Tribal Administrator and former Governor of the Pueblo of Zia: "When the Europeans came, they saw us with our loincloths and not much of anything because the word 'ownership' is not a Native term. We don't have

such a word. The word 'ownership' comes from the Europeans, from the other people that came to this world later. So we're forced into using that term 'ownership.' ...When you start using that term and start looking at the world in that way, greed sets in and you start *taking*, whether you're entitled or not. You start taking from others, and that's what the government and the bigger America has done to the Native people. Everything is a two-way street. You can't just take and take and take and not give anything back.

On 'Making Up the Deficit':

Paula Garcia, Executive Director of the New Mexico Acequia Association: We've been talking about the consequences of being overdrawn... "This is not a problem that was created overnight, in my opinion. This is something that has been set in place by the rules of the game, the rules of our game being water policy. Now in the time in New Mexico that we were entirely dependent upon surface water, customs were the norms that really guided how we shared water. This was true not just for acequias, but this was something that was true from time immemorial for the Native American Pueblos and tribes, where water was considered precious, and still is. But having to deal with scarcity ingrained a certain sense of norms and customs about sharing water, and the understanding that water is precious and had to be shared, and had to be conserved. It had to be used in a very judicious manner...The role of conservation is going to become more and more important. Why wouldn't New Mexico, being in the Southwest, being in a dry area, being home to some ancient cultures that have such reverence for water, why wouldn't we be the innovator and the leader in water conservation technology?"

Norm Gaume, former Director of the Interstate Stream Commission: "...Water budgets are essential for water accountability. How do you make up a deficit if you don't know what the deficit is? How do you determine what to do with



Norm Gaume presses for water budgets.

demand if you don't know what your total demand is? I mean, we know 'demand' and we know 'supply, but we really don't have water budgets, and when those water budgets give us bad news, as they invariably do, we don't deal with the bad news. We just flat don't deal with it. The title of this day is "Bringing Accountability To Water Planning: Does It take A Crisis?" I hope it doesn't take a crisis but we are a crisis-motivated civilization. We need metering for accountability; we need water budgets for accountability, and lastly I would submit that we can't have water budgets unless they are developed for a distinct hydrologic area."

Jim McCord, senior hydro-geologist and water resources engineer with AMEC-Hydrosphere: "I would like to put forward a modest proposal to make up the deficit. One important step is for water managers to administer water use in *real time*, including daily or weekly accounting... The OSE is one of the water managers in this state, but there are other entities, (the irrigation districts, the MRGCD,...)and the State Engineer has more limited authority than they do with river diversions. Maybe the other entities...need to take the baton there and be accountable to the system. ...Another one? Water transfer applicants...appear to be willing to operate in priority, or to curtail their diversions to protect endangered species...a

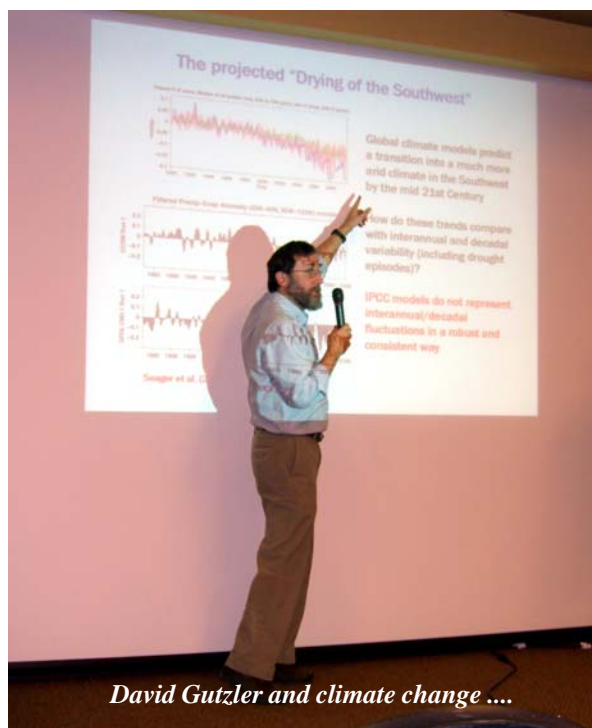
good example is the Buckman Diversion Dam permit. When native flows are particularly low, they have to cease their diversions. But when we ask them, 'Hey, we'd like to see that curtailment scheme remain in place if the fish is extirpated, or if the fish recovers, we want to see that maintained to protect seniors,' they say, 'Oh no, we can't do that. The State Engineer needs to *force* us to do that.' Well, it's part of your permit condition. Why can't we put it in as a permit condition to protect the seniors too?"

