

It has been invigorating today to meet together to explore the topic of research as a tool for water stakeholders. We need every tool we can find as we attempt to solve the really difficult problems of how to share our water and how to keep it clean. Lyn Kathlene and the Colorado Public Policy Institute have brought together here a stellar array of Colorado water folks using the tool of research in a variety of ways to shed light on these problems.

The topic of this third workshop is Using Research in Collaborative Decision-making Processes. Some of the earlier speakers have already touched on that topic in a number of ways. Notably, the basin roundtables, which are the manifestation of HB-1177, are deep into that topic as we speak, trying to make decisions about how to best use the so-called “1400 monies” to further their understanding of the needs of their basins through research.

My contribution to this conversation will be, first, a brief description of how the Danish are using citizen technology panels to bring research into collaborative decision making, and second, a discussion about joint fact-finding. But for most of the twenty minutes I have been allotted, I am going to ask you to venture forth with me in considering a topsy-turvy treatment of this whole subject. Assuming you stay awake, you will find out what the pumpkin is for.

First, Danish Citizen Technology Panels. You will find a two-page description of them in the packet of materials Lyn prepared for you. Here’s how they work. Several times a year, and on various complex issues, the Danish government convenes a panel of 15 ordinary citizens selected for their demographic diversity. These citizen panel members read voluminous briefing papers and then meet with organizers to discuss what their questions are, and which experts—from across the spectrum of opinion on the subject—they want to have testify. Then the citizens interview those experts. When the citizen panel is satisfied they have received in-depth briefing from all angles, they are professionally facilitated to come to a consensus statement about what should be done about the issue. I have been told, but haven’t sought to verify, that the Danish Parliament is legally required to consider these citizen statements in their deliberations.

The citizen panels are, in effect, employing a method called joint fact-finding. So now, let’s discuss that.

We are all too familiar with the unfortunate, and unfortunately too frequent, occurrence of “advocacy science” in which opponents on either side of an issue find and cite research to “prove” their points. It’s the syndrome of “My scientist against your scientist.” Joint fact-finding is an attempt to avoid advocacy science and it is increasingly employed by folks in the alternative dispute resolution field.

Joint fact-finding is discussed in a piece written by Stephen Snyder, an attorney and mediator from Corrales, New Mexico. Snyder worked with the Natural Resources Law Center at CU to investigate what could be learned from those involved in trying to mediate the infamous water conflict in the Klamath Basin of Oregon. His work is communicated in a 36-page research document published in 2003, and an article just out in the August issue of the Journal of the American Water Works Association. One of the ten lessons to be learned from difficult water negotiations, Snyder says, is to employ joint fact-finding. “If the negotiations involve contentious technical and scientific issues, a joint fact-finding process should be established for investigating these issues.”

Another ADR specialist who recommends joint fact-finding is Patrick Field. Mr. Field is a Gunnison Basin boy now working at Harvard. Doug Kemper brought him to Breckenridge in August to do a workshop at the Colorado Water Congress on how to resolve water conflict. Along with Lawrence Susskind, Patrick Field wrote a book titled *Dealing with an Angry Public*, and in it he discusses in detail the use of joint fact-finding. The method can be used in a number of ways, but both Field and Snyder believe a preferable way to do it is for an investigation of an issue to be performed by a neutral expert, or even better, by a panel of experts.

Maybe the experts are asked not to find the correct answer, but to identify areas where scientific opinion is certain and other areas where it is not. The expert may be asked to identify alternative methods for addressing the problems underlying the conflict.

At the very least, with joint fact-finding, stakeholders in a negotiation have the advantage of considering the findings of a range of approaches in studying the issue. At best, as Snyder says, shareholders actually “participate in an interactive dialogue with the neutral experts so as to enhance their understanding of the complexities involved in addressing problems to which there are no clear answers.” Snyder says that under these conditions, parties “often find themselves revising their original assumptions and preconceived notions about what must be done to resolve the problem. They then find they are able to favorably consider negotiating proposals they would never have entertained had there been no joint fact-finding process.”

Patrick Field points out that in cases like this, the joint fact-finding can become a significant means through which common ground is found. He also points out that this is a case where we should welcome conflict, not discourage it, because the more angles we can get on a problem, the more likely we are to be able to come up with a brilliant, truly workable solution.

Now, it's getting close to time to talk about the pumpkin. Following up on this scenario of stakeholders coming together with experts to have a meaningful dialogue about an issue, I am going to ask you to bear with me while I manipulate the topic of this workshop. I want to turn it around exactly 180 degrees. Instead of *Using Research in Collaborative Decision-making Processes*, I will ask you to consider with me the concept of *Using Collaborative Decision-making Processes in Research*. I will draw on conclusions from a research team in the European Union, and I will give a concrete, on-the-ground example from Bolivia. To do all of that and still have time to explain the pumpkin, I must be succinct.

Snyder, talking about joint fact-finding, says: “Many debates over science are in fact debates over values. Pretending that uncertainty does not exist, or that there are scientific answers to questions that are in reality questions of values does nothing to further resolution of difficult issues.”

What would you think about taking a new look at the whole situation? Instead of bringing research to the stakeholders, how about convening stakeholders to decide what the problem is and what research should be conducted to try to find solutions? What if the research to be conducted isn't so much in the arena of hard science, but research into the socio-political realm in which policy decisions about water are really made?

Okay. Some footing needed here. Where in the heck did I get off on this tangent? It all started on a bus in Mexico City at the World Water Forum—a great democratizer where all participants, from peons like me to the major researchers and decision makers from a myriad of countries, were thrown together on buses and in lines for hours at a time. One of those bus rides put me

next to a guy in a three-piece suit—Dipak Gyawali, an engineer/political economist from Nepal, who was putting the finishing touches on a speech he was giving that day to a couple thousand people. The topic? A report by the European Commission working to meet Integrated Water Resource Management Goals as part of the EU's Millennium Development Goals. Turns out that Dr. Gyawali's subject was right up my alley. In the 45-minute bus ride, I got the low-down covered in the documents listed in my bibliography. Dr. Gyawali's group evaluated 67 water resources management research projects conducted over a ten-year period from 1994 to 2004. In a nutshell, there were three major findings:

First finding: Research must constructively engage stakeholders in all phases—from design to interpretation.

Second finding: Researchers must find better ways to communicate the results of their research to those who are in a position to make policy, as well as to the public which in a democracy elects those who make policy.

Third finding: The most critical need for research is not for more technical solutions, but for socio-political solutions to water problems.

Let's take a look at the first finding—“**Research must constructively engage stakeholders in all phases—from design to interpretation.**” The template that Jewlya Lynn from the Colorado Institute of Public Policy talked about this morning and provided for us in our packets also promotes the participation of key stakeholders in all aspects of water research, from design to implementation.

Snyder talks about this, too. He quotes one of the participants involved in the Klamath Basin mediation: “Policy differences, not scientific disputes, are what are at stake in a water allocation negotiation, and no scientific panel can make credible judgments about policy issues. In a negotiation, all stakeholders must be involved both in formulating the questions asked and directing the investigation of independent experts.”

Dr. Gyawali categorizes these stakeholders into three “social solidarities” that shape the politics of water use and management:

1. Institutions in the **public sector**, characterized by hierarchy, which are the dominant providers of water services and regulatory regimes.
2. The **private sector**—individuals and firms who own the water rights and who provide some water services and a high proportion of construction capacity.
3. The **social auditors**—civil movement bodies that advocate water-related environmental and human rights ethics and play a social audit role.

Remember that Gyawali used the term *Constructive Engagement*. What in the heck does that mean? On the back of his business card, Gyawali sketched it out. He said each of these sectors looks at things in a different manner. (And in fact, he said some interesting things about how each of these groups views risk, but that's a story for another day.) Constructive engagement allows us to go below the surface, to share beliefs and values, with the conviction that each of our approaches is a critical part of the solution. He talked about having the courage to look openly at everyone's views with the intent of incorporating them, not just tolerating them.

Next, let's take a look at the second finding of the EU research team. **Researchers must find better ways to communicate the results of their research to those who are in position to make policy, as well as to the public which in a democracy elects those who make policy.**

Most research is communicated in a broadcast method—through professional journals read by few, or at professional conferences where experts participate in serial monologues each giving their piece of the truth. Gyawali's group promotes the view that researchers have to figure out appropriate ways to communicate research, including the need to understand and deal with distinct mindsets people use to filter data. They quote an economist, Douglas North, who says we each have a set of mental models, categories, and classifications that make up our belief systems, and the neural networks through which new evidence gets filtered have no existing patterns that can correctly assess the new evidence. Researchers have to learn new, improved ways to communicate research.

One way is by engaging the audience more actively in receiving the information.

An example is Inquiry Circles, one of the methods showcased at the recent meeting of the National Conference on Dialogue and Deliberation in San Francisco. Inquiry circles can be used to quickly bring to the surface different perspectives, assumptions, and positions. They promote reflection instead of debate, and bring out new rich material as audiences learn from experts, and experts learn from one another, right on the spot. A facilitator begins with an open-ended question, such as "I wonder how we could transition water from agriculture to urban uses over the next thirty years in a way that preserves the viability of agricultural communities?" Let's pretend our panel of experts is made up of Russ George, Melinda Kassen, Chips Barry, and Don Ament. The first expert ponders the question and answers not from a rehearsed paper but from his or her own deep beliefs and understanding about the problem and the potential solutions. The second and each subsequent expert builds on the reflections of the first, not in an adversarial way, but attempting to shed additional light on the problem from his or her professional expertise and personal values. After all the experts have answered the question, the last expert formulates the next question based on where the dialogue is going. Tremendous insights and breakthroughs have been accomplished via this methodology.

Here's an example of how to communicate research outside the ordinary broadcast method that is closer to home. John Wilkens-Wells, head of the CSU Sociology Water Lab, has planned a November conference in Tulare, California. The conference title is a mouthful: *Participatory and Deliberative Regional Forum: Protection of Irrigation Canals, Easements, and Water-related Themes associated with Urbanization in the Lower San Joaquin Valley*. John's brochure says the forum will have a highly participatory and deliberative format, and that participants will interact with presenters who have been recruited not as speakers but as resource persons. Go, John!

The third finding of the EU research team is that **the most critical need for research is not for more technical solutions, but for socio-political solutions to water problems**. They propose that we need research integrating water law, the economics of water and the notion of constructive social engagement of all water players, and that we should conduct such research as confidently as we have until now addressed hydrology and hydraulics.

Specific to research about the notion of constructive engagement, they call for the need to conduct research about human mindsets, public opinion, and behavior. Political science should be drawn into examination of these aspects as they relate to water issues. Throwing in a bit of humor, the EU group purports that most researchers' perception of the role of politics is that it must be suffered rather than understood.

The Gunnison boy, Patrick Field, puts the question this way: ‘Can the “soft technologies” catch up to the “hard technologies?”’

Okay, there’s the theory. Now, the on-the-ground example I promised you.

Bolivian water engineer Juan Carlos Alurralde was convinced that dialogue based on solid research could help point to a fair and efficient water management model that could gain wide acceptance. He set about to combine grassroots dialogue with high-tech science. By using a state-of-the-art mathematical model, researchers could simulate how effective various approaches to allocating water rights would be. But if social groups did not trust the research there was a risk they would reject the findings. So the researchers decided to include social groups in the research process—by inviting them to participate in the research design, asking them to help gather data, and regularly communicating and explaining their findings. He got a \$270K grant from the International Development Research Center which supported research from 2002–2005.

Researchers used a water simulation model developed by the Danish Hydraulic Institute to build a computerized replica of Bolivian water systems. Members of irrigators’ groups and farmers were involved in collecting the field data and GIS was used to map water rights. They used the information to project which approach to water management would be most efficient: the one favored by the government, or the one favored by indigenous communities. The research issues, methods, and results were conveyed to a broad range of social actors, including researchers, members of grassroots social movements and NGOs, government technicians, academics, and senior government officials. The research revealed that the approach favored by the government would lead to a more inefficient use of water and would cause larger differences in water availability between communities, actually resulting in water deficits in many cases. The Government of Bolivia subsequently enacted a water rights law which takes into account this research, and the law has gained widespread acceptance.

To close, I would like to swing back to the HB-1177 process and the basin roundtables. I would like to bring up the difficult word “VISION.”

Right now, in my observation, the roundtables are a group of people each trying to make sure that everyone gets heard. Some of the basins are quite polite, others are more vocal, but the emphasis still appears to be to respect different opinions. That is a huge step in the right direction, a long way from where we were a few short years ago with Referendum A.

The next step, however, is to come up with a common vision of what we want for our basins, for our state, as far as water is concerned. That step takes real courage, and I think it takes a paradigm *ship*—to sail us into new waters.

Common vision is tough. My conversations with friends and colleagues in the water development community and those in the environmental community are telling. Both sides are tired of battling. My water development friends think they are more willing to come to the table than the environmentalists, but my environmentalists friends point out the numerous times they aren’t even invited to the table—unless they have to be, like in the situation of the roundtables. What’s needed, again, is a new ship. Maybe a canoe.

The economist I referred to earlier, Douglas North, sheds some light on the power dynamics. He says, “In cases where conflicting beliefs have evolved, the dominant organizations (and their

entrepreneurs) may view necessary changes as a threat to their survival. To the degree that the entrepreneurs of such organizations control decision-making they can thwart the necessary changes.” I would say that even with federal regulations that require us to consider environmental impacts, environmentalists do not have the same power as the dominant organizations who have traditionally controlled decision making.

The roundtable process, for instance, has certainly not excluded environmental concerns. But I feel that the roundtables have failed to incorporate environmental considerations into the very fabric of what we are hoping to achieve. Environmental concerns are seen as separate, not part of the whole, and often as a thorn in the side. By marginalizing environmental concerns and by setting them out as separate, we have forced those who are concerned enough to carry the torch to take an extremist approach. By default, they have to be extremists to get their point across. All they have is their voice. They have no other power. This just sets us up for clashes. Most of the other water players have environmental concerns in their blood, too, we just don't put as high a priority on it. What's needed is real, deep dialogue to draw out that common concern and build it into all the solutions. Not tacked on, but as part and parcel of the whole.

Example: Trout Unlimited. Melinda Kassen. At this summer's Colorado Water Workshop in Gunnison, Melinda gave a presentation in which she said that there has been resistance to funding research for a statewide stream map to determine which stretches to concentrate on preserving or restoring. Several of us in the audience were talking about it later, thinking such a map was an excellent idea. However, someone less naïve, maybe it was Robert Ward, came up to the group and pointed out that such a map is very sensitive politically because of private property issues. Oh, duh. I suggest we have a “yes—and” situation here. YES the map is a great idea AND the map is sensitive politically. But that doesn't mean we should back away from it. I would challenge us to quit whispering about these conflicts. Point them out in black and white. Acknowledge that they are uncomfortable, but pledge ourselves to confront them. We have met the enemy and they is us! I would venture that every individual in this room wants water in the stream for fish, even if we also want water for a growing population and water to keep agriculture viable. If we want it, we have to visualize it. And we have to work for it. The work won't be easy, and it will be full of ambiguity that we will have to muddle our way through. But it is important to lay all the realities out on the table and own up to them.

It will be like a jigsaw puzzle where we struggle a while in one area, then leave it to go struggle in another area, then come back around to struggle in the original area some more—but with a few more pieces filled in that make things look a bit brighter.

The Arkansas Basin Roundtable recently stuck their toes in this water. Corner Gary Barber and get him to tell you the story about their interbasin transfer committee trying to come up with proposed guidelines and how they have decided to step back from proposals and counter-proposals to take a stab at forming a vision for the basin with the help of some facilitation.

I challenge each of the roundtables and the IBCC itself to take on this visioning process. Visioning that takes a look at the watershed while considering the wider problems, which of course includes the really rough issues like farm economics and urban growth. And while we are at it, we might need to bring other voices into our fold. As Doug Scott, IBCC representative from the Metro roundtable says, we need to bring in new (and younger) faces, new perspectives, new questions, new experiments. Of course, all of this takes time. But are we saving time doing it the way we have been doing it the last thirty years? Remember, the hurrier we go, the behinder we get.

I brought the pumpkin as an illustration of a story that I think exemplifies how easy it could be to shift the way we understand and create a new future for water in this state. The pumpkin, as most of you know, is the most popular type of hard-shelled squash we call winter squash, to distinguish it from the soft-shelled squashes we call summer squash. Most of you have eaten winter squash like Butternut and Hubbard, usually with lots of butter and brown sugar. Recipe books say that to cook a winter squash you should cut it in half, take out all the seeds, and then bake it a bit of water to give it humidity. Have you ever tried to cut into a pumpkin? Or any other kind of winter squash? Most people I know, me included, avoid baking them for that reason. However, a few years ago, puzzling over what to do with the plethora of butternut squash I had planted in my garden, I reflected on the problem for a while, and then decided to try an experiment. I put the hard squash in the oven, whole, and baked it for an hour. THEN I easily cut it in half and scooped out the seeds. That's how I have cooked winter squash now for years.

I think resolving our water problems requires a similar shift in the way we look at our problems. Perhaps it will be easier than we think. Peter Senge and others from the Society of Organizational Learning write in their 2004 book *Presence: Human Purpose and the Field of the Future*: "We are stuck in patterns where solutions are arrived at through the process of downloading, or taking an existing framework and applying it to the situation at hand." They talk about a new view of knowledge and leadership emerging, one that "emphasizes the quality of awareness and attention as the primary driver for high performance and creativity within and around social systems." A perspective on leadership and social change based on the human capacity not often drawn upon, to "illuminate the blind spot." Creating an awareness of the whole. They challenge us to retreat and reflect, to go to an "inner place of stillness, then listen and make sense of it."

Listen and make sense of it. Find a common vision. Perhaps it all boils down to common sense. And pumpkins.

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