

Embracing Uncertainty

Exploratory Scenario Planning (XSP) in Southwest Colorado

In this aerial photo of Durango, Colorado, viewed from atop Smelter Mountain in August 2015, the Animas River runs orange after a wastewater spill from the Gold King Mine. Credit: Michele Zebrowitz.

By John Wihbey

AMID THE JAGGED PEAKS OF THE SAN JUAN MOUNTAINS, in the northeast quadrant of the Four Corners regional border, is a cluster of five southwestern Colorado counties whose names evoke the region's rich and diverse history: Montezuma, San Juan, La Plata, Dolores, Archuleta.

Diverse, too, is the way of life and the economy of the region—from tourism and agriculture to fossil fuel extraction. Fewer than 100,000 people populate the varied and mountainous area. The cities of Durango and Cortez represent a bit of relatively bustling semi-urban life, while small mountain towns and two Native American reservations occupy outposts across the 6,500-square-mile area, roughly the size of Connecticut.

For these far-flung communities, planning for the future has become much more uncertain in the 21st century, as the wildcard of climate change and the vagaries of the energy industry have minimized sure bets. Educated guesses about the coming decades are getting harder to make across many dimensions: from unpredictable prices and revenues within the natural gas industry to swings in the size of the snowpack, affecting river flow, crops, and skiing alike. And many variables are highly interconnected.

“Our biggest question is our vulnerability to drought,” says Dick White, city councilor in Durango. “Our agricultural and tourism industry could be totally disrupted if we go into long-term drought and have lots of wildfires.”

Recognizing the need for wider policy coordination, a regional group of governing bodies formed the Southwest Colorado Council of Governments in late 2009, to address larger challenges and to seek out collaborative opportunities. Yet, in terms of policy, the road-map to stability, sustainability, and economic prosperity has not necessarily become clearer.

The conundrums at hand may simply surpass the conventional planning tools themselves,

observers say. Regional planning as a discipline, of course, stretches back decades, but the procedures, templates, and models employed—from “visioning” to “normative,” “predictive,” or “trendline” methods—are not always up to the task of grappling with irreducible uncertainties. So, last year, the Southwest Colorado Council embarked on an intensive process in partnership with Western Lands and Communities—a joint program of the Sonoran Institute and the Lincoln Institute of Land Policy—with an emerging policy tool that embraces the very idea of uncertainty: exploratory scenario planning, or XSP. Unlike the normative or traditional planning processes, it is not about what is preferred—an expression of community values—it is about what may happen beyond the control of planners involved.

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XSP requires participants to identify the greatest causes of uncertainty in their community and use those challenges to envision alternative scenarios of the future. Whereas two to four scenarios would typically result from more traditional forms of scenario planning, the Southwest Colorado Council created eight scenarios during their XSP sessions.

Early in 2015, consultants, experts, and regional policy makers converged in the city of Durango to unpack a crucial question that would generate relevant scenarios: “Given the possibility of extended long-term drought and its potential environmental impacts, how could the Five-County Region develop a more adaptable economy?”

The goal of the workshops themselves is to push the boundaries of the possible while staying within the bounds of the realistic. “You don’t want the scenarios to be so outlandish that community members can’t see themselves in it.”

The question—which the group worked out through a careful, community-oriented process—became the focus of an extensive process of fact-gathering and analysis. This research culminated in two workshops structured to explore a variety of regional “futures”—the possible and plausible ways in which life in southwest Colorado could play out. The time horizon was to be 25 years, through 2040.

Participants considered the interrelated impacts of several critical areas of uncertainty, including the length of potential drought, local production levels of natural gas, and the cost of oil.

The central idea behind XSP is to bring together stakeholders to advance a multistep planning process that imagines many futures and formulates strategic insights accordingly. Its methodological steps are roughly: first, formulate a core set of questions; then, precisely identify and rank the forces of change; next, create narratives around possible scenarios and their implications; and, finally, formulate active responses and discern actions that would help address multiple scenarios. The process, says Miriam Gillow-Wiles, executive director of the Southwest Colorado Council of Governments, furnished a fresh way to help planners and policy makers imagine regional dynamics. “I think it set the council of governments up to be not just another economic development organization or government organization, because we are doing something different,” she says.

Drought-related wildfires, like the Little Sand Fire that blazed through remote terrain in the San Juan National Forest in May 2012, are among the irreducible uncertainties that challenge planners in southwest Colorado. Credit: USFS/Handout/Corbis.

The project was also another step by Sonoran and Lincoln toward fine-tuning the concept and ultimately testing the value of exploratory scenario planning—which has its early roots in the business management and military spheres—in the context of urban and regional planning. Other recent case studies have been explored in central Arizona, in the Upper Verde River Watershed and the Town of Sahuarita, just south of Tucson, Arizona.

“This is something that is not only a good idea intellectually,” says Peter Pollock, manager of Western Programs at the Lincoln Institute. “It will add real value to your community planning process to deal with real problems.”

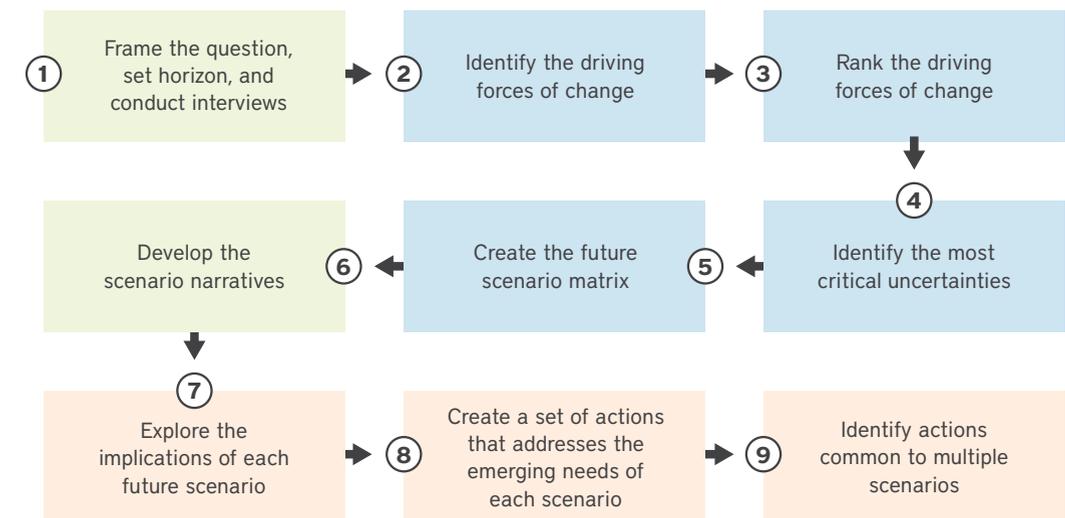
A Range of Futures

Dealing with real—and really tough—problems is the name of the game in southwest Colorado, as the region faces a “daunting” array of changes all at once, according to a 2015 report, “Driving Forces of Change in the Intermountain West,” prepared as part of the exploratory scenario planning process. Some are demographic—inflow of population, with more Hispanics, coupled with urbanization. Others relate to the “uncertain and complex” nature of the energy industries, which are affected by volatile global economic patterns.

Durango City Councilor White says he and fellow policy makers have been forced to think a lot about these shifts as their city considers a



FIGURE 1
EXPLORATORY SCENARIO PLANNING PROCESS



Source: Southwest Water Resources Consulting.

variety of infrastructure projects, from expanding the sewer treatment system to growing the size of the airport. White, a former Smith College astronomy professor who retired early and moved West to get involved in environmental policy, was a key member of the group that met last year in Durango as part of the Southwest Colorado Council of Governments.

“You’ve got this range of possible futures, and you really don’t know which road you’re going to go down,” he says. “The idea is to identify the biggest risks and best ‘no regrets’ policies.”

For White, the entire exercise of gaming out how varying drought conditions might affect the whole regional economy helped clarify issues. “Conceptually, I find that an extraordinarily useful policy tool,” he says. The sewer and airport infrastructure questions have subsequently been cast in a new light: “I have seen both of these decisions through the lens of [exploratory] scenario planning.” Given future uncertainties, White says he is determined to make investments that will give future policy makers flexibility should they need to make further infrastructure changes.

The final “low-regret” actions and strategies that stakeholders identified included: better coordination with federal agencies on forest

management, public-private partnerships to promote use of biomass and biofuel, assessments of available land for development, identifying new opportunities to augment water resources from groundwater, the charging of real costs for water service and realistic impact fees, and support for small business and agriculture incubators.

Those insights and associated new perspectives are often hard-won, planners and participants concede. Exploratory scenario planning, as the southwest Colorado project demonstrated, can be a demanding process.

Hannah Oliver, who co-facilitated the scenario planning effort as a program manager with the Sonoran Institute in the Western Lands and Communities program, recalls driving all over the southwest Colorado region to get a feel for its land and its people and conducting many interviews with stakeholders. And that was just to prepare the groundwork—the “issues assessment”—for the stakeholder meetings.

