

Managing Risk and Uncertainty: Collaborative Approaches for Climate Change

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Climate change is presenting a variety of risks, uncertainties, and difficult choices that communities must learn to address: How should future risk and uncertainty be dealt with in today's land use decision-making processes? How can stakeholders be involved in decision making in a way that helps to both clarify trade-offs and build consensus on the best ways forward?

Through the joint venture partnership between the Consensus Building Institute (CBI) and the Lincoln Institute of Land Policy, we are helping to answer these questions by drawing on CBI's own conflict resolution theory and practice, as well as the expertise of other partners on topics such as risk management and scenario planning. We have developed a series of workshops on collaborative approaches to managing risk and uncertainty in decision making. In this article, we reflect on these experiences and the lessons on climate change adaptation to be drawn from them.

As a neutral organization helping to resolve land use disputes of all kinds, CBI has distilled discrete lessons and best practices for planners and others in a position to manage land use disputes (Nolon, Ferguson, and Field 2013). Increasingly though, climate change and its related risks, uncertainties, and complexities are seen as an important part of the broader land use conflict "story." For example, disputes around locating a facility near a shoreline raise questions about the impact of the facility on the surrounding area and environment, as well as concerns about the likelihood that sea level rise could make the site itself untenable years from now.

Stakeholders inevitably have different perceptions of how certain, imminent, and preventable climate change is, and what risks it will present. Moreover, problems involving climate change are

incredibly complex. Understanding the impacts of climate change on the Colorado River, for example, involves thinking through a web of hydrological, legal, social, economic, historical, and other considerations.

In short, confronting climate change involves reconciling different perceptions of risk, moving forward despite a high degree of uncertainty, and finding ways to leave room for adapting and changing course within a complex environment. Our series of workshops has focused on bringing these threads together through the lens of joint fact finding, joint risk management, and collaborative decision making.

Risk Management Workshops

With support from the Lincoln Institute in 2009, CBI developed its first two-day workshop on climate change adaptation, which aimed to bring together expertise in risk management, scenario planning, and consensus building. Our goal was to share best practices in these areas to help land use decision makers consider different ways to approach climate as a key element of uncertainty in planning. CBI's training partners were Paul Kirshen, a risk management expert, and Stephen Aldrich, president of Bio Economic Research Associates (bio-era), an independent research and consultancy firm, and a longtime scenario planning practitioner.

Together we developed a curriculum that included presentations on each area of expertise, along with an interactive exercise based on the real threats that sea level rise is expected to pose to East Boston, Massachusetts. The course was revised and offered again in 2010 and 2011. In parallel, we developed an online version of the course that is now available on the Lincoln Institute website (see inside back cover).

The main premise of this set of workshops is that climate change should be seen through a risk management lens, and should be dealt with



through a process that is inclusive of the broadest possible range of stakeholder attitudes toward the probability of any particular climate change outcome or impact. If stakeholders feel their views and beliefs are treated as legitimate within the process, they are much more likely to participate and to buy into the outcomes.

In addition, scenario planning can help stakeholders approach potential climate change impacts by testing alternative actions against different possible futures to identify actions that best represent a “no regrets” decision. Implicit in this approach is the understanding that it is as foolish to ignore the possible impacts of climate change as it is to spend funds extravagantly to prepare for threats that may not emerge in the future. In this way, scenario planning truly recognizes uncertainty.

CBI began working with the Sonoran Institute in Phoenix, Arizona, in 2011 to bring the workshop to the western United States, with a particular focus on collaborative scenario planning. With Jim Holway, director of the Sonoran Institute’s Western

Lands and Communities Program (another Lincoln Institute joint venture partner), and Stephen Aldrich we developed a one-and-a-half day workshop, held in Phoenix in March 2012. It focused on scenario planning methods as a way to move diverse, competing interests forward despite uncertainty, disagreement, and even political polarization, on topics such as climate change, water resource planning, and growth management.

