

21st Annual Dialogue Statewide Meeting Learning to Live with Less Water

Summary by Lisa Robert

The title of the New Mexico Water Dialogue's 21st annual statewide meeting, held in Albuquerque on January 8, 2015, suggests we've got a handle on the future. But the amount of water available to us is becoming more and more erratic, and uncertainty is the granddaddy of all constraints. Rather than rigid regulation, suppleness and cohesion may constitute the best practices, and process is likely to prove a wiser investment than product.

KEYNOTE ADDRESS—"SHARING WATER: WHAT AN ENVIRONMENTAL EXPERIMENT IN MEXICO CAN TEACH US ABOUT SOCIAL CAPITAL, INSTITUTIONAL ARRANGEMENTS AND THE FUTURE OF WATER MANAGEMENT IN THE WEST"

John Fleck, former staff writer for the *Albuquerque Journal* and a faculty member of the UNM Water Resources Program, has spent five years working on a book about the Colorado River Basin. In the spring of 2014, he witnessed what he calls an extraordinary event: the re-watering of a stretch of the river along the U.S.-Mexico border that has effectively been dry for decades. "How and why that happened has important lessons for us managing water broadly across the West," he believes. Studying the Colorado Basin, where "interesting new governance models and new approaches to problem solving" are emerging, has made covering New Mexico water issues frustrating for Fleck. "Old institutions, rules and tools built to manage water across the 20th Century are inadequate for the task of managing it in an era of scarcity," he says. "We got away with a lot when there was enough water. We no

longer have enough water." The prevailing attitude that scarcity will result in a fight between users needs to shift toward the idea of sharing, Fleck thinks. "It's tough, figuring out how to come up with the right institutional arrangements... There's a lot

John Fleck



of conflict embedded in the process, but there are models right now that are really promising."

On a Bureau of Reclamation map, Fleck points out patches of red hatch marks, all lying beyond the natural boundaries of the Colorado Basin, "where we've built stuff dependent on river water." Among those widespread hematomas are Denver, the agricultural empire of the Imperial Valley, and the non-stop urban corridor from San Diego to LA. Within the basin, water gets pumped uphill and flows are made to run backward. "We have this entire hydraulic society... built around [the Colorado]," and that dependency extends into New Mexico, by way of the San Juan Diversion.

Fleck says he became "journalistically interested in a couple of key questions" when Albuquerque began drinking San Juan-Chama water six years ago. "Now that we're part of this big game," he wondered, "what happens when there's a short-

age in the basin? How secure is Albuquerque's supply? It took me a long time to realize *we had no idea*. There's no system in place in our legal structures to allocate shortages." That need had never come up because throughout the 20th

Century, more water flowed down the Colorado than humans could siphon off. That is no longer true, a fact that became all too clear to Fleck when he saw 'The Graph,' a now-famous figure from a 2012 BOR study that shows the separate trajectories of water use and water supply in the Colorado Basin unmistakably converging sometime during the late 1990s. No longer is the Colorado delivering enough to fill pools and fountains and the All American Canal, a channel three times the size of the Rio Grande that irrigates half-a-million acres in the California desert. The river "has become a human construct," Fleck laments, a "showcase of technology."

In 2010, Fleck drove the levee along the last twenty miles of the Colorado. Just downstream of Morelos Dam, the system's final mountain of concrete, he watched a dog bound back and forth across "a little ten-foot wide channel through the reeds." Further south, he snapped a photo of his wife's Subaru parked in the sand beneath the San Luis Bridge, at a spot where *steamboats* once churned in deep water. It was an 'ah-ha' moment for Fleck, witnessing a "river that isn't a river anymore." Others had had the same experience. "As environmental consciousness grew, what had happened to the Colorado came to seem wrong," he says, and people began to envision how to "go back." That effort



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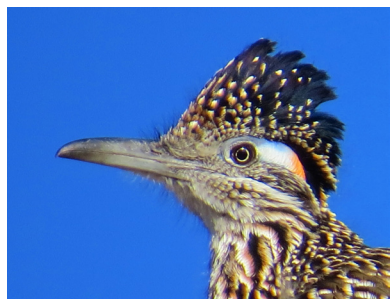
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Getting to Know the President

by Lisa Robert

Jason John does more than introduce the annual meeting and close the annual meeting. Below are some of his remarks about water, the Water Dialogue, and his relationship to both.



Jason John, President of the Dialogue Board and member of the Navajo Nation, comes from “a small community north of Gallup,” where his mother grew up. She and his Arizona-born father were in Denver when Jason was born, taking advantage of a 1960s skills training program. His parents returned to New Mexico in 1974. John says his father is an artist and his paintings are part of a vast body of work recognized around the world as a “staple of the Southwest.” [This modest biographical fragment is something of a staple itself: learning a little about each other is a cornerstone of both dialogue and commonality.]

As to the subject at hand—re-imagining our relationships in light of water in order to use less of it—John concedes the challenge is enormous. “Not one of us is a total expert,” he says, but expertise from many relevant fields is present within the assembled group. “The real goal of the annual meeting is to bring together all of those

minds. We’re aware of the way government works. We’re aware of the way planning works, (or should work). We’re aware that nothing can be done by government alone—it has to have the backing of its people, the backing of community members.” Such is the essence of the Water Dialogue, “to bring together all of the voices, promote better stewardship of water,

and preserve its availability for future generations.” On the Navajo Nation, John says, “We’re always trying to *advance*. If we have a plan that was done five years ago, we look at that plan and try to build off of it... A lot of Navajo Nation communities are struggling with water, but we’re trying to advance every community in its development and planning.” As a final point, John acknowledges a characteristic that is vital to the process of reaching accord: commitment. A relative newcomer to the Dialogue, he says he feels “mentored” by the group’s all-volunteer board, whose sundry members journey to Albuquerque to meet on a monthly basis, constituting a ready pool of experience and information. “They have a real interest in the future of water,” he praises, “and they’ve been doing this for a *very* long time.”

Welcome New Members!

The Board of Directors of the New Mexico Water Dialogue is happy to welcome six new members to its board of directors:

Joaquin Baca, Dale Ballard, Kathy Clark, Sharon Hausam, Win Jacobs, Ramon Lucero, and Adam Ringia.

LESS WATER—CONT. FROM PG. 1

came to fruit on March 23, 2014, when the gates at Morelos opened, and “for the first time in the history of the operation of this system, water was intentionally released for environmental purposes,” mimicking—albeit on a small scale—a spring flood in the Colorado Delta. What were the political and institutional arrangements that made that U-turn possible?

In the 1920s, the Colorado was apportioned by compact, a document “much maligned today,” but one derived from a precedent-setting process. “Seven states came together as sovereigns and equals to negotiate a pact. It was about *sharing*,” Fleck emphasizes, “about figuring out how to jointly manage a resource that no one was in charge of.” But the agreement enshrined two “great mistakes.” First, those who drafted it miscalculated how much water they had to work with. “In essence they said, ‘There are ten gallons of water and ten of us, so each person gets a gallon.’ They didn’t say, ‘Each person gets a tenth of what we have.’ They didn’t think through what would happen if there were only *eight* gallons.” The second mistake was believing that if they “got the rules right up front, there wouldn’t be any problems.” It turns out those up-front rules lack the elasticity “to provide resilience for some dramatically different situations.” Since the merging of the graph lines of supply and demand, deficit on the Colorado has been countered by “emptying reservoirs” Fleck observes, “but you can’t keep on emptying reservoirs... The core problem is there’s more demand than water, and no one has the standing, the power, or the authority to impose solutions... When communities or farm districts don’t have enough water, they use less—land gets fallowed, crops get shifted, people get rid of their lawns... The basic mechanisms for using less water at an individual scale are well understood, [but how] does that connect up to the regional scale? We need new institutional arrangements for managing this system.” Fortunately—maybe predictably—a dynamic problem-solving process has taken root in the Colorado Basin.

In 2004, Bennet Raley, then U.S. Secretary of the Interior, arranged a Colorado River float trip with a number of senior water managers from around the west. He also invited a few reporters, among them Jennifer Pitt, of the Environmental Defense Fund. At the time, there was a con-

flict in southern Arizona involving drainage water from the Welton-Mohawk Irrigation District. The tainted flow had been trickling down the desiccated Colorado to the Cienega de Santa Clara, an accidental wetland of “fabulous” wildlife habitat. The environmental community, led by Pitt, wanted to preserve the Cienega, while Central Arizona Project head Sid Wilson had plans to desalinate the runoff for other uses. In press coverage of the issue, the two advocates were “at each other’s throats and didn’t like each other,” Fleck says, but in truth, they had never met. By the end of their mutual river trip, they had become friends, and eventually formed the Yuma Desalting Plant’s Santa Clara Working Group, an ad hoc of water agencies and environmentalists bent on figuring out some middle ground. Over a couple of years, the group produced a White Paper of policy suggestions. Fleck says he reread the document recently and realized just how much of it has been incorporated into later processes. People from various interest groups—those Fleck characterizes as “having skin in the game”—had come to a shared understanding of where solutions might lie. “It’s this fuzzy process,” he marvels, “but it becomes central that you have people working together over time, getting to know one another, getting to know one another’s conflicts and shared interests in problem-solving frameworks.” Instances of such teamwork are evident elsewhere in the basin, too, and it is through such “fuzzy, informal, ad hoc processes” that progress is being made.

Under the odd rules of the Colorado Compact, California gets the lion’s share of any surplus the river delivers. Arizona, which was not yet in need of all its Colorado water, created a water bank in 1996 to squirrel away its own ‘surplus’ in various groundwater basins around the state. The city of Las Vegas also had excess Colorado water and nowhere to put it, so Nevada asked Arizona if it could deposit some of Las Vegas’ water in Arizona’s water bank. “It was a really revolutionary thing,” Fleck says, “and it broke down the state-boundary barrier about moving water around” with a simple accounting swap. Fleck and others see that as the first instance of “new, ground-breaking, innovative problem-solving.” An even more important example is the California Plan (also known as the ‘4.4 Plan’). Municipalities like San Diego and Los Angeles had

become dependant on those surplus flows granted to California under the compact, and other basin states feared that in the event of shortage, California would use its political and financial clout to continue receiving the additional amount rather than cut back to its actual allocation. With “prodding” from the federal government, the seven compact states worked out a collaborative solution that offered California some ‘cushion’ incentives while it reduced water use. “It wasn’t anyone imposing a solution,” notes Fleck. “It was this gnarly, contentious collaboration that lasted nearly a decade and ultimately led to the California Plan of 2001. And it worked: California dramatically reduced its use of Colorado River water... everybody agreed, and everybody stuck to it, and nobody sued.”

In 2007, the Upper Basin states—concerned that the BOR was draining Lake Powell too quickly in an effort to move water to Las Vegas and LA—asked the Secretary of the Interior to hold some water in reserve. The rules weren’t clear about how much could be retained in any reservoir, so once again, the seven states came together under the umbrella of the BOR and negotiated an agreement based on certain trigger mechanisms that everybody agreed on *ahead of time*. Something else came of that same agreement, Fleck says. The Compact’s legal structure requires all seven states to be participants, but there is no formal place for other interests, specifically, environmental groups. “The BOR was uncomfortable with that, and used the National Environmental Policy Act process, which requires an environmental impact study of a federal action, to invite environmental groups to come up with proposals for solving the problem. The BOR also provided staff, funding, and technical support to review and refine the proposals, which essentially called for early voluntary conservation measures. “They weren’t adopted,” Fleck points out, “but if you look at what everybody is doing today, it’s that stuff. As in the Yuma Desalting Plan, the ideas didn’t go anywhere right away, but they were there, ready to be used later.”

The processes that forged the foregoing agreements brought together large groups of people. “Part of what they were doing,” Fleck notes, “was learning how to problem solve, learning how to work in a collaborative fashion. Through this collective community process, a set of *informal norms*

have been developed, things not codified in any rule set, but driving goals that everybody shares. The most important one is, 'We're not going to let Las Vegas go dry. We're not going to let a city of two million people run out of water.' That city gets 90% of its supply from Lake Mead, but if lake levels drop below a certain point, the municipal intakes can't operate. "The other states in the basin would be within their legal rights to continue to drain Mead, but everybody is working to maintain the elevation so Las Vegas doesn't go without water."

Another informal norm involves the Central Arizona Project, which supplies water to Phoenix and Tucson. By law, the project is junior in priority to California, and as supply diminishes, the CAP could be shut down completely before California loses any of its 4.4 million acre-feet. "But that's 'crazy,'" Fleck says, given the legal battles it would precipitate, "so everybody's trying to figure out how to prop up, share shortages and curtail usage in a way that we don't have to confront this problem." (Fleck concedes that Arizona water managers don't necessarily agree that ad hoc collaboration has become an 'informal norm.') "They're desperately afraid of that," he admits.) The other informal norm to come out of the basin was, of course, the realization that completely drying the river was wrong, and that efforts ought to be undertaken to return water to the delta. How that was accomplished is a case study in collaboration. In the 1990s, scientists at the University of Arizona calculated it would take a pulse of 250,000 acre-feet every four years, along with a small base flow, to revive the delta. Remarkable ecosystem recovery had been seen there in 1998, thanks to floodwater from the Gila, so there was a push to acquire water for pulse and base flows. Environmentalists "tried the traditional approach" and sued under the Endangered Species Act, but the court concluded the Bureau of Reclamation's reach did not extend outside the United States to species being harmed by its actions. Without a "legal wrench" to guarantee environmental flows, the only resort was collaboration. In 2008-2009, just as environmentalists were hoping to 'create' water for the delta, the LA Metropolitan Water District was meeting with irrigation districts to see if the U.S. could pay for delivery system improvements in Mexico in return for a share of the saved

water. The several interests began working together, and in 2010, when an earthquake damaged irrigation infrastructure in Mexico, a deal was negotiated to temporarily store that country's Colorado River water in Lake Mead. "All these little pieces were in place," Fleck explains, and they led to an agreement known as "Minute 319," a tweak of the 1940 treaty apportioning river water between the U.S. and Mexico. The agreement is not technically an amendment, but a "shared understanding of the meaning of the treaty," that (a) solves some problems in sharing shortages and surpluses; (b) deals more permanently with Mexico's ability to store water in Lake Mead; and (c) requires any further international arrangement to include water for the delta. "It was a deal made possible because all of these people had been working together for all these years, and they could see the spaces where solutions could happen." There is no guarantee it will work, Fleck knows, because it is an experiment, but that's a salient characteristic of all the aforementioned agreements. In the absence of "grand solutions," he says, "let's move forward incrementally."

'Social capital,' that body of human beings who know the system, maintain both formal and informal relationships with each other, and develop some degree of trust and reciprocity, is as important to solving water problems as the 'physical capital' of dams and infrastructure. As political scientist Elinor Ostrom has written, collaborative arrangements can't be imposed from the outside; they emerge organically, from people with a shared interest in the problem, and existing governmental structures and inflexible institutional arrangements can either enable the process, or constrain it. To build on what's been done in the Colorado Basin, the convening/shepherding/tech support/leadership role doesn't necessarily have to be played by the federal government, Fleck says, and who gets invited to the table is crucial, since inclusiveness is often the Achilles' heel of joint process.

PANEL I: PLANNING BEYOND THE SUPPLY/ DEMAND GAP

David Gutzler, from the Department of Earth and Planetary Sciences at the University of New Mexico, defines himself as the "climate guy" on a five-member working group created last year by the

State Legislature to assess, from an interdisciplinary perspective, the current drought and the vulnerability of state water supplies. Other panel members include Janie Chermak, (Economics, UNM); Peggy Johnson, (Hydrology, NM Tech); Phil King, (Civil Engineering, NMSU); and Lee Reynis, (Bureau of Business and Economic Research, UNM). Gutzler says the three institutions have a reputation of "not playing very well together, so this is an experiment to show the legislature we really can talk to each other, and that we can get a lot more done talking rather than fighting." Cooperation has actually been happening for a long time, he says, but



"formalizing it is something that's hard to do, given the structure of higher education."

With the goal of identifying strategies for "improved resilience," the team made "a command decision" to concentrate on the water-strapped Lower Rio Grande. Gutzler offers a compare-and-contrast exercise between the present situation and New Mexico's historic drought of the 1950s. A graph of the water supply of the future is not going to look like the projected supply curve the BOR used for the Colorado Basin, Gutzler says, or even a graph of what we've experienced in the past. "Nature doesn't give us a nice, smooth curve," he advises. There are abrupt plunges and ascents of short duration, and since "we're always managing from a short-term perspective," such extremes aren't easy to plan for, or cope with. "It's hard to see a downward trend coming if, on a short

term basis, there are wet periods and dry periods going on all the time.” The 1950s drought was grim, Gutzler says. “With perfect hindsight we can look back and tell there were seven straight years of below average precipitation—*dismal* precipitation, not just a little bit below average. If we compare that to what’s happened over the past decade, just looking at the curves, I would argue that this isn’t anywhere near as bad. Three out of six of the past few years, ending in 2013, were below average,” but 2014’s numbers are only slightly below normal. “Moral number one, then, is we’re in a bad drought, but we’ve seen worse in terms of precip. We could go way back in time, half a millennium, and find much worse droughts in the tree-ring record. So there’s room here, based on history, for this to get a lot worse.”

There is one “big climatic difference” between the 1950s and the current drought, he notes. “It is a lot warmer [now] and that has hydrologic implications, especially for snowpack.” For years in a row now, snowpack numbers have been bad, and while good monsoons increase the overall precip numbers for a given year, they don’t rival snowpack for replenishing Rio Grande reservoirs. “You need good snowpack years to generate spring runoff and fill up the reservoirs. Arguably, what really ended the drought of the fifties was a really big El Niño event—two very wet years in a row, emphasizing really heavy snowpack... and that’s what we’re rooting for right now.” Another metric—annual outflows from Caballo Reservoir—shows that the 1958 El Niño added a lot of water to the river system, so that “in terms of supplying the Lower Rio Grande below Elephant Butte, things were looking good after some very dismal years.” By comparison, the last few years have seen record low outflows at Caballo, despite better statewide precipitation numbers than in the 1950s. “And just to reinforce the bad picture,” Gutzler says, Elephant Butte Reservoir is currently very low. “There’s not much wiggle room left... not an awful lot in storage right now that will save us from another bad year.” The federal drought monitor indicates the situation isn’t too dire, but “several good monsoon seasons have ameliorated the definition of drought” on the overall precip map.” Last year, NRCS streamflow forecasts for March through July were “well below normal, with a big uncertainty envelope,” Gutzler recalls. “What *actu-*

ally happened was a *terrible* year on the Rio Grande. The observed value was less than half the long term average! As we moved into the spring season, precip just didn’t happen in the headwaters of the Rio Grande, and it was really warm. Warm, dry springs are death to snowpack, and death to streamflow. Evaporation rates go up, snow sublimates and doesn’t get into the river at all, and what started off as a bad forecast turned into an abysmal forecast.” Overestimation has, in fact, been the story for the past several years, and now, NRCS predicts 2015’s March-thru-July streamflow will be worse than last year. “That’s bad,” Gutzler moans. “That’s a *bum-MER*.” The one shred of good news is that a forming El Niño may yet affect precip and temperature, as it often does late in the season.

Peggy Johnson, Principal Geologist with the New Mexico Bureau of Geology and Mineral Resources at NM Tech, says all alluvial aquifers along the Rio Grande Rift (think Albuquerque Basin, the Santa Fe area, and the Mesilla Basin) exhibit the same pattern: they consist of large alluvial aquifers with deep-flowing regional groundwater that receives recharge from the mountains alongside via the “closed systems” of dry arroyos and streams. In the floodplains, there is extensive surface/



groundwater interaction between bosque and irrigated lands, making for a very “temporal and spatially dynamic system operating at a very large and a very local scale.”

The other concept Johnson stresses is hydrologic balance, as the system compensates for the amount of recharge and discharge, and changes in storage as water levels go up and down. “This is a transient, constantly dynamic thing. Recharge happens only when the amount of precipitation *greatly* exceeds the amount of evaporation. The vadose zone is filled with soil water, a large part of the hydrologic balance. During wet times, the vadose zone is like a big sponge, a pulse of water that recharges the aquifer. During times of drought, that sponge is all dried up, and any precipitation that comes down streams and arroyos goes to re-filling the zone of soil water. It doesn’t really get down to the aquifer, and doesn’t do a lot to recharge groundwater in drought times.” It is the alluvial aquifer that provides a “stable water reserve” in short-duration dry spells, because some recharge happens from streamflow through the valleys. A warming *climate*, however, “severely impacts that balance between precipitation and evaporation, and it actually changes—and will change in a more dramatic way—the distribution of groundwater recharge and groundwater availability.” Researchers have linked a scaled-down global climate model to groundwater flow models of various aquifers—the Edwards, the Ogallala, the Columbia River, the Salt—and in every case, the result is the same. “If we apply a global mean temperature increase of just one degree centigrade, regardless of the amount of rainfall that happens, it produces a cascade of negative impacts that affect the groundwater balance.” There is a “dramatic” increase in evaporative demand—higher temperature leads to greater evapotranspiration. That produces a decrease in the soil water content, a decrease in water infiltration below the root zone, and on a time scale of decades, it means reduced groundwater recharge. Even during a short-duration drought, there is no groundwater recharge, or it is “very, very focused.”

Evaporative losses also affect the shallow water table, streams, lakes, reservoirs and snowpack, and Johnson notes that “when the natural system is receiving all of these negative impacts, the human response is to pump more groundwater to compensate for surface shortages.” Using five-year reports issued by the State Engineer, Johnson calculated the cumulative groundwater depletion occurring in New

Mexico between 2000 and 2010, and compared it to data from other basins produced by NASA's Gravity, Recovery and Climate Experiment Project. From 2003-04 to 2013, subsurface water loss in the Colorado River Basin equaled 41 million acre-feet. New Mexico, by comparison, lost 14 million acre-feet over an eleven-year period. The Rio Grande Basin lost about 4.5 million acre-feet. In per-capita terms, and accounting for differences in population in the two basins, *"that's twice the depletion rate in the Colorado basin."*

New Mexico's aquifers do have differing rates of vulnerability. During the 2012-13 drought, a number of small mountain towns and villages ran out of water, while others, Albuquerque and Santa Fe among them, continued pumping. "It is the hydrogeologic setting that governs how vulnerable any aquifer is at any time." The Rio Grande's big alluvial aquifers offer more storage capacity than thinner aquifers in the mountains or along basin margins. Recharge also varies. "Thin, shallow systems respond more quickly to, say, summer monsoons, whereas deep alluvial basins aren't going to be recharged. We're just taking water out. It's a permanent depletion." In the Mesilla Valley, groundwater hydrographs from 1996 to 2014 indicate "groundwater mining, where the rates of withdrawal are exceeding the long run average recharge." Prior to the drought, levels in a shallow well next to the river were higher in summer, due to recharge from the stream. In a deeper well, a mile from the river, water levels were higher in the winter, when the well was being rested. But by 2011, an overall declining trend becomes evident, one that "overwhelmed the resting highs during the winter in the deep well," and eventually cancelled any seasonal change.

"We're looking at a drought that is impacting the deeper wells much more than the shallow wells," Johnson notes, but the latter, too, are being impacted by drought. Recharge has declined since the early 2000s, and by 2010, even the small peaks that once characterized wet years have disappeared from the hydrograph. Water levels in the deep aquifer, which previously showed an annual oscillation of twelve to fifteen feet, are now forty feet lower than they were ten years ago. "While they may be isolated from the direct effects of climate," Johnson summarizes, "deep aquifers are very vulnerable to rapid depletion

from drought-related pumping." That has implications for water managers.

"Thinking about this problem from a water balance perspective, in a warming climate, all of the inflows into a system are decreasing, while the outflows (groundwater, surface flows and evapotranspiration) are increasing. We're going into a new paradigm, and our aquifers are going to be intensely vulnerable. We have to keep in mind that it isn't just a surface water problem, it's a long-term groundwater problem, and our aquifers are not going to solve our problems. The greatest vulnerabilities are going to be to shallow groundwater, streams, wetlands and springs, and the ecological and environmental impacts will be very significant. Deep groundwater will be subject to increased pumping, and that compounds the water level decline and long term depletion."

Lee Reynis, from the Bureau of Business and Economic Research at UNM, describes what effect such climate shifts will likely have on the economy. Drawing on work done by fellow team member Janie Chermak, Reynis begins by comparing 1950s agriculture with farms of today, specifically in Doña Ana County. Between 1954 and 2000, average farm size increased. "At the same time, you see a striking increase in the number of what may be called 'hobby farmers,' or people who are farming on much smaller acreage." The number of farm animals has decreased in the state, but the number of dairy farms increased in the first decade of this century. Though the number of operations remained roughly the same in Doña Ana, a few more are dairy farms. In terms of crops, alfalfa production increased statewide, in association with the growth of the dairy industry, and tree fruits and pecans also increased. The same trend is "strikingly apparent" in Doña Ana County. "That's going to change things a lot," Reynis says. "It's one thing if you have crops and you can leave fields fallow during a drought, but when you have *trees*, you've made a long-term, significant investment. These are lucrative export crops, and you want to keep those trees producing. In the most dire circumstances, you might cut off branches to minimize water use." Overall, and particularly for the southern Rio Grande valley, crop changes and farm sizes are going to "constrain management choices," and the decided

shift toward growing crops for export imposes "new tradeoffs."

In New Mexico as a whole, agriculture is the major water user; in the Lower Rio Grande, as much as 90% goes to irrigated ag. In the southeast part of the state, farmers are selling some of their water to the mining industry for use in fracking. In terms of New Mexico's overall economy, Reynis notes that farming has declined dramatically as a source of personal income. Today it accounts for "less than 5% of total New Mexico personal income." During the 1950s, personal income declined as a result of the drought, yet population growth saw the second highest increase since 1900, statewide. In terms of jobs, 1950 and 1960 census data indicate a decline of 17,000 in the overall agricultural labor force. That was, in part, due to mechanization, as in the ginning of cotton, "but that doesn't explain what happened



Lee Reynis

in terms of other crops, or in the use of agricultural lands," Reynis says. "What you see in the 1950s is a reduction in the acreage cultivated, a reduction in crops, and a reduction in employment."

Over the same decade, the total number employed in non-agricultural jobs increased by 58%, "so there's something else going on in this economy." Over the 1960s, as indicated by an index of private sector jobs covered for unemployment insurance, New Mexico's economy saw "an incredible diversification... The whole economy changed." Doña Ana County experienced the same sort of economic

growth, Reynis notes, but also evident has been the “continuing importance of agriculture to the Las Cruces economy.” By comparison, the current drought in New Mexico has been “compounded by a deep, very severe, and lasting economic recession” that began in 2009. New Mexico is still trying to recover. Statewide, non-ag employment numbers are down, with a loss of over 35,000 jobs, although agricultural employment remained steady, and in some cases, increased. Las Cruces didn’t really undergo a recession at all, and the rest of the county saw non-ag employment increase by 2%, and agricultural employment grow “dramatically.” In terms of water, however, the present drought has amplified agricultural use of groundwater, while metropolitan Las Cruces (and the border in general) are experiencing extensive growth. It’s a scenario that creates “lots of vulnerabilities.”

PANEL II: REPORTS FROM THE REGIONS

Angela Bordegaray, State and Regional Water Planning Manager for the Interstate Stream Commission, credits the Dialogue with “developing the social capital we have around water in the state of New Mexico.” Sixteen regional water plans have been developed over the last seventeen years with Interstate Stream Commission grants funded by the legislature. The plans address local water supply and demand, and how discrepancies will be resolved. There is also a State Water Plan, created in 2003. “Any functioning water plan program would ideally integrate the regional plans with the state plan,” Bordegaray says, but that has “been a challenge against a backdrop of sparse and variable resources both in terms of funding and staffing.”

Two years ago, the ISC formed a sub-committee to determine how a legislative allocation should be used to improve the planning program and update the regional water plans, “some of which are very out of date.” The revised approach looks at all of the plans using a common technical platform developed through an inter-agency effort by the Office of the State Engineer’s Water Use and Conservation Bureau, Hydrology Bureau, and ISC’s planning staff (i.e., Bordegaray). The methodology is based on water use by category for each region, and demand data is being updated with population projections

and an analysis of economic trends in each region “so that we can arrive at a projected future water use demand.” The methodology is “rather simplified,” Bordegaray acknowledges, but given OSE/ISC budget constraints, it should at least allow regions to identify their status and possible solutions.

“The real work of planning is the work of steering committees and stakeholders,” Bordegaray believes, “listening, talking, understanding what each other’s challenges are, coming up with solutions to the region’s water management issues.” The update committees are “not that different” from the groups that originally developed regional plans, and although various water use interests that might be included are listed in the ISC’s original water planning handbook, committee membership is not mandated by statute. “It matters most



who is at the table, who is involved in the discussions. You need a process that is inclusive, and one that doesn’t become mired in controversy so that you can’t move forward.” Bordegaray supports the initial program premise that the regions themselves can best identify who should be at the table. “My hope is that the state doesn’t have to formalize that, or go to a legislative solution.” A well-created plan should ultimately be “more implementable,” and its projects, priorities and programs are more likely to be funded. “That’s the theory. That’s the goal.”

The envisioned two-year process of updating regional plans has already been extended to three years, mainly due to the budget pinch and OSE/ISC staff changes. The program goal remains, however: to integrate the revised regional plans with the state plan. “Developing representative stakeholder steering committees is no small task,” Bordegaray admits. “It takes time for people to build trust...[so]

building steering committees is taking longer.” Meanwhile, funding is uncertain. “I don’t have a program budget. I get different dribs and drabs of legislative appropriations. That makes it hard to run a program.”

During the past year, Bordegaray and a roadshow of hydrologists, facilitators, demographers and economists visited each planning region. Some groups were “already up and running, and some needed more help tailoring the approach for outreach and steering committee development. That’s my passion. I’m a political science major. I studied people and processes, and I know this is as important as the hydrology and the data. What can’t get lost is keeping people informed, and communicating with them.” Personally, Bordegaray thinks that in some regions, “the bigger players have controlled everything.” What she hopes is that the planning process will provide “opportunities for people to have access to how water decisions are made... My greatest goal with this program is to bring more people into the process... We all know it leaves a bad taste when there are certain values that aren’t represented... Planning is about people participating.” Toward that end, Bordegaray says she’ll continue to defend regional determination of steering committee membership. “The ISC is not going to be the arbiter of who is on your regional committee.

It’s an exercise in democracy, so good luck with that.”

Ramon Lucero, of the El Valle Water Alliance, a group of twelve mutual domestic water consumer associations along the western edge of San Miguel County and the Pecos River, says the Mora-San Miguel planning region has held three meetings in the past year to identify area stakeholders. The staggering list includes the City of Las Vegas, the City of Santa Rosa, and the Villages of Wagon Mound, Vaughn and Pecos; more than a hundred and fifty acequias, each with an individual governing board and a unique way of operating; over forty mutual domestic water consumer associations; an alphabet soup of state and federal agencies; numerous recreational facilities; multiple watersheds; three Soil and Water Conservation Districts; three county governments, Mora, San Miguel and Guadalupe, and their offices of emergency management;

Ramon Lucero



the North Central Economic Development District; and representatives of ranching and business. The planning region encompasses the eastern slopes of the Sangre de Cristos and the high plains, plus two river basins, the Upper Pecos and the Canadian.

The regional water plan, completed in 2005, projected sufficient water supply to meet demand in the Upper Pecos, even under drought conditions, but Lucero says today, demand has surpassed supply on a tributary, the Gallinas River. "The City of Las Vegas has come close to running out of water many times," he says, and sharing with the acequias poses "a huge challenge." Under medium conditions, the water plan predicts adequate supplies on the Canadian, but during drought, insufficient supplies are anticipated on at least two tributaries. Mora-San Miguel planners must deal with a large number of declared groundwater basins that adjoin or lie within the region: the Canadian, the Estancia, the Upper Pecos, Roswell, a portion of the Fort Sumner, the Lower Rio Grande, the Rio Grande and Tucumcari. There are also undeclared groundwater basins in San Miguel and Guadalupe Counties. The 2005 plan simply estimates the region's groundwater supplies, noting areas where data is needed. "Some challenges and issues will be similar across the regions," Lucero surmises, but ones of particular concern to Mora-San Miguel are drought vulnerability, watershed management, the Pecos River Compact, water rights litigation and water rights protection, data gaps, antiquated infrastructure, declining population, water quality issues on the Pecos and Mora, and groundwater quality issues with arsenic and fluoride. Another challenge

will be identifying policies, programs and projects to be funded. "All of the local governments in the area have infrastructure needs, and it will be difficult to try to prioritize," Lucero notes.

Adrian Oglesby, from the Middle Rio Grande region, wasn't involved with regional water planning during the first round. He worked for one of the Pueblos, and says he advised them to "stay the heck away from this process in the interest of protecting their sovereignty and their long-term water right claims." Now, as a board member of the Middle Rio Grande Conservancy District, he serves on the Mid-Region Council of Governments' Water Resource Board, and was appointed its chairman this year. On his first day as chair, he was asked to "pull together the steering committee for the regional water plan update." After a series of meetings between the Water Resource Board, the volunteer group known as the Water Assembly, and members of the public, a list of prospective committee members was submitted to the Mid-Region Council of Governments. "Our list did not survive attack," Oglesby says. "We had a member replaced, and two members added, one to represent flood control interests, and [one from] commerce and industry." An idea

Adrian Oglesby



that was considered but later rejected by the COG was "the notion of creating advisory seats for interest groups... We have this entity, the Water Assembly, that was developed to do regional water planning,

and we were having difficulty figuring out how to mesh [it] with the steering committee. I still think we have to resolve that issue. The ideal was to maybe create 'side seats' for the Water Assembly, for commerce and industry, for NAIOP, for environmental groups." The Water Assembly is "still alive and vibrant" Oglesby concedes, and there have been many discussions about how to integrate it into the highly structured update process.

"A lot of our conversations come back to what are seen as voids in the process. There are concerns that [the update will] be using diversion data, not consumptive data; concerns that we're not really going to be accounting for climate change and increased variability of dramatic rainfall events and such." That has led to discussions about "how the Water Assembly might somehow fill those voids if it's not wrapped into the formal regional update process. I find that exciting because, given that the current process is fairly regimented and has tight sideboards, this is a way that we can push the conversation about water planning forward, introduce ideas that maybe the Interstate Stream Commission doesn't have the time or the money to think about. Maybe we can *supplement* the ISC's goal and do what they can't. Climate change is something you can't talk about in certain circles, but the Water Assembly can talk about it all they want."

Oglesby notes that both UNM's Utton Center and New Mexico First have come up with a number of recommendations to improve water management in the state. Included are such "obvious" suggestions as providing more staffing and funding for the ISC planning effort, and giving "teeth" to regional water plans. But the most valuable suggestion, Oglesby believes, was New Mexico First's admonishment to "just be consistent; just fund [water planning] on a regular basis! I hope the state legislature takes that to heart."

Speaking philosophically, Oglesby thinks the State Engineer should "control our expectations." Currently, water planning is "a very limited exercise," he says. "It's not what the people who wrote the first plans thought it would be, and it is disappointment in those expectations of ours that I think is causing a lot of tension around regional water planning now. I want to point out what we're really being asked to do, what the sideboards have laid down. There's a whole list of [reasons for]

doing regional planning in the [ISC] handbook, and the first five or six are things that the state is going to do for us—in providing water data, determining what our future demand is, how to meet demand with supply... The one thing that we're going to be doing is identifying strategies, alternatives, projects, programs and policies... I want you to think outside the box that this is just a list [of fundable projects] for the Water Trust Board. This could be a list of policy changes you think your region needs. Start thinking more broadly, because it doesn't cost money to make those kinds of suggestions. It just takes imagination." As to the perception that in providing the data, the State Engineer will "force the numbers on us," Oglesby says, "It's clear they want *us* to provide *them* with as much information as we have. So if you're concerned that they're not looking at climate change data, *provide them with your climate change data...* the update process, although very conservative in its approach and very moderate in its funding, [isn't] quite as tight as we perceived... Regional water plans aren't just for water management. These are, in my mind, documents of faith... If you want people to invest in New Mexico and believe it is taking its water future seriously, regional water planning is a great way to demonstrate that, and to encourage outside economic investment, because as it stands now, even New Mexicans don't quite have faith in this process. I'd love for the regional plans to become documents of faith for all of us."

Dick Smith, a representative of the Lower Pecos Valley region, says an acquaintance once dubbed him "the flood guy in a county where it never rains." In the past two years, however, Chaves County has seen "a lot of flooding." Of the past 136 years, the three wettest were in 1884 (28.7"), 1941 (32.9"), and 1986 (24.8"). The driest were 1910 (4.97"), 1956 (4.35"), and 2003 (2.09"). The record reveals a 3.2" decline in rainfall over the hundred-thirty year period, but, as Smith warns, it's difficult to perceive a trend in climate given the more evident *seesaw* of weather. Neither is there an unambiguous correlation between flooding and excessive rainfall. In 2003, that driest year on record, the county experienced "severe flooding," and Smith, a volunteer for the rainfall measurement

network CoCoRaHs, says he's seen a five-inch difference between locations barely three miles apart. On May 24, 2014, he documented nine inches in twenty-four hours, not including what had topped his over-full gauge. Since NOAA deems 5.3" of rainfall in twenty-four hours a 'hundred-year storm,' Smith declares, "we had a *thousand-year* storm." At Avalon, the last dam on the Pecos River, water ran around the auxiliary spillway. The reservoir at Brantley held more water than it had since it was built in 1987: with entitlement storage of around 43,000 acre-feet, some 83,000 acre-feet remained as of January 2015. The storms of 2013-14 filled all of the reservoirs on the Pecos. At Red Bluff, a private dam twenty or so miles below



the state line, there were inflows of 30,000 cfs. "This is in karst topography," Smith explains, and a giant sinkhole developed just below the spillway. "They were afraid the whole reservoir was going to go." Efforts to grout the damaged structure continue, and meanwhile, "New Mexico is storing Texas water" at Red Bluff, to keep it from disappearing down the sinkhole. "It's a first," Smith says. "I don't believe Texas has ever asked us to store water." An automated gauge on the river between Highway 70 and Roswell logged 22,000 acre-feet of discharge between September 10th and 14th but there were numerous rapid spikes and declines in the readout. "When you get a flood, you get a lot of debris—tree trunks and rocks—" Smith says, and that causes the recorder to jump. "So we're not really sure how much water went by here."

Anxiety over streamflow stems directly from an interstate compact that "basically enshrined 1947 conditions" on the Pecos River. No prearranged amount of water must be delivered downstream. Instead,

"half the water that comes through Sumner Lake, plus half of the flood inflow between Sumner and the state line, belongs to Texas." After the agreement was ratified in 1948, New Mexico's State Engineer extended the northern boundary of the Pecos basin and issued well permits to irrigate some 17,000 acres of new farmland. That additional groundwater pumping ultimately diminished river flows, and Texas sued. In 1987, the Supreme Court ruled New Mexico had violated the compact, and owed Texas 340,000 acre-feet of water—or a billion dollars. New Mexico paid \$14 million out of its Interstate Stream Commission Irrigation Improvement Fund, and groundwater now supplements river flows to ensure deliveries to Texas. At the beginning of 2013, New Mexico had accumulated a Pecos Compact credit of about 105,000 acre-feet, due to the exceptional precipitation, but no one is convinced the 'drought' is over. "There hasn't been much recovery in the water table," Smith says. "We're still worried."

PANEL III: PREPARING FOR NEW REALITIES

Aron Balok, Superintendent of the Pecos Valley Artesian Conservancy District, labels 2011 and 2012 some of the driest years ever for his region. "You have to go to tree ring data to find a time that it rained so little." Then, as Dick Smith described, the dryness was followed by near-record flows in 2013-14. Planning for such variability seems overwhelming, but, Balok declares, "The thing that frustrates me more than anything is when we do nothing. We talk about maybe forming a committee to talk about it, and appoint a committee to appoint a subcommittee that will form a coalition to talk about it, and when they're done talking about it, they'll come up with a plan to plan another planning committee. I really wish we could just pull the trigger."

That may be as apt a metaphor for the Pecos Basin as any. Its artesian aquifer was discovered a hundred years ago with the drilling of a single, gushing well. "Within ten years, there were about 1200 wells just like it," says Balok. Hydrologists of the time judged it an "inexhaustible resource," but so much water flowing incessantly onto the ground created a serious problem, one that PVACD was created to deal with.

“What started the panic was the fact that the Bank of Wichita would not make ag loans... The soil was so saturated it wasn’t suitable for farming. There was too much water.” A law was eventually passed to prohibit water waste, but there was nobody to enforce it, Balok says. The region pressed the state engineer to regulate well drilling, but he lacked authority to do that, so Roswell locals fought for a law giving the OSE jurisdiction over groundwater in any aquifer with clearly defined boundaries. To test the new rule, the same activists soon drilled a non-permitted well, the OSE sued, and the case went to the New



Aron Bolok

Mexico supreme court, which upheld the state’s authority over groundwater under the premise that pumping can affect river flows. Thus the doctrine of ‘conjunctive management’ was born, a standard eventually adopted by eleven western states.

Now the only thing the Pecos Basin needed was adjudication, which Balok describes as “a court proceeding where the water right owner is the defendant.” To achieve it, Roswell area claimants basically “sued themselves so they could prove they owned the water.” Once that difficult process was accomplished, metering actual usage was the next hurdle. Alluding to the testy independence of farmers everywhere, Balok admits, “The mentality was, ‘I know that I’m not overusing water, but I don’t trust you.’” Eventually, with buy-in from everyone, PVACD took on the purchase, installation and maintenance of some 1500 water meters.

It seemed like a good system until “it quit raining and Carlsbad, downstream,

would say you’re taking our water,” recalls Balok. So the two districts devised a settlement agreement, one that failed straight-away “because the 2011-2012 drought was drier than anyone imagined it would be.” The agreement involved adding well water to the Pecos River to ensure delivery to both Carlsbad and Texas, but with the drought, groundwater levels began to fall, and pumping couldn’t produce the necessary flows. Carlsbad Irrigation District petitioned the State Engineer to administer by priority, but that didn’t happen. Instead, PVACD and Carlsbad tried, unsuccessfully, to negotiate another agreement. Meanwhile, PVACD doubled its mil levy and used the money to fund a water bank, to “take better advantage of years when we have a surplus. The concept is that we’ll be able to own enough water rights so that when times get hard, we can take them out of production and lessen the effect on our groundwater.” The water table is monitored closely. “We can tell when it’s falling; we can tell when it’s rising. We can use that hydraulic information to tell us when we can put those [banked] rights into production, and when we have to pull them out of production.” There are also plans—no details yet—to diminish the nearly three-foot-per-day evaporative loss at Brantley reservoir by employing some of the acquired surface rights to do aquifer recharge and recovery, utilizing karst formations prevalent in the region.

Steve Harris, Executive Director of Rio Grande Restoration, and self-described “river worker,” echoes keynote speaker John Fleck in thinking that much of today’s water policy is left over from a time when “water development was the imperative... We’ve operated on what Stuart Udall, in his book, *The Quiet Crisis*, calls ‘the myth of superabundance.’ The new reality we’re talking about is our growing realization that water supplies are *not* superabundant. They never have been... and sooner or later, we run into a wall because there’s not enough water to go around.”

Harris asserts that New Mexico is not “a pure prior appropriation state,” for its institutions and agreements don’t always function as designed. What we do have is “a rich heritage of at least 400 years of sharing water, not just among human users and different sectors of the economy and community, but also with wildlife. It’s this last idea, that the environment is



a water user, is... part of the new reality.” Harris lauds the collaborative work that restored flows to the Colorado River delta, and would like to see similar common-cause endeavors in New Mexico. A few years back, reminiscent of Luna Leopold, Harris says he advocated for “a water management philosophy” to guide policy. Later, he “figured out why that wasn’t inherently appealing to people. We don’t quite have an agreeable definition of what ‘philosophy’ is. People heard the word and thought, ‘ideology,’ the same old oppositional politics we’ve been doing. Philosophy is an honest search for the truth. That’s a little squishy to all of you who work in science, but it’s actually a very practical field of endeavor for water resources because under the law, we’re to consider the impact of appropriations and transfers and so forth on the public welfare. If ever there was a philosophic concept, I think ‘*public welfare*’ qualifies.”

Harris references several current issues that illustrate the need for philosophic guidance. The first is saline aquifer mining in Sandoval County. “Utilizing saline and fossil aquifers for water supply is something we’ve been doing for a long time. But in an era when sustainability is one of the things we have to think about as a philosophical principle, does it make any sense to build Scottsdale, New Mexico on an aquifer with a half-life of perhaps twenty or thirty years? Rather, what might guide our management of saline/fossil aquifers like this one, according to Leopold, is that they could be our drought reserves... to base home development on water that’s

going to run out is absolutely foolish, philosophically and practically.” Another issue Harris addresses is groundwater pumping that is intercepting surface flows in the Lower Rio Grande. During the drought of the fifties, groundwater pumping sustained agriculture in the lower RG basin, and eventually, ample rainfall revived the shallow aquifer. “That doesn’t seem to be working in these more recent droughts,” Harris says. “I think this points to a need for some third party, to some really trusted science, to not having everybody out there with their own expert, finding information they think supports *their* position...” There needs to be “greater reliance on conjunctive management,” as well. “We do have legal tools to do conjunctive management, but we haven’t fully realized the benefits of that.” In Colorado, groundwater sub-districts are buying water rights from willing sellers until they can “get back to pumping only what’s being recharged,” in lieu of the more painful remedy of priority administration. A third issue in which Harris notes a lack of philosophical thinking involves water development on the Gila River. New Mexico has an opportunity, under the Arizona Settlement Act, to take 14,000 acre-feet of water from the Gila. “But where is the need or the purpose for such a project been demonstrated?” Harris asks. “It hasn’t. We’re about developing water just because that’s what we’ve always done, and just because we’ve got an opportunity to do it. Philosophically I liken this to what we tell our kids: Just because you *can* do it doesn’t mean you *should* do it. Here’s a stark contrast between an opportunity to protect a unique environment, or to go ahead and develop it like we did in the 1890s.”

The pending application to pump groundwater from the St. Augustin Plains is yet another matter to which Harris would apply the philosophical yardstick. “This is an occasion where the priority doctrine actually works in favor of conservation. So far, the permit to speculate in water rights has been denied simply because an actual beneficial use has not been demonstrated. It also points out to me that we’ve got some issues coming up about privatization of what is, after all, a common pool public resource.” Finally, Harris references regional water planning itself. “In the first round, there was a whole bunch of optimism, and a lot of people

from a lot of sectors came and participated. It was an exciting time, the sort of



table-setting that went on in the Colorado River Basin, and I think it is a real key to the future if we’re going to make some fast, appropriate, imaginative and creative changes, the sort of forum where we get together and discuss our philosophy. I think we’re wasting an opportunity right now by ‘narrowing the sideboards’...we’re not really exciting people in the regions. It’s technicians and water managers that are coming to the table, but good, creative solutions to water conservation, protection of local environments, and fulfilling community desires is not going to happen in this round of planning.”

Andy Nuñez, State Representative from Doña Ana County, doesn’t mince words: “In all my years in the legislature, I’ve always told them water is the biggest problem we have... We’ve spent money on a lot of other things, but not on water. We need to spend more.” Drought has had a big impact on Nuñez’ home ground, the Hatch-Rincon Valley. Last season, farmers there had to pump from the salty, shallow aquifer to maintain their crops, because Elephant Butte Irrigation District was able to deliver only six inches per irrigator. “Normally, we get three acre-feet.” At the same time, studies show that Lower Rio Grande Basin groundwater levels have dropped as much as 150 to 200 feet in some places. Last year, geologists identified a largely untapped aquifer (the Palomas) just outside the RG basin boundary, west of Caballo Reservoir. With a loan from the New Mexico Finance Authority, a test well is being drilled, and Nuñez says there are encouraging signs the aquifer could produce several thousand acre-feet per well. The water would be pumped into Hatch-Rincon irrigation canals in times of drought, al-

leviating the need to use the more saline RG groundwater. If the salt problem is not resolved, area farmers will go broke, Nuñez says, and New Mexicans will be deprived of the region’s most famous export, Hatch green chile, as well as the onions, pecans and alfalfa produced there.

A scoping study on groundwater banking is also underway. According to University of Arizona Professor Bonnie Colby, who is conducting the study, “Enforcement of adjudicated groundwater limits is vital...the integrity of water rights systems and the financial value of water rights may require that junior rights be curtailed during times of shortage...Given the necessity, tightening water administration and water banking can provide adaptation tools that protect water rights and the regional economy through facilitating voluntary water trading. A water bank is a legally authorized entity that facilitates transfers of water on a temporary or intermittent basis through voluntary transactions.” Such banks have been established throughout the country to provide a more reliable water supply in dry times; to allow water users to deposit an unused portion of their entitlement and earn money leasing it; to offer junior right holders a means of acquiring water when their right is curtailed; and to help meet delivery requirements of interstate compacts.

Nuñez believes the State Water Plan needs to be completed, and that it should incorporate the work done on regional water plans. He also urges the state engineer to move forward with adjudication, “which has taken a back seat,” and notes that had EBID’s diligent records been utilized, the process might have been accomplished “a long time ago, and with a lot less money.”

John D’Antonio, Chair of the New Mexico First Implementation Team, says NM First is non-partisan public policy organization that in 2014, assembled some 300 participants from 31 counties and all water interests, to develop a set of consensus recommendations for policy change in water issues. (Background documents on the various recommendations and a final report can be accessed through the New Mexico First Town Hall website.) Over the subsequent 18 months and through two legislative sessions, the group will promote those consensus items via legislation, funding

recommendations, and water policy memorials. The “big topics” are water planning, both regional and state; watersheds and ecosystems, including forest thinning; legal issues encompassing shortage sharing and water rights; new sources of water (brackish, produced, and reuse/recovered water); water funding; water conservation and water quality.

Stable funding for water planning is a foremost goal, D’Antonio says, “at least making sure that it becomes a budget item and is enhanced over time.” Also under water planning, NM First participants recommended a future forum and a white paper comparing New Mexico’s planning process with those in other states. “Other states have a far more robust planning effort, and planning—if you do it right—turns into action.” Under the category of scientific research, funding will be sought for the Water Resources and Research Institute at NMSU to develop a statewide water assessment, and to investigate water resilience during times of scarcity; brackish water development and aquifer characterization; and produced and reused water resources. Under watershed restoration, the emphasis will be on thinning forests to prevent catastrophic fire via passage of a

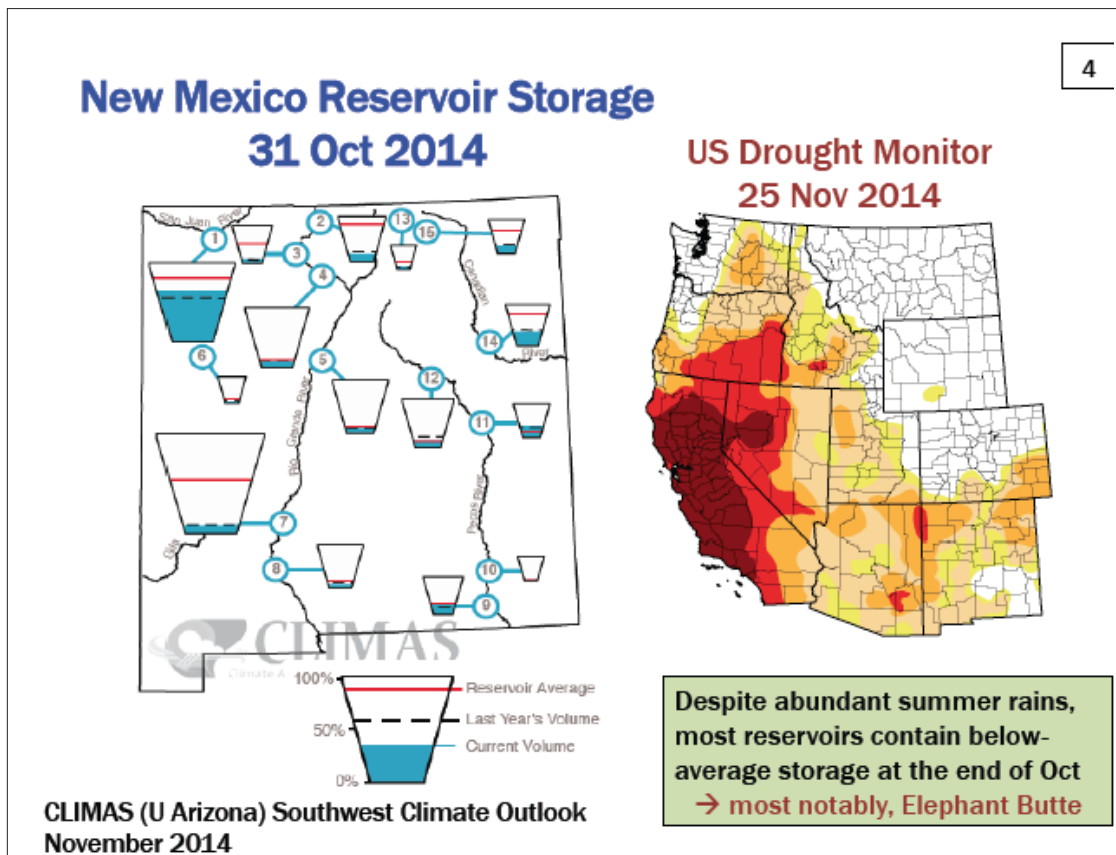


Forest and Watershed Restoration Act. Under the category of water rights, the group promotes community-driven solutions to water shortage while continuing the adjudication process. “There are a lot of shortage-sharing agreements out there that are in place and working,” and New Mexico First wants to ensure that the Office of the State Engineer is using the best practices. D’Antonio believes that includes a role for Active Water Resource Management. “Trading water rights and letting the

market work is really what AWRM is all about.”

There are still twelve active adjudications, six in state court and six in federal court, D’Antonio reports, and little progress is being made because they are “funded to the tune of keeping their heads above level.” Much of that funding was tied to the Severance Tax bonding capacity, and when oil and gas revenues came down, “the adjudication process actually slowed up.” One bill at the 2015 legislative session aims to improve New Mexico’s water funding processes through public/private partnerships. Staff positions within the state Environment Department will be established to improve coordination between grant programs and small-to-mid sized communities. “The feeling was that the funding was going to big entities...[and] these ‘navigator’ positions should help smaller communities apply.” The measure calls for a uniform application form, as well, so that the best funding for that type of project can be identified. As for legal research, NM First supports funding UNM’s Utton Center to look into barriers to aquifer storage and recovery; possible impacts of Interstate Stream Agreements; the existing authority for and possible impacts

to existing water rights of tapping brackish water supplies; and clarifying the ‘use it or lose it’ concept, (although D’Antonio believes that term “gets a little over-played.”) There is also the potential for legal research into altering future adjudication processes, and on providing forums regarding issues like aquifer storage options, and habitat restoration to prevent endangered species conflicts. Finally, NM First advocates providing adequate agency staffing to address groundwater protection, and the development of rules and regulations to safely enable the use of ‘produced water’ in the oil and gas industry.



Slide presented by UNM’s David Gutzler, displaying the sorry state of our reservoirs.

Food for Thought

FROM LISA ROBERT

Lisa Robert has been part of the Dialogue since its inception. She has been our editor, researcher, and leader. Her perceptions combine our history, our struggles, our attitudes, and what has been best about relationships to each other and our scarce water resources.

John Fleck suggests that “inflexible institutional arrangements” like prior appropriation are what stand in New Mexico’s way when it comes to building the social capital to revamp water policy. Yes, there’s plenty of unshakable dogma with deep roots here, including the precept that growth is always good, and economic development trumps everything. There’s also an apparent grudge against the environment, which has no guarantee of water, and as in the rest of the west, we’re comfortably at odds over private property vs. the public good. But none of that has stifled group effort here, and rather than concede we’re backward and bullheaded, let’s briefly inventory some of our own collaborations.

Fleck’s “fuzzy process” of “people with skin in the game”, working together over time to reach some confluence of opinion, is a pretty apt description of regional water planning as it evolved in New Mexico. Back in 1997, this was the only place in the country where such a pioneering approach was being tried. If more recent collaborative efforts to solve water problems are flourishing beyond our borders, it might even be because water planners in the Land of Enchantment marked the trail so well. Collective processes don’t always result in visible happy endings, but grind your collective way to a plateau—rancorous and incomplete as it may be—and you have indeed found middle ground, an informal norm, a margin where strategies can sprout as conditions dictate. Measured in terms of “projects, programs and policies,” regional plans did hit a few brick walls, but on the “social capital” side, New Mexico reaped a phalanx of thinkers water-savvy enough to start asking good questions. Moreover, they’ve not faded away; they continue to contribute from a myriad of venues, wherever the basic relevance of scarce water needs to inform

public action.

Examples of flexible water management aren’t completely novel here, either. We’ve moved water across difficult institutional boundaries in times of crisis. ‘Creative accounting’ is a well-used tool, and ‘color-coded’ water is always getting traded, leased and just plain re-labeled to bypass hoary restrictions. Such swaps and lending arrangements form a less-obvious tier of water policy throughout the west, surely wherever the feds have \$kin in the game. How often has the Bureau, the Corps, or Fish & Wildlife convened players and funded meetings when a particularly momentous decision had to be made? Ever hear of URGWOM, or the dreadfully persistent Endangered Species Collaborative Program? And neither does the Colorado have a corner on transformational float trips! How many New Mexican water wonks have rafted the Rio Grande with Uncle Steve, arriving at Sunday afternoon’s takeout wind-chapped and sunburnt, former ‘allies’ and ‘enemies’ with a budding sense of affinity?

Yep, we’ve endured plenty of ‘public input’ and ‘ad hoc’ over past decades, and just like in Arizona, bureaucracy grumbles at the burden. ‘Informal norms’ are a pain in the rear, like decision-making always is when it involves ordinary citizens who don’t have responsibility for keeping institutional hardware functioning. But the great thing about fuzzy process is that even during blistering battles over passing minutia, *collaboration happens* when all those minds are assembled in one place, confronted with an issue that matters to each. Practitioners like Aron Balok know that preparation for ‘new realities’ has been going on for years, and *will* go on, with every fresh upset to the ‘planning’ cart.

It’s difficult, but not *that* difficult. Just keep Jason John’s points in mind. Resolve to learn a little about each other. Meet regularly, whether there’s a ‘crisis’ or not. Strive to accommodate the grassroots. Build on what you’ve learned. Make a long-term commitment to continue. Uncertainty wants not a calcified map, but an ongoing practice that fosters relationship, allows for the circulation of emerging data, and supports continuous appraisal of evolving conditions in real time. From such soil, tailor-made partners and sage actions arise. Process is the plan.

Thoughts on Planning and Conflict in the Context of Climate Change

FROM JOHN BROWN

John Brown is a former executive director of the Water Dialogue, and a long-time board member as well as an active participant in the Middle Rio Grande Water Assembly. He has written extensively on public process and planning.

Overwhelming evidence persuades me that we face serious global natural and social consequences unless we can rather quickly muster the political will to reform our political and economic institutions and develop the capacity to address the cascading impacts of climate change. In New Mexico, its effects on our water supply are among the most critical. Responding effectively will require a significant mobilization of public resources. But more important is renewing within ourselves a sense of public purpose – of agency or efficacy as citizens in a democracy. The current toxic distrust in our polity bodes ill for the short-term success of such efforts, particularly on a national (or global) scale. But possibilities exist at more local levels, and the effort under way to update regional water plans may provide a template for building the social capital we need in the longer run to tackle the larger issues of a changing climate (of which assuring a sustainable water supply for New Mexico is only one manifestation).

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DIALOGUE

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A HUGE part of annual Dialogue meetings: Break times and lunch. Would members even attend if they couldn't "dialogue"?



Facilitator extraordinaire Lucy Moore checks last minute details with panelists. She runs a tight ship loosely.



Questions and comments are an integral part of Dialogue annual meetings. Audience participants are never shy and never uninformed.



Current President of the Board Jason John "bookends" the annual meetings by opening and closing the long day of speakers and panels.