The goal of the workshops themselves is to push the boundaries of the possible while staying within the bounds of the realistic. “You don’t want the scenarios to be so outlandish that community members can’t see themselves in it,” she says. The process aims to generate what Oliver, who was joined as a facilitator by



Designed in the 1880s to haul silver and gold from the San Juan Mountains, the Durango and Silverton Narrow Gauge Railroad now conveys tourists through the breathtaking scenery of southwest Colorado. Credit: Durango Area Tourism Office.

Ralph Marra of Southwest Water Resources Consulting, calls “Ah-hah” moments. In this case, participants came to understand the profound implications of lower gas production, severe drought, and swings in oil prices—with ripple effects across the tourism and agriculture industries and with deep overall impacts on the regional economy. Southwest Colorado, they realized, could face a very different future under certain plausible conditions.

“You come out exhausted,” Oliver says of the typical initial workshop. “For the participants, it’s like going to a boot camp. People coming out of that workshop say, ‘I’ve never had to think like that before.’”

For community members, it can certainly take a lot of concentration to juggle the variables. “I think the whole way of scenario planning—if X, then Y—is a really useful way to look at things,” says Gillow-Wiles. But “the whole process itself can be challenging, because there are so many unknowns.”

Lessons Learned

A key to success, in any case, is to gather a broad range of people into the same room. In a wide and geographically dispersed region, that can be challenging. “Having a diversity of opinions is really important,” says Oliver, who is now a village planner in Phoenix. “Because the stuff you get out of the workshops is only as good as what goes in.”

Some southwest Colorado participants suggest that framing the exercise more directly around economic development or a more specific infrastructure issue (opposed to drought) might have attracted more participation from policy makers. “It’s sometimes hard to get your board members to buy into that kind of pie-in-the-sky type of thing,” says Willow-Giles, “versus something more tangible like ‘What do we do with our population growth in terms of transportation 25 years from now?’”

Likewise, White cautions that the ability to create momentum and community energy is not a given. “If I had a lesson to draw,” he notes, it’s that “you have to really work hard to make sure that you continue to have appropriately diverse representatives at both ends of the process.”

The southwest Colorado region has its share

of political hot-button issues—including the politics of climate change and the dynamics of the fossil fuel companies there—but participants report that they steered clear of the land mines during the XSP process. (Drought, many note, has long afflicted the region, even prior to the Industrial Revolution; indeed, the ancient Pueblos likely left their famed cliff dwellings at Mesa Verde because of dry conditions.)

Pollock says that one of the virtues of XSP is that it allows in and even encourages conflicting views that can make it more inclusive, both in terms of process and outcomes. It minimizes arguments about which future is “right,” and it helps build support for action among the diverse group that has come together to develop the strategies. “We think it is a way to defuse some of the political questions that make our public process overly rancorous and difficult,” he says.

By bringing diverse ideas into the process early and openly embracing uncertainty, exploratory scenario planning can yield fewer surprises in the end for a community, according to Uri Avin, research professor and director of the Center for Planning and Design at the National Center for Smart Growth, University of Maryland. “The opponents of your end-state vision may, at the end of your visioning plan, come out of the woodwork and fight you,” he says. “Whereas exploratory scenarios explicitly tend to invite dissent and debate, and the construction of scenarios that embrace other viewpoints.”

One of the stark truths that can emerge from such a candid process is the reality that negative change may be likely under very plausible future conditions. Oliver says that participants in fact came to the realization that certain linear assumptions about the region’s economic future may need to be scrutinized.

“I think what struck them is the understanding that the oil and gas industry may not be around forever,” says Oliver. One of the biggest things they realized was how much they relied on money from natural gas production for basic services, she says. “They realized they might not be able to offer as many services if oil and gas were gone.”

Avin says that XSP operates as a kind of

antidote to the traditional notion of plans-as-silver bullets. But, politically, that realism can be a challenging sell. “It may include accepting decline or change that may not be palatable but may be inevitable if certain things happen,” he says. “So the initial hurdle for planners is getting their arms around it and persuading their bosses who are elected officials that this is a good way to plan, and the payoff is in the long run.”

Armando Carbonell, chair of the Department of Planning and Urban Form at the Lincoln Institute, says that, in an era when factors like climate change are now in play, planners and the public must increasingly rethink the way they conceptualize the future. “The key is how one thinks about uncertainty,” he says. “We’re better off to accept uncertainty, and the fact that uncertainty is irreducible. We need to learn to live with uncertainty, which is not at all a comfortable position for people and planners.”

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The process can be, so to speak, “longer in the short run,” Avin notes, yet it’s “shorter in the long run,” as communities strategize based on realistic conditions. “It may be more rigorous and difficult, but it pays off because you have explored a range of outcomes that protect you from the future to some degree,” he says.

The Lincoln Institute’s 2014 working paper “Exploratory Scenario Planning: Lessons Learned from the Field,” authored by Eric J. Roberts of the Consensus Building Institute, provides some preliminary insights gleaned from a variety of other projects nationally, focusing both on what worked well in other contexts and typical challenges encountered. The process design and scenario framing work are often rated highly by participants, Roberts finds, but the capacity of the convening organization must be up to the demanding challenges.

An Adaptive and Evolving Tool

Step back from the Colorado project and other recent pilot applications, and it becomes clear that the migration of exploratory scenario planning into mainstream land planning is still far from complete, despite its power and potential. Part of the solution is wider dissemination and increased access to the method's instruments. The Lincoln Institute's 2012 report *Opening Access to Scenario Planning Tools* surveys the evolving landscape. It notes, "The emergence of new and improved scenario planning tools over the last 10 years offers promise that the use of scenario planning can increase and that the goal of providing open access to the full potential of scenario planning tools is within reach."

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One of the report's coauthors, Ray Quay, a researcher with the Decision Center for a Desert City at Arizona State University, says that he has been using the exploratory scenario planning methodology for 20 years now. While he sees it being used by planners in the resource, water, and forestry communities, it has not yet taken hold among land planners and urban planners. "I think there are certainly situations where it can be very useful," Quay says.

Another barrier to wider adoption is the general failure to distinguish the methodology from other, more familiar kinds of scenario planning, according to Carbonell of the Lincoln Institute. "When you say 'scenario planning' to most people in the planning world, they think of Envision Utah—the big regional vision plans that got people to agree on some preferred vision of the future," he says.

The intellectual "genealogy" of XSP traces back to the Global Business Network in the early 1990s, and its deepest roots lie in the scenario

planning work of Royal Dutch Shell—which, as legend has it, produced very successful strategies, Carbonell notes. "The challenge is taking it out of the world of corporate planning and business strategy and getting participation by more than a few wonks," he says. "That's why working on the method, making it more accessible and efficient, is important."

Overall, the challenge remains to bring the methodology fully into the planning world. "I think we're primarily trying to do two things," says Carbonell. "We're trying to transfer a business planning model to a community planning model, so there are definitely differences in governance and the number of people to deal with. The other thing is scale, the size of the community and the area you deal with. Scenario planning has really come more out of the regional level."

The pertinent questions will be whether or not smaller-scale communities have the expertise, data, and willingness to participate; but ultimately it will be about whether XSP is "appropriate to the decisions being made," Carbonell says.

As exploratory scenario planning is used more often in regional and urban planning, further best practices will certainly emerge. And the methods of devising strategies in the final phase of XSP may vary from situation to situation. Summer Waters, program director of Western Lands and Communities, says, "The resulting strategies have to be politically acceptable. That is to say, the people we work with have to be able to convince their constituents to buy in."

Quay says the process leading to the production of scenarios through XSP has been largely "perfected" at this point. But there's work to be done on the final step of identifying actions that address multiple scenarios and formulating an appropriate strategy. "The problem is that distilling the strategic insights ... has been different on all the projects I've worked on," Quay says. "There's both structure and art within it."

Avin, of the University of Maryland, agrees that some aspects of these powerful methods are still being worked out. But that's no reason,



In the 14th century, ancient Puebloans probably abandoned Mesa Verde, their c. 500 A.D. cliff dwellings—which are now a UNESCO World Heritage site and national park in Montezuma County—because of the sort of drought conditions that still challenge the region's tourism and agriculture industries. Credit: Durango Area Tourism Office.

he argues, to delay their adoption. "XSP is not supported by tools and models in the way that visioning is supported," he says. But enough scenarios have been developed that planners can benefit from considering them and adapting them, rather than starting from scratch, he says.

For examples of parallel work in another field, experts note some of the advanced scenario work by the Transportation Resource Board and the associated software tool developed, *Impacts 2050*. Planners interested in more context and examples will find a diversity of deep sources in the Lincoln Institute's 2007 book *Engaging the Future*; the RAND Corporation's 2003 report *Shaping the Next One Hundred Years*; and Quay's 2010 article "Anticipatory Governance" in the *Journal of the American Planning Association*.

Exploratory scenario planning may have been slow to diffuse into the area of land planning, but its offerings are increasingly accessible and useful. "This is a fast-evolving field in terms of tools," Avin says. □

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