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Outcomes of Collaborative Water Policy Making: Applying Complexity Thinking to Evaluation

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Sarah Connick and Judith Innes

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Applying Complexity Thinking to Evaluation[1]

Sarah Connick and Judith Innes

> The overthrow of beliefs is not immediately followed by
> the overthrow of institutions; rather the new beliefs live for
> a long time in the now desolate and eerie house of their
> predecessors, which they themselves preserