

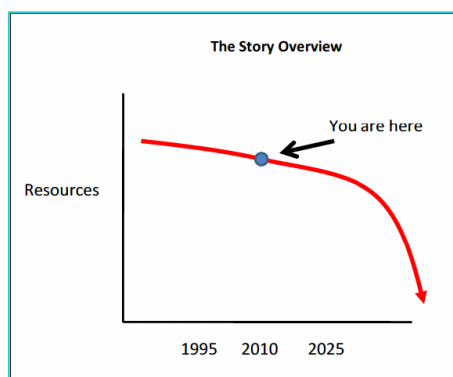
2025 ... A Water Prophecy? 14th Annual Water Assembly

Policies & Permits - A few observations

Elaine Hebard
June 12, 2010

As noted in the agenda, the Water Assembly asked several area experts to look ahead to 2025 and assume no new policy changes from 2010. The policy group's work is included in the Background Appendix handout.¹ I want to briefly highlight a few policies --where we've been and where we're headed-- to provide some food for thought for the afternoon's discussion.²

In reading the material prepared for the meeting, what struck me was how similar sounding the various predictions were. Even coming from quite different perspectives, the future doesn't look very bright. The graphic said it all:³



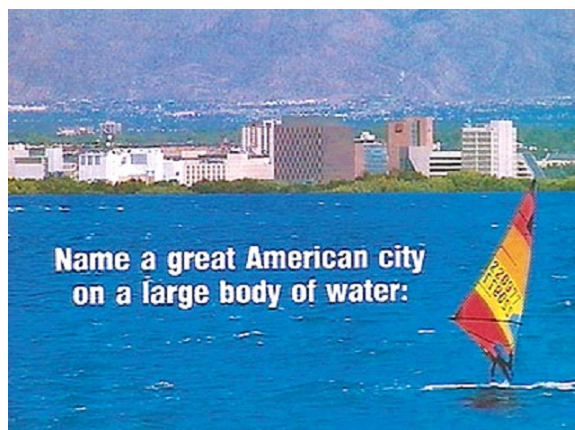
What the future stories suggest is that by 2025, we still won't have heeded the lessons learned during our lengthy regional water planning process. We still won't have *balanced use with renewable supply*.⁴

Many reasons exist as to why the present situation has devolved to what it is now and will likely continue to be if we continue to ignore the lessons.

Status Quo Inertia

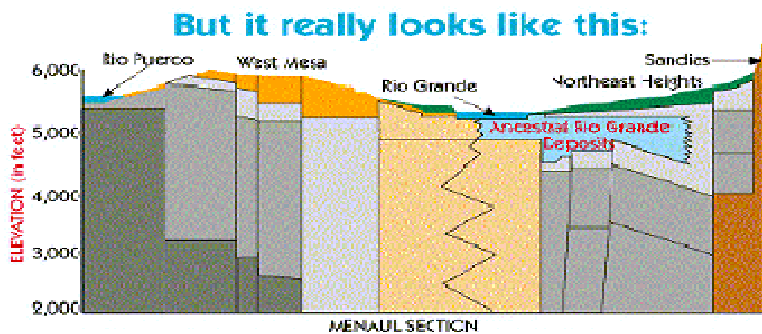
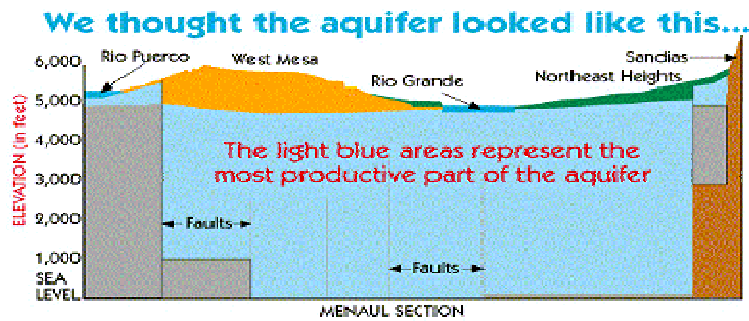
- it's easier to believe that life will continue as it has been.

In the 1970's and 80's we announced to the world that we had an unlimited supply of water.



Yes, that's Albuquerque on Lake Superior, with the Sandias behind.

By the early 1990's, that myth was discredited -- at least in theory. Our understanding went from the dream aquifer to a much more complicated picture:⁵



ABCWUA⁶

With that came some hard facts:⁷

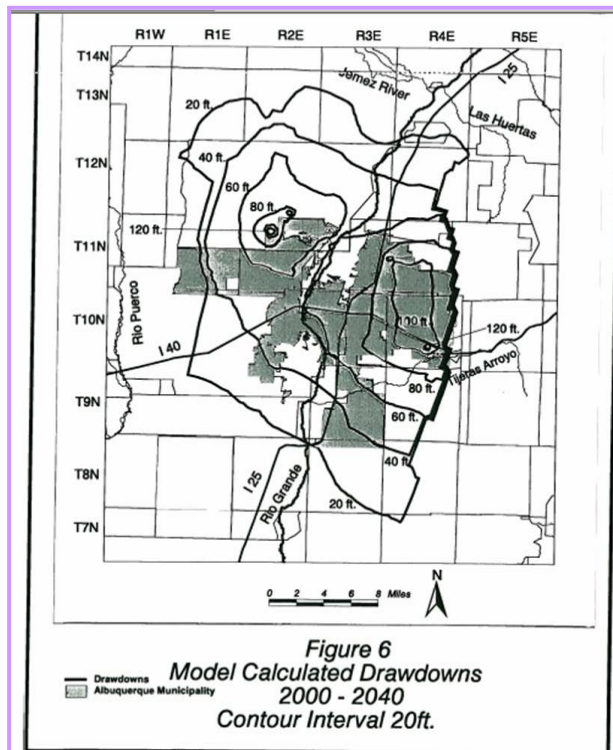
River Interaction with Aquifer

“...simply stated, for every one gallon of water you pump from a well, ultimately there will be one less gallon of water flowing down [the] river... This may take a long time before it occurs, but basically this is reality. It's also interesting that after you cut off a well, you [still] see the impact on the river.”

Former NM State Engineer Tom Turney, speaking to the Middle Rio Grande Water Assembly, June 2005

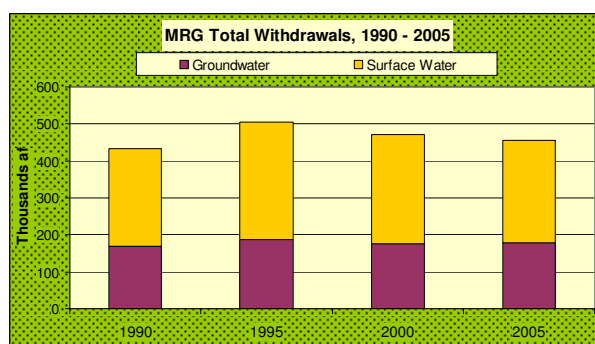
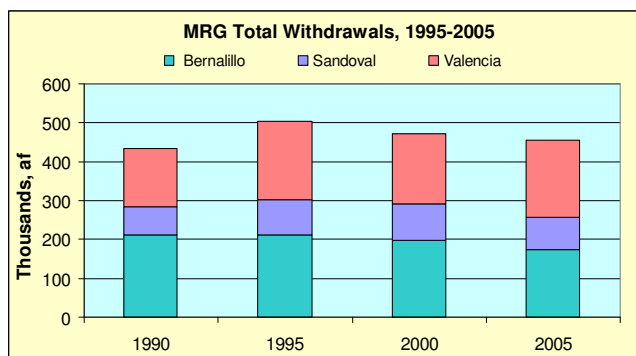
In 2001, the Office of the State Engineer modeled drawdowns of the Albuquerque aquifer due to our past pumping:

The map shows the total drawdowns which will have occurred in 2040 since predevelopment times (1901). A fairly large zone of 200+ feet drawdowns is shown east of the Rio Grande, which illustrates the sum of historical drawdowns (already exceeding 100 feet in some areas) and future drawdowns that could theoretically be caused by the pumpage of the City of Albuquerque and other groundwater users in that area. These drawdowns are especially troubling when one considers the possibility of land subsidence which large water level declines can create. Our best, although highly uncertain estimate is that land subsidence may start when water levels drop more than 250 feet below predevelopment levels



Documentation of the Administrative Groundwater Model for the Middle Rio Grande Basin, TDH-99-3, Peggy Barroll, September 2001⁸

So we conserved and reduced our overall urban usage, offset to some extent by growth and other new users. Has it been enough?



New Mexico Water Use by Categories⁹

The region withdrew nearly 23,000 af more water in 2005 than in 1990. Some 58% of that increase was due to groundwater withdrawals and 42% to surface water ones. Reported withdrawals by the OSE do not include those for "non-beneficial" uses such as riparian evapotranspiration and open water evaporation.¹⁰

Have we changed sufficiently to avoid the drawdowns modeled? I think not. To do so would mean taking larger steps toward changing our lifestyles. The easy steps have been taken -- the low hanging fruit has been picked.

And yet we must commit to the harder steps. Consider the unknown impacts occurring right now in the Gulf of Mexico due to the oil well blowout. We can't begin to imagine what the aftereffects will be in 5, 10 or 20 years -- after the gusher is tapped. Isn't that like our aquifer here in the MRG? We don't really know what the effects will be if we continue to pump as projected for 100 years.

If the OSE's model projects out to 2050, what happens in 2051? 2061? Do aquifer levels continue to decline? Do we have large-scale land subsidence? What then?

Moreover, groundwater levels are not our only constraint. Under the Rio Grande Compact, we are limited as to how much of *the river* we can deplete, at a time when we anticipate less surface water flows due to climate variations and/or drought.¹¹

Meanwhile, the Albuquerque Bernalillo County Water Utility Board has been told that the entity has a water portfolio sufficient to serve 900,000 people in perpetuity.¹² Prospective bond purchasers are given the same news:

"The Authority believes that water received pursuant to the contract for San Juan-Chama water and the rights to Rio Grande Basin water will be sufficient to support, in perpetuity, population of more than 900,000 using 150 gallons per capita per day with 50% consumptive use and 50% return flow."

RBC CAPITAL MARKETS, March 2008
www.fpr.net/fulfillment/pdf/post_os_albuquerque_nm_water_utility.pdf

What the Board hasn't been told is that the utility does not own sufficient water rights to offset the permits it has been awarded, and that it will cost tens if not hundreds of millions of dollars to purchase those water rights. This is after the Utility has piled on such monetary indebtedness that currently they are bonded to capacity, leaving little to no room for flexibility should the need arise.

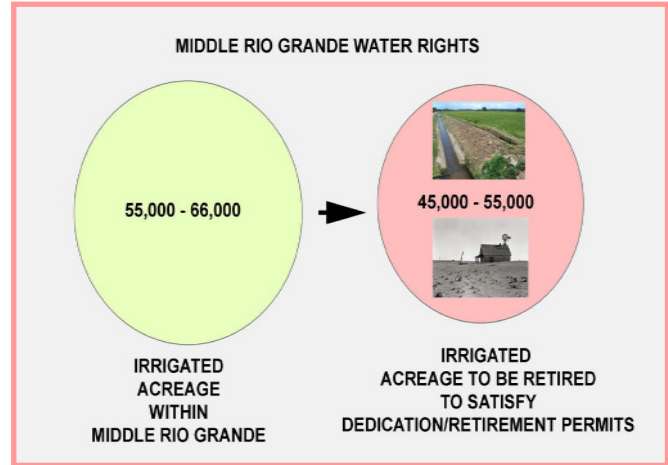
Plans are still being issued in expectation of new growth. Consider the example of funds being spent to assist an industry that has yet to financially commit to transferring here from Austin by building a pipeline to Cordero Mesa, aiming to help development to the west of Albuquerque that has been called a "pipe dream" by its major lender.¹³

At the same time, the utility gives little weight to plans that would recycle and reuse a much larger percentage of our water. Nor would there be credit given by water regulators for such a change in policy, at least not at this time. The structures established to administer water are helping to maintain the status quo.

One Possible Future Scenario

- The three regional water plans between Otowi Gage and Elephant Butte Reservoir estimate an additional MRG water demand in 40-50 years in the M&I sector of about 120,000 afy
- If Acquired Only Thru Transfer of Senior Water Rights
 - Would require about 57,000 acres of such rights to be transferred.
 - Estimates of total amount of land currently irrigated within the MRGCD are between 50,000 and 65,000 acres.

Rolf Schmidt Petersen, ISC MRG Basin Manager¹⁴



Tom Turney, former OSE¹⁵

Consider the information on the slide above. The conclusion in both boxes is that nearly all agricultural lands that currently have water rights, including Pueblo lands, must be dried up in order to satisfy pre-existing urban permits already issued by the Office of the State Engineer. Remember that the decline in the water table levels will also continue. Oh, and by the way, where do the needs of endangered species fit in?

Despite this state of affairs, deals based on paper rights instead of wet water are still being proposed. This summer, the Interstate Stream Commission is considering a proposal that it would assume Intel Corporation's obligation to offset depletions to the river in exchange for water rights and money. The arrangement is quite complicated, but the upshot is that the ISC intends to use "relinquished water" to offset those depletions, particularly in the event that Intel ceases pumping.¹⁶

Relinquished water, along with credits and debits, is part of the accounting system used to administer the Rio Grande Compact. In a 2002 paper, written in part by an ISC hydrologist, referred to this system as a "paper water bank."¹⁷ Relinquishment --if and when it is accepted by Texas-- allows water to be stored in upstream reservoirs when normally, Article 7 restrictions would apply. It also enables surface water users to receive up to their full allocation of water.

Relinquished water is, in essence, a paper exchange. It doesn't necessarily transfer any wet water, and using it to offset wet water impacts appears to add another demand on the already over-allocated resource, aggravating the water budget imbalance. Add that to the likelihood of reduced flows due to climate variations, and the liability of the State for offsetting the depletions of a private company becomes even greater.

Such accounting seems eerily similar to exotic economic instruments such as synthetic derivatives and credit default swaps, which we learned about to our detriment as our nation's economy took a steep nose dive. Nor does such management change the OSE's current administration and thus the modeled projections.

A Warning – Not Yet Heeded

"Existing water rights, compact obligations, conservation efforts and public welfare might all be jeopardized unless sufficient valid surface water rights are obtained to offset effects on the Rio Grande prior to pumping ground water...It's similar to buying short on the stock market... the day to pay comes around and you better have the money, or in this case the water rights, to cover yourself."

Tom Turney, former N.M. State Engineer, 2001

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To change the paradigm? Our policy group felt that the region would continue to muddle through unless and until a cataclysmic event provoked action. There is a partial list of possible catastrophes at the end of the Background Appendix, and the odds that one or more will occur between now and 2025 is quite high. We still have choices, though our options will be reduced as time goes on. Will we act?

We have a choice ... still



Some Suggestions for Policy Actions

Afternoon Discussion: Priorities to Force Action & Next Steps to Move Forward

1. Local Level: Focus on reducing the gpcd significantly, to simply use less water. Why not aim for 100 rather than 150?
2. Regional Level: The Middle Rio Grande Administrative Area Guidelines¹⁹ currently allow for an annual depletion of ground water levels. These could be modified to not allow a one-to-one offset for groundwater put into the river. Rather than adding new demands on the river flows, reduce them by reducing the amount of groundwater declines allowed from 2.5' to 1' per year. Both actions in turn would encourage reuse and recycling.
3. State Level: Our institutions, which admittedly have different missions, do not measure in the same units, making it difficult to determine whether we have achieved success. This should be changed so that all uses are measured, metered and monitored in the same metrics.²⁰ This "water audit" should be transparent and public.

4. ABCWUA should post their statistics in a timely way. In that fashion, we can all see whether our efforts are making a difference.²¹
5. Begin concrete steps toward adjudication so that we know who owns what. Not to mention that it fulfills commitments under the Constitution for priority administration.
6. Consider John Shomaker's question posed in a recent essay, *Is Ground Water Really a Resource in the Albuquerque–Belen Basin?*,²² and propose changes to current administration.
4. The current economic situation should be reason enough to change the current paradigm of "grow, baby grow" to "living within our means." Focus on ways to seriously reduce our use so that new supplies are not needed for the next 100 years.²³

¹ <http://waterassembly.org/archives/14th%20Assembly/wa290d-TheStory-Appendix-TechnicalBackup.pdf>. See also *The Story*, drawing from the technical submissions to present a scenario.
<http://waterassembly.org/archives/14th%20Assembly/TheStory-Text.pdf>

² Please note that while the policy material was a group product, these comments are solely my own. I found out that I would be attending and speaking at the Annual Water Assembly about 9 pm the evening before. Thinking that the slides might not be clear to an on-line viewer, I requested that these comments be posted as opposed to simply the slides. Hopefully, they provide the reader with a similar picture as those who attended did.

³ <http://www.waterassembly.org/archives/14th%20Assembly/TheStory-Text.pdf>

⁴ Mission of the MRG Regional Water Plan, <http://www.waterassembly.org/archives/MRG-Plan/C-Summaries/Rio%20Grande%20Executive%20Summary.pdf>

⁵ See, for example, *Hydrogeologic Framework Of The Northern Albuquerque Basin*, Administrative Report to Department of Public Works, Water Utilities Division, City of Albuquerque; John W. Hawley and C. Stephen Haase, Compilers, Open-File Report 387, September 1992;
<http://geoinfo.nmt.edu/publications/openfile/home.cfm?ListBy=Author&From=H>. A wealth of information can be found at USGS Water Resources of New Mexico, <http://nm.water.usgs.gov/>. Check out *Water-Resources Investigations Report 02-4233, Estimated water-level declines in the Santa Fe Group aquifer system in the Albuquerque area, central New Mexico, predevelopment to 2002*, <http://nm.water.usgs.gov/publications/abstracts/mapreport02-4233.pdf>

⁶ *Securing our Future Water Supply*, <http://www.abcwua.org/pdfs/Secure.pdf>

⁷ <http://waterassembly.org/archives/9th%20Assembly/TomTurney-2%20-%20Fundamental%20Problem-Transcr.pdf>

⁸ <http://www.ose.state.nm.us/PDF/Publications/Library/HydrologyReports/TDH-99-3.pdf>

⁹ http://www.ose.state.nm.us/publications_technical_reports_wateruse.html

¹⁰ On June 23, the ABCWUA announced that its customers was 14 percent over its water conservation targets thus far in June and would need to cut back to avoid mandatory measures being instituted. *Utility Says Metro Area Guzzled Water in June*, John Fleck, Journal Staff Writer, Thursday, June 24, 2010, <http://www.abqjournal.com/news/metro/24018440318newsmetro06-24-10.htm#ixzz0rqR6lago>.

¹¹ "In the past decade, it has become impossible to overlook the signs of climate change in western North America. They include soaring temperatures, declining late-season snowpack, northward-shifted winter storm tracks, increasing precipitation intensity, the worst drought since measurements began, steep declines in Colorado River reservoir storage, widespread vegetation mortality, and sharp increases in the frequency of large wildfires. These shifts have taken place across a region that also saw the nation's highest population growth during the same period." *Perspectives - Climate Change: Dry Times Ahead*, Jonathan Overpeck and Bradley Udall, *Science* 25 June 2010: Vol. 328. no. 5986, pp. 1642 - 1643, <http://www.sciencemag.org/cgi/content/summary/328/5986/1642>

¹² On April 16, 2008, Mark Sanchez, Executive Director of the ABCWUA, told the Board that 900,000 to 1 million customers could be served with the existing water portfolio.

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- ¹³ Motion to Approve Cordero Mesa Business Park Water Project to install 3.4 miles of water line between two existing storage reservoirs in order to serve the planned area for future businesses, June 8, 2010, www.bernco.gov/upload/images/agenda_items/bcc2010/0608/8f.pdf. Passed unanimously, in part because it is ultimately to serve the Metropolitan Detention Center (although no funds have yet to be requested for that 8 mile portion.. In May, a federal court had granted Barclay's request to dismiss Westland's bankruptcy action "because Westland's filings demonstrated 'that it continues to cling to the fiction that its plans to build a *new town* west of Albuquerque are viable.' Barclays called it a 'financial pipe dream' that would require more than \$2 billion in infrastructure costs, \$1 billion of public financing — which it had twice failed to obtain through TIDDs — and new construction on thousands of acres of unplatted raw land with no government approvals, no water rights and almost nonexistent construction." '*Financial Pipe Dream*' By 2010 Scott Sandlin, Albuquerque Journal, June 15, 2010, <http://www.abqjournal.com/biz/152148263702biz06-15-10.htm>. Interestingly, at the same time as the County approved to commit \$1.08 million to install a pipeline to aid in development of Westland, Westland was ordered into receivership.
- ¹⁴ *A Basin-wide Approach to Water Management in the Middle Rio Grande Valley*, August 22, 2007, <http://www.nmwaterdialogue.org/sitebuildercontent/sitebuilderfiles/schmidt-petersen-8-22-07.pdf>
- ¹⁵ <http://www.waterassembly.org/archives/13th%20Assembly/09Turney.pdf>
- ¹⁶ *Pending Intel Water Deal Faces Criticism*, John Fleck, Albuquerque Journal Staff Writer, Monday, June 14, 2010, <http://www.abqjournal.com/news/metro/14233842metro06-14-10.htm>. Mr. Fleck has written several articles and posted background documents on New Mexico Science: A reporter's notebook about science and technology, http://www.abqjournal.com/abqnews/index.php?option=com_content&task=blogcategory&id=18&Itemid=31
- ¹⁷ *Legal And Physical Constraints On The Conjunctive Use Water Supply Of The Middle Rio Grande Region*, Deborah L. Hathaway, Kevin G. Flanigan, Karen J. Lewis, <http://www.sspa.com/publications/Hathaway%20Flanigan%202002.pdf>
- ¹⁸ From the press release of State Engineer Thomas C. Turney when approving the City of Rio Rancho's application to increase its permitted appropriation of ground water from 12,000 acre feet per year (afy) to 24,000 afy with several restrictions. September 13, 2001, <http://www.ose.state.nm.us/hot-topics/press/riorancho-09-13-2001.html>.
- ¹⁹ September 13, 2000, <http://www.ose.state.nm.us/doing-business/mrgbasin/crit9-13.pdf>
- ²⁰ A great example can be found in the recent effort by the OSE to standardize GPCD data. See the NMOSE GPCD Calculator at http://www.ose.state.nm.us/water-info/conservation/GPCD/NMOSE_GPCD.xls.
- ²¹ As an example, see Santa Fe's Daily Water Reports and Weekly Water Reports at <http://www.santafenm.gov/index.aspx?NID=1149>.
- ²² Decision-Makers Field Guide 2009, http://geoinfo.nmt.edu/publications/decisionmakers/2009/dm09_Ch4.pdf
- ²³ How we view the resource helps to select the models used to plan and protect. See for instance, *Urban Water Study: Water Conservation in Flagstaff, Arizona* <http://www.climas.arizona.edu/projects/urban-water-sensitivity-analysis/project-overview/conservation-flagstaff> Proposed Model of Contemporary Water Management in Flagstaff "Resource instrumentalism and resource sustainability with their associated management means. Note that the resource sustainability model is linked to two fundamentally different political and economic value systems that both prioritize natural landscape attributes of the area."