The scenario planning method outlined by Aldrich involves convening a multi-stakeholder group to generate jointly a set of plausible scenarios for the future of a place or problem over a given time horizon. Policy options are measured against the scenarios using a set of criteria that are also generated jointly. Two key distinguishing features of this approach are the involvement of stakeholders throughout the process and the assumption that all of the scenarios should be regarded as equally probable.

This approach to scenario planning is not simply an analysis of alternatives, but an effort to

The Glen Canyon Dam on the Colorado River is critical to water management in the southwestern United States.

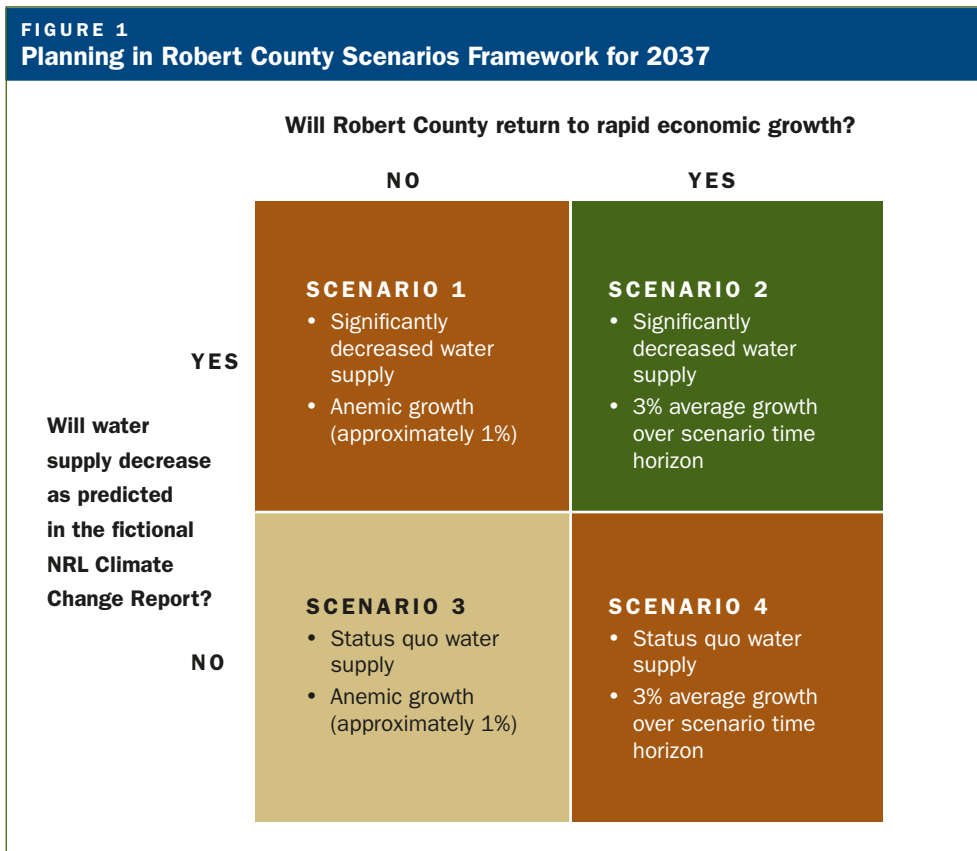
imagine different futures based on what is known today, what is most uncertain, and what are considered the most important drivers of change in the system being considered. The next step is to consider how multiple policy options and other actions fare across those different futures when measured against key criteria such as cost, efficacy, and adaptability.

Throughout the Phoenix workshop we reinforced these concepts and the process steps using an interactive exercise based on the real threats that climate change is expected to pose for water in the southwestern United States. The exercise, called “Planning in Robert County,” presented a fictional Sun Corridor county facing pressure to increase development even as the water supply was projected to decrease due to climate change. The participants used this case study to identify the most important factors for the county, and then translate them into elements of future scenarios by categorizing them as “pre-determined elements,” “major uncertainties,” or “driving forces.”