No One Else Is Going to Bail Us Out

Dale Dekker, American Institute of Architects, American Institute of Certified Planners, and architect with Dekker, Perich and Sabatini: "...The future is arguably, in my opinion, about adapting, changing and evolving... I believe the development of land use patterns is going to change. We're starting to have that discussion in Albuquerque now with form-based codes and densification. New land use codes are being developed, and we can't build enough roads to accommodate growth *and* maintain our quality of life, and strategically as a country, there's going to be a big push with this new president, I believe, to reduce our dependence on foreign oil. So can you say mass transit,

centers and corridors, activity centers, transit-oriented development? Really, the Rail Runner, where those stations are going to be is where we're going to see a lot of growth. I believe you're going to say, 'Sprawl *no mas*.' I think the days of sprawl—*not* a sustainable pattern. But can you say high density? ...Compact growth decreases the amount of impervious cover per person, area cover per person, and that's really what cities have done, they paved over the landscape. ...Connecting the dots, in my opinion, is going to be all about regional planning. As we've seen, climate change is going to start to change the way we use our land; the densities that we're going to have to achieve to achieve mass transit to reduce our vehicle miles traveled, which has a great impact on greenhouse gas reduction. Our urban form is going to have to change to accommodate renewable energies, and sustainable design—they're all going to play their part, but this all works together, and regional planning, I think, is what's going to tie it all together."

David Gutzler, Professor of Earth and Planetary Sciences, UNM: "When we have warmer temperatures and less snow pack, that means the date at which the snow melts gets earlier, so the point of these dots is to show that in most of these simulations, by the time we get to the late 21st Century, (and the dates and details can change from model to model and simulation to simulation,) the time of snowmelt in the spring is about a month earlier, projected. That means that there's less snow in the mountains and it melts earlier, which has some pretty interesting implications for water management, because we have a water storage and conveyance system based on rivers and reservoirs that's kind of calibrated to the current climate, and if the managers need to deal with that water a month earlier and somehow store it and convey it to meet all our obligations as you've been hearing about all day, that makes things hard. Furthermore, it means there's a lot of liquid water in the system, in reser-



David Gutzler and climate change

—Report from the Regions—

The Estancia Basin Water Plan: 2009 Update

by Dan McGregor

The Estancia Basin water planning region encompasses Torrance County, eastern parts of Bernalillo County and the southeastern portion of Santa Fe County. The region is bounded on the north by Santa Fe and San Miguel counties, on the west by Bernalillo and Valencia counties, on the south by Lincoln County, and on the east by Guadalupe County. The water planning region encompasses an area significantly larger than either the Office of the State Engineer's administrative basin boundaries or the hydrological boundaries of the basin. The Estancia Basin is a hydrologically closed basin and there are no significant surface water supply resources. The principal aquifers are the Valley Fill and the Madera Group. The Estancia Basin is somewhat unique in that 95 percent of the groundwater use is for irrigated agriculture - primarily center pivot irrigation. Water resources planning, then of necessity, must focus on agricultural use efficiency and conservation and changes in land use and/or types of agriculture.

The Interstate Stream Commission initially accepted the Estancia Basin Water Plan in April 1999. The 1999 plan recognized several key points based on a preferred Year 2040 planning scenario. The key points included that self-sufficiency would NOT be achieved within the 40-year planning window and that there would be an additional 1.3 million ac-ft depletion by 2040. Under this scenario, the plan recognized the potential for 30,000 acre-feet per year reduction in consumptive use, and if achieved, lengthening the economic life of the basin by 150 years. There are no planned water infrastructure improvements in the original plan.

With financial support from the ISC, designated legislative funding, and annual funding from Santa Fe County, the

Estancia Basin Water Planning Committee (EBWPC) in 2007 initiated a "statusing," revision, and update of the water plan. Because the original plan was accepted prior to issuance of ISC's regional water planning handbook, EBWPC recognized that a key component of the update would be to address applicable elements of the handbook outline missing from the original plan.

As part of the update, a review of progress to date was initiated. Of the 30,000 acre-feet of planned savings, only approximately 11,000 acre-feet of savings could be quantified as of 2007. This included some 7,600 acre-feet of

During the meetings, it became obvious that the Update would need to discuss the need for an inner-valley water pipeline for bulk supply and transport, and to evaluate the feasibility of use of brackish waters and related desalination efforts.

increased efficiency in spray irrigation systems, and an estimated 3,400 acre-feet in improved watershed management practices - primarily through tree thinning. These two programs were managed through the various EBWPC member soil and water conservation districts. The remainder of the proposed savings was to have occurred through various conservation programs and practices such as water audits, retrofits, and changes in local ordinances. Although such programs were initiated by the member counties, there has been no quantification of savings attributable to the Estancia Basin.

The Update process also recognized the need to include specific definition

and discussion of a public welfare statement. For the Estancia Basin, the public welfare statement will be stated as criteria for determining whether a particular action is to the benefit of the public welfare for the Estancia Basin. These five criteria, in rough draft form, include:

* Does the action or policy protect the individual rights holder by recognizing, protecting, and promoting the economic value and historic and legal precedence regarding existing, proven water rights as defined by State Law?

* Does the action or policy promote or support the in-Basin control and/or prudent use of a limited resource?

* Does the action or policy physically, as opposed to administratively, remove water from the geographic extent of the basin or beyond areas that account for 95 percent of the Basin's existing economy?

* Does the action or policy tend to protect the residents of the Estancia Basin and/or those served by its water resources from adverse and dire circumstances, such as prolonged drought?

* Does the action represent an individual's communal responsibility to protect or enhance self-sufficiency for the Basin by reducing use, eliminating waste, promoting recharge, minimizing physical harm, increasing supply, increasing efficiency, or otherwise represent prudent use within the Basin?

The Update process also recognized that additional geologic investigations are on going in the basin through the assistance of the Sandia National Laboratory Small Business Assistance Program and geologic cross-sections and updated water level information will be included. Furthermore, the Update efforts have attempted to do a cross-comparison of the Estancia Basin Plan with that of the surrounding planning regions to at least initiate discussion and understanding of

significant similarities and differences in the various plans.

During the Update process, new population data was made available and will be considered in determining projected per capita water demands. However, the population driven demand is a minor component of groundwater use in the basin compared to agricultural use. The EBWPC recognizes, however, that agricultural and business economics will drive groundwater use in the basin, rather than population growth. Accordingly, EBWPC board members participated with a local advocacy group (EBRA) funded study through the Mid-Region Council of Governments (MRCOG) to evaluate potential land use scenarios within a 40-year planning horizon. The study looks particularly at expected decreases in agricultural land use in the foreseeable future. After public review and comment, the EBWPC will likely use the study results in its estimates of future water demand.

The draft of the Update went through an initial round of public review meetings in November 2008. During the meetings, it became obvious that the Update would also need to address key priorities of the EBWPC given recent economic downturns and a projected decrease in available funding, to discuss the need for an inner-valley water pipeline for bulk supply and transport, and to evaluate the feasibility of use of brackish waters and related desalination efforts.

After incorporation of the updated population and land-use scenario information and comments from the public meetings, a second round of meetings is expected to occur. The current schedule calls for completion of a final draft in the fall of 2009, with public meetings and comment occurring in the late fall of 2009. A final update is expected to be submitted to the ISC in early 2010.

Navajo Nation San Juan Basin Water Rights Settlement

By Jason John, Hydrologist, Navajo Nation Water Management Branch

On March 30, 2009, President Barack Obama signed the Omnibus Public Land Management Act of 2009 into law. It is Public Law 111-11. The Act authorizes the United States to execute the water rights settlement agreement previously executed between the Navajo Nation and State of New Mexico for waters of the San Juan Basin and the authorizes the construction of the Navajo-Gallup Water Supply Project.

The Navajo-Gallup Water Supply Project (Project) is comprised of a Cutter Lateral and a San Juan Lateral. The Cutter Lateral, the smaller of two major Project water pipelines, shown in the figure below, is planned to convey more than 4,600 acre-feet of water to the Eastern Agency of the Navajo Nation and the Jicarilla Apache Nation. The San Juan Lateral will have a capacity to divert more than 33,100 acre-feet and will serve the Shiprock, Crownpoint, Win-



tribes may lease water to the City of Gallup and the 6,411 acre-feet designated for Navajo communities in Arizona would come from a block of Arizona's Colorado River allocation.

Feasibility-level study for the Project was authorized by Congress in 1972. A draft Environmental Impact Statement was issued in 1985 but the Project did not proceed. Planning of the Project was reactivated in 1992 between the Navajo Nation and City of Gallup led

by State Rep. Patricia Lundstrom, Chairperson of the Intergovernmental Steering Committee. In 1996, Navajo Nation President Albert Hale requested New Mexico to begin the process of resolving the Navajo Nation's water rights to the San Juan Basin. Also during that year a publication entitled *Integrated Water Resource Management in the San Juan Basin-The Navajo Perspective* was presented at the 41st New Mexico Water Conference by Stanley Pollack, Navajo Nation water rights attorney, which reiterated the need for drinking water and the need for resolution of the Navajo Nation water rights. In 1998, the Navajo Nation and City of Gallup affirmed their cooperation on the Project by signing a Memorandum of Understanding. This led to widespread discussion of water needs and project alternatives among Navajo communities and laid the groundwork for Navajo consideration of San Juan River Basin water rights settlement.

The Project today is a conjunctive groundwater (5,300 acre-feet) and sur-

Project Lateral	Capacity
Cutter Lateral	
- Navajo Nation	3,445 acre-feet
- Jicarilla Apache Nation	1,200 acre-feet
San Juan Lateral	
-Navajo Nation	
--NM	19,208 acre-feet
--AZ	6,411 acre-feet
-City of Gallup	7,500 acre-feet
Total	37,764 acre-feet

dow Rock and Gallup areas. Project capacities are shown below.

The Project will tie into existing and future public water systems. The Jicarilla Apache Nation and City of Gallup would enter into repayment contracts before construction begins. Both

NAVAJO—Continued from page 7

face water project (37,764 acre-feet) to meet the projected year 2040 water demands of 43 Navajo chapters, the City of Gallup and southern portion of the Jicarilla Apache Nation. The Project also takes into consideration the amount of water delivered by the Farmington to Shiprock Pipeline that is part of the Animas-La Plata Project and currently

Nation’s five Agencies and two governmental officials. The United States participated through a Federal Team that was appointed in October 2002. The Navajo Nation commends the State of New Mexico for its undivided attention and support during the transition of the Governor and the OSE in 2003. A draft of the Settlement Agreement was released to the public in December 2003. After numerous public meetings in 2004

the Settlement are shown in table above. The total cost is expected to be \$984.1 million.

Since April 2005, the New Mexico congressional delegation led by Sen. Jeff Bingaman and staff worked tirelessly to introduce the legislation. Sen. Pete Domenici supported the funding for the feasibility-level studies of the Navajo-Gallup Water Supply Project beginning in the 1980s and continued to do so up to his retirement. Sen. Domenici also supported bringing resolution to the tribe’s water rights. In March 2007, the Planning Report and Draft EIS for the Project were released by the Bureau of Reclamation and a record of decision is expected in 2009. The Project will now become a reality thanks to the hard work of the Project stakeholders, the Steering Committee, the State of New Mexico, Navajo Nation, Bureau of Reclamation and Congressional representatives.

The passage and signing into law of the Act was a major milestone that represented years of hard work by staff from both the State of New Mexico and the Navajo Nation. The Navajo Nation and State of New Mexico will now proceed with getting the water rights decrees entered in the San Juan River Adjudication and with working with the United States to appropriate funds for the construction of the authorized water delivery projects.

Table 2: Proposed Water Rights of Navajo Nation in the San Juan Basin, NM

Project	Diversion	Depletion
Navajo-Indian Irrigation Project	508,000	270,000
Fruitland–Cambridge Irrigation Project	18,180	7,970
Hogback – Cudei Irrigation Project	48,550	21,280
Animas La-Plata Project 4,680	2,340	
Other Municipal and Domestic	2,600	1,300
Navajo-Gallup Water Supply Project	22,650	20,780
Tributary Ground Water *	—	2,000
Total	604,660af	325,670af

* Amount of diversion depends on location and connectivity to San Juan River.

under construction.

Productive discussions of the Settlement began in 2001 led by the NM Office of the State Engineer, NM Interstate Stream Commission, Navajo Nation Department of Justice, and Navajo Nation Water Management Branch. The Navajo Nation Water Rights Commission was established in 2002 to ensure that the water rights of the Navajo Nation were vigorously pursued and effectively coordinated. The Commission is made up one Navajo citizen from each of the

the Navajo Nation Council approved the Settlement on December 29, 2004. On April 19, 2005 the State of New Mexico and Navajo Nation executed the Settlement Agreement.

The Settlement represents the benefits of working cooperatively to meet the Navajo Nation’s water development needs and resolve those water rights within New Mexico’s Upper Colorado River Basin Compact allocation. A summary of the water rights associated with

MRG Contemplates Inland Desalination

by Lisa Robert, Bob Wessely and Elaine Hebard

In 2008, a reserve of deep, brackish groundwater was “discovered” along the Rio Puerco in Sandoval and Bernalillo Counties. The find spurred an avalanche of Notices of Intent to drill, filed with the Office of the State Engineer by hopeful developers and water providers. By early 2009, more than 550,000 acre-feet of saline groundwater had been spoken for, an amount far in excess of New Mexico’s share of river water under the Rio Grande Compact. Overnight, the word desalination was

everywhere, along with considerable euphoria about the rosy future it promised for the central urban corridor.

Not everyone agreed with that forecast, however. For a decade, the Middle Rio Grande Water Assembly, the regional water-planning body for Sandoval, Bernalillo and Valencia Counties, had been trying to persuade state and local governments that aquifer exploitation in the Albuquerque basin was endangering the region’s water supply,

and possibly even the state’s ability to meet Rio Grande Compact obligations. Now those threats seemed likely to be magnified, since the State Engineer was without authority to regulate the withdrawal of saline groundwater below 2,500 feet. Legislation to remedy the situation had just been introduced at the Roundhouse, but meanwhile, Notices of Intent to pump were still streaming in.

As media coverage escalated the debate, the Water Assembly, which takes

its role as a public round-table seriously, decided to host a forum on the issue. On a Saturday in late February, an unexpectedly large crowd gathered at UNM's Continuing Education Complex for "Desalination: Silver Bullet or Pipedream?" The audience included Westside residents worried about unsustainable subdivisions; administrative officials charged with providing services to those same citizens; scientists ready with advice about the finite nature of saline aquifers; confident entrepreneurs whose pumping paperwork was already on file at the OSE; and weary water planners for whom the notion of hydrologic debt was anything but fuzzy.

UNM engineering professor Bruce Thomson told the group that inland desalination presents substantial challenges. Unlike seawater, from which the basic contaminant—table salt—can be removed and disposed of with comparative ease, brackish groundwater contains precipitates such as gypsum, silica, arsenic, and radionuclides, which remain after the desalination process. These materials constitute "mixed waste," Thomson said, and there are few options for getting rid of them. They rapidly clog expensive desalination membranes, and may pose lingering health threats to the environment, to wildlife, and to people when stockpiled or held as brine solutions. Even more daunting is the energy cost for inland desalination, which requires high osmotic pressure ("700 to 800 pounds per square inch, at a minimum,") and pumps that are "expensive and temperamental." Thomson estimates that 12 megawatts (16,000 horsepower) would be needed to run Sandoval County's proposed desal plant, and that energy for the operation could produce something on the order of 370,000 pounds of CO₂ a day. Deep pumping may also have an impact on overlying freshwater aquifers, which provide Albuquerque and Rio Rancho with the majority of their drinking water. Thomson and others believe there's a risk that saline water could be introduced into those fresh supplies, or that the potable water could

drain into the spaces left by deep saline pumping.

Other voices in the debate included county, and tribal and state representatives, as well as and members of the development community. Sandoval County Water Resources Manager Guy Bralley said substantial tests have been conducted on the County's deep well/desalination project and are still ongoing, but that the County hasn't yet solved the problem of making the brackish water find practical. Compared to water being desalinated by the City of El Paso, Sandoval's saline aquifer contains pre-

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—Bruce Thomson, UNM engineering professor

cipitates in much higher concentrations, and the costs associated with new energy sources, the resultant CO₂ footprint, and waste management will all have to be covered, Bralley said. "There's no such thing as a free lunch."

Bernalillo County Public Works hydrologist Dan McGregor noted that county officials need to be "smart and prudent" regarding site-specific issues, and that a desal plant will be treated like any other industrial project, subject to land use and waste management regulations. "Policies to address brackish water need to happen at the state level," he explained, since "county jurisdiction stems from land use issues. Water availability

can't be addressed [by the county] until it gets to the subdivision level, where a hydrologic assessment is required, along with proof of a 70-year supply and valid water rights."

UNM Economist Janie Chermak advised taking a broad view that considers both supply and demand, as well as costs and benefits. "What are the benefits associated with this water supply, who accrues the costs, who accrues the benefits, and how does that change over time? These are things we haven't even started to address."

Zia Pueblo Tribal Administrator Peter Pino expressed concern about the proposed drilling of so many deep wells near the boundary of the Pueblo. He urged Rio West promoters to "come and look at our dried-up springs," mineral upwellings that originate from the same geologic formation as the saline aquifer. The Pueblo is currently "trying to assist those springs to come back to life, because that water is used as seed water to ask for more to come our way... If you want to contribute to the cycle of water, you need to say your prayers."

But the hunger for development—and thus more water—all but guarantees additional drilling in the Rio Puerco. State Engineer John D'Antonio said he favors using the brackish water for growth, "but we have to put some conditions on its use," and Peter Sanchez, CEO of Atrisco Oil & Gas, which discovered brackish water on the land grant last year, says his company isn't necessarily looking to desalinate. Instead they are talking to pulp, tech, and solar industries that could possibly use the saline water as is. "Finite water," Sanchez insists, "might still buy us time."

Power Point presentations from the desal forum can be found on the Middle Rio Grande Water Assembly's website, at www.WaterAssembly.org

Dialogue about the *Dialogue*

Editor's note: At a recent Dialogue board of directors meeting, we spent a short time evaluating whether after almost 20 years we needed to change the mission or role of the Dialogue. The consensus was generally no. What follows are the perspectives of many of the board members that we thought would be of interest to participants in Dialogue events and projects.