In the final exercise, participants were given roles that represented common stakeholder groups

and interests (e.g., Robert County Board of Commissioners, Robert County Agricultural Association, or Andres River Environmental Organization). They also received a scenarios framework based on two major uncertainties: Would Robert County return to rapid economic growth; and would decreases in water supply due to climate change predicted in the fictional “NRL Climate Change Report” prove correct (figure 1)? The participants had to evaluate a set of water policies using this scenarios framework, while also taking into account the interests and perceptions provided in the role descriptions assigned to them.

The participants, who came from state and local agencies, academia, and the private and NGO sectors, reported that the workshop was extremely helpful for understanding both how collaborative scenario planning works and how it could be useful in their professional contexts. Engaging in a step-by-step simulation of a scenario planning process helped them gain a clearer understanding of what such a process is like, and the benefits and challenges of working with multiple stakeholders.





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Many participants were asked to play a role that had very different interests and perceptions of climate change from their own personal or professional situation. This experience provided an opportunity to learn about how other stakeholders might view this type of problem. Several participants asked for more information about the consensus building aspect of process, such as convening the process at the start and conducting an assessment to understand which stakeholders to involve and what issues to address. Many participants agreed that collaborative scenario planning was potentially useful as a dispute resolution tool.

Lessons Learned

The progression and ongoing development of these workshops has helped us distill several lessons on teaching and utilizing collaborative tools for addressing risk, uncertainty, and complexity in decision making.

Clarify Terminology at the Outset

Terms such as *consensus building* and *scenario planning* mean different things to different people. Some interpret consensus building as compromise. We often hear from stakeholders concerned that if they participate in a consensus building process

they may be forced to give in on their most important interests. When CBI talks about consensus building approaches, however, we mean efforts that aim to meet stakeholders' key interests in a way that results in an agreement that maximizes joint gains (Susskind, McKernan, and Thomas-Larmer 1999).

For some people scenario planning suggests a way of working toward a preferred or "official" future, while for others it is a method for forecasting. By contrast, Aldrich's methodology emphasizes the formulation of a portfolio of plausible futures that are taken to be equally probable, and then tests proposed policy actions and/or strategies within each scenario to uncover which one would perform well across most or all of the scenarios, and thus could be considered the most robust.

Aldrich emphasizes that this method is best utilized for "wicked" problems, which are characterized by high degrees of both uncertainty and complexity. Likewise, he distinguishes expert scenario planning processes from multi-stakeholder approaches. We argue that involving a diverse set of stakeholders throughout the scenario planning process helps ensure that local knowledge is tapped, that diverse points of view are represented, and ultimately that decisions taken will be seen as more legitimate and thus more easily implemented.

Workshop participants simulate a multi-stakeholder scenario planning process.

Allow Time to Build Comfort with Complexity

Most people don't spend their days thinking about highly complex and uncertain problems in terms of multiple possible futures. Rather, we are more comfortable with linearity, and with rational decisions based on facts and our own perceptions and preferences. By their nature, though, methods to tackle the complex issue of climate change require a different way of thinking and a certain comfort with the unknown. Thinking about equally plausible futures is new for many people, whether they are participants in a workshop or in a real scenario planning process.

This dynamic was evident at our workshop in Phoenix, for example, when participants in the Robert County exercise were asked to think about how specific water policies—such as transferring existing water rights and increasing water prices—performed in a scenario that was essentially status quo versus a scenario in which water supplies were significantly decreased while economic growth continued apace.

Participants found it difficult to apply one policy across different futures, and to separate their own policy analysis from the interests and priorities of the role they were asked to play. The person whose role required vehement opposition to the idea of paying more for water, for instance, had a hard time recognizing that this policy might work very well in a scenario of scarce water and high growth. This difficulty of separating interests and perceptions from “objective” scenarios translates into real life as well.

To help manage this dynamic, it is important to name the mental shift that is required to handle complexity and uncertainty, recognize that it is not an easy one to make, and give people plenty of time to get used to it. For the purposes of the workshop we found it helpful to regard the exercise of helping the participants measure one policy against four plausible futures as a legitimate and important goal in itself. In the context of real scenario planning, practitioners might find it worthwhile to help stakeholders build their capacity for working with scenarios early in the process.

Leave Time for “Interactive Doing”

Making any workshop interactive is usually helpful, both pedagogically and to keep the audience engaged. Interactivity is especially important for

teaching heavily conceptual approaches to handling risk, uncertainty, and complexity. Many people work better when concepts and theory can be tied directly to a relevant reality. Giving people a concrete example or exercise that is familiar, but does not directly reflect their real-life situation, can help bring concepts “down to earth” while leaving room for the participants to experiment with new ideas and points of view (Plumb, Fierman, and Schenk 2011).

Another reason for “interactive doing,” as we came to call it in Phoenix, is to help people see both the challenges and the value of going through a process such as collaborative scenario planning. For example, it may be clear in principle that using major uncertainties to structure future scenarios makes sense, but when it is time to select those uncertainties, this decision making becomes harder than it sounds.

When we asked participants to identify the major uncertainties for Robert County, a strong debate unfolded: Should climate change be treated as a major uncertainty, or is it a predetermined element? Is economic growth a driving force, or is it a major uncertainty? Participants commented afterward that they were surprised at the debate, but found it immensely valuable to see how a group of people could draw such different conclusions based on the same three-page fact pattern.

Building in time to practice the concepts, then, is critical to reinforce ideas, link them to real problems and issues, and illustrate the value of voicing different interests and perceptions. In the context of workshops, we recommend fictionalized but realistic interactive exercises such as Planning in Robert County, which can provide relevant information, reinforce concepts, and encourage participants to take on perspectives to which they may be unaccustomed.

Utilize Consensus Building in Cases of Risk, Uncertainty, and Complexity

The common thread throughout our experience in developing and revising these workshops is the notion that consensus building techniques have an important place in climate change adaptation, and in other decision-making processes that confront risk, uncertainty, and complexity. Engaging representatives of affected stakeholder groups in a meaningful way helps ensure that a range of perspectives and interests are expressed, that local knowledge is utilized, and that the process leads

to a robust way forward that is widely viewed as legitimate and credible. Moreover, stakeholder groups can be involved in implementing policies if that is appropriate, especially if a collaborative adaptive management approach is pursued (Islam and Susskind 2012).

Particular consensus building tools and techniques used in collaborative scenario planning and other processes include assessment and process management. At the beginning of a process, an assessment can be done to identify stakeholders and issues to discuss, take account of stakeholders' capacity to work with scenarios, and design a process for moving forward based on the findings.

Assessments are often done by a neutral party, who begins by conducting confidential interviews with a broad range of stakeholders. The interviews are summarized in an assessment report that synthesizes the main points of view and issues that were voiced, without attributing any particular statement to any particular stakeholder. Stakeholders should be given the opportunity to ensure that their perspective was captured accurately. On the basis of the assessment findings, the facilitator and the convener can decide whether to move forward with a multi-stakeholder process, and if so how the process should unfold.

A facilitator or team of facilitators can also be used to manage the collaborative process, if it is decided that one should move forward. Neutral process managers can help keep the conversation productive and collaborative, and can help the group reach agreement at key points, such as when selecting scenario elements and criteria to assess policy options.

For example, CBI, with support from the Lincoln Institute, recently facilitated a sea level rise summit designed to boost urban coastal resilience in New York City. The facilitators were able to bring together representatives of state and local agencies, advocacy groups, and other stakeholders whose discussions had stalled, and then to enable a conversation that produced concrete next steps for building coastal resilience and a commitment to continue working together. Facilitators can also help groups think through implementation of any policies or agreements that result from the process, including collaborative adaptive management efforts.

Conclusion

In order to make decisions today that relate to the impacts of climate change in the future, CBI's recent work has reinforced the notion that it is necessary to build capacity for managing risk, uncertainty, and complexity in a way that remains closely connected to the real problems and issues that communities face. Moreover, it is important to engage in decision-making processes that accommodate these challenges, rather than try to make decisions in spite of them, by using methods such as scenario planning and adaptive management. In many situations, however, it is not enough for experts to use these tools without consulting other stakeholders. Often the most robust decisions are those informed by the stakeholders who will be affected by climate change and by the decisions made to try to manage it. **L**

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