"From my perspective, the Water Dialogue has played a critical and unique role in New Mexico relative to: 1) *planning* for our future with intelligence, cooperation and credibility; 2) focusing on *water*, the lifeblood of the state and life as we know it and a highly complicated issue, 3) *involvement*, opening a seat at the table or place at the podium to anyone who wants to participate, and 4) *education*, assisting those willing to learn to understand the complexities of water and the legal system governing its use. The Dialogue has served as an equitable, open and proactive advocate for these elements and their interaction from the group's creation through today's efforts. Where would we be without it?" - Jean Witherspoon

"A Dialogue is 'an exchange of ideas or opinions.' The Water Dialogue stimulates and assembles the best and the brightest on the prime subject of water use and abuse, past, present and future, and provides a just forum for their ideas and opinions. No other entity in New Mexico provides this forum, so let's just stick to our mission, let the water churn, and may good solutions and resolutions surface in the foam." - Dutch Salmon

"From its beginning, the Dialogue defined itself as a round-table forum in which an unrestricted cross section of New Mexicans could share their views about an extremely emotional issue—water. In more technical venues, *feelings* generally go unexpressed, yet they tend to surreptitiously drive attitudes and decision-making processes. (I think of

them as submerged snags in a river, capable of sinking our brave little boat of process and unity.) When people are allowed to express their personal values, fears, and frustrations, however, they become empowered, and individual empowerment is the crucial ingredient for bottom-up planning. By publicly validating the vision and concerns of citizens, the Dialogue promotes grassroots contribution, and better policy develops from such insight, not least because the forum is also open to those from the regulatory and management agencies, and from the elected sector, where the final decisions get made. The other thing the organization fosters is the incredible network of water-wise activists and thinkers that 20 years worth of regional

No other entity in New Mexico provides this forum, so let's just stick to our mission, let the water churn, and may good solutions and resolutions surface in the foam.

—Dutch Salmon

planning created. I've said before that this is an asset as valuable as the water itself, and the Dialogue has helped us maintain those relationships. Grassroots planning is what the state asked for, and it certainly got its money's worth, because we're all still here, still interested, and still volunteering our time and knowledge. The Dialogue widened its perspective beyond regional water planning back in the mid 1990s, and that's similar to what is needed now: widening our regional attitudes to address multi-regional and statewide needs. We know how to do this. It requires commitment and congeniality, and the Dialogue has always stood for both." - Lisa Robert

"The New Mexico Water Dialogue supports and promotes an open process of regional and state water planning. Board

members come from various backgrounds and various areas of the state. We may disagree about particular issues. What we share is a commitment to honest discussion about water and a desire to see New Mexico manage water in accordance with the values of the people of the State of New Mexico." - Mary Murnane

"In my view the Dialogue serves a very useful public purpose in promoting open discussions (dialogues) about water issues in New Mexico, with all relevant constituencies participating over time, not necessarily all at the same time. The Dialogue should continue to aspire to be the principal source of useful public knowledge and information about water issues in all parts of New Mexico, not just the most populated parts. The Dialogue has also usefully served at times as a watchdog over the water regulatory activities of the Office of the State Engineer, the Interstate Stream Commission, the New Mexico Legislature, and other Federal, State, and local rule-making bodies. In my view the Dialogue could make many of its activities more relevant by relating them to issues that rule-making bodies are dealing with, or should be dealing with, on a current basis." - Kendyl Monroe

"I'm new, and what I like is that we [the Navajo tribe] don't have a forum where we can talk about water issues and how they interface. Here you can bring all the issues to the forefront. There's a component of the Dialogue that keeps people informed about big, overall subjects. The feedback, the back-and-forth, is the important part of the meetings." - Jason John

"Water is life, and regardless of which community, ethnicity and vocation we belong to, we are all living the same waters. One of the principle attributes of water is that it aspires towards movement, and when it is allowed to move naturally its meandering informs the unique landscapes of New Mexico with

vibrancy and vitality. Dialogue, like water, is the necessary movement of language between people, a movement that keeps our relationships to each other alive and healthy. I believe that there is such a profound correspondence between water and dialogue that in losing one we necessarily will lose the other. When this dialectic movement is arrested by competition, greed or ideology and we are no longer capable of hearing and responding sincerely to one another, the waters themselves will stop flowing." – Alan Hamilton

"One of the most important roles the Dialogue performs is to act as a *boundary organization* in addressing issues of water governance. Boundary-spanning includes convening forums that link policy makers, organized interests, citizens, and experts to address issues across physical borders and jurisdictions, to build networks of shared understanding. Developing these relationships creates trust and a basis for cooperation and collaboration. Boundary-respecting involves ensuring that a participating entity isn't "run over" or marginalized as a result of collaborating with others. Because water issues are complex and reflect multiple values, scientists and other "content experts" play important roles. The Dialogue should help participants consider all these "ways of knowing" or perspectives on biophysical, economic, legal, and other complexities as they work to find "common ground." At the same time the Dialogue should help ensure the integrity of science by helping participants recognize the limits of scientific rationality in situations where values and data are often inextricably tangled." – John Brown

"Water is often a divisive issue in this arid state. The Dialogue is the place where diversity is welcome and there is an opportunity to listen and learn from one another, to find common ground, and when it works, to help keep the state from splintering into factions. We need this forum to keep New Mexico whole with its cultural, historical and environmental richness intact." – Consuelo Bokum

No BAILOUT—*Continued from page 5*

voirs and rivers, for a longer period of time under warmer temperature conditions during the summer, and guess what that does to evaporation? It means...there's a lot more water that we just lose out of the system altogether..."

Simeon Herskovits, Attorney, Advocates for Community and Environment:

"I've mainly worked in small, sparsely populated and relatively poor—at least, less affluent—communities trying to resist this relentless pressure from large, rapidly growing cities in the West to get their water. One of the things that I've experienced is that there are sort of built-in asymmetries of power, knowledge, access to knowledge, of the ability and ease with which action can be taken, and water resources can be acquired or they can be pursued in sometimes overwhelming ways for those who would defend the environment, or

those who are simply trying to defend traditional ranching and farming communities in the West... Elsewhere, there's a real, new movement or push, at least on the part of many people involved in wrestling with difficult questions of water resource allocation and management, a push toward decentralization. I would call it a push to return to more localized decision-making, or at least a push toward more meaningful, more weighty elements of the decision-making processes, being, if not controlled, then heavily influenced by local communities... In my experience, there has been a widespread sense of dissatisfaction, and frankly, discomfort and fear, with the lack of a more participatory and a more localized kind of process, where there's greater transparency and greater participation by the public, particularly those water users or stakeholders likely to be most affected by something like a new appropriation and export of substantial water, or a transfer of a substantial amount of water from a rural area... I do think that we would want a system where the State Engineer can be relied on and in fact can be required to pay serious attention to and evaluate very carefully and accord some deference to local input and local recommendations on resource allocation decisions, whether those be water rights transfers or water rights appropriations of a new sort."

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—*Simeon Herskovits*

Simeon Herskovits advocates for the empowerment of small communities. Dale Dekker, seated, designs urban forms for sustainability.



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Power Points and transcripts of the 2009 NM Water Dialogue Statewide Meeting are available on the Dialogue's website as they become available at www.nmwaterdialogue.org

Dear Readers of the Dialogue:

The Dialogue board of directors has always chosen to send its newsletter to anyone who has expressed an interest in its work and the articles describing what is happening around the state; it has never required a subscription. This was easy early on when we were supported by a generous grant from the Ford Foundation. Even when that grant ended and our funding was decreased, we continued to distribute the Dialogue widely without requiring a subscription.

We do not want to change that policy. The current economic crisis, however, has made our financial situation less good and we will have to make a number of changes to remain financially viable. We will probably move the location of our annual meeting in order to ensure the cost does not exceed the income from the event despite how great a venue the Indian Pueblo Cultural Center has been. And we are making two changes regarding the Dialogue newsletter.

First, please let us know if you are willing to receive the Dialogue electronically rather than as a hard copy. This will reduce our costs for printing and mailing. If you chose to receive the Dialogue electronically rather than in the mail, please email your email address to info@nmwaterdialogue.org and also let us know that you don't need a paper copy.

Second, we need your financial support even if we will continue to provide the newsletter to anyone who wants it without a subscription. Please subscribe to the Dialogue newsletter if you can or send a donation for our work.

Thank you,

The Dialogue Board of Directors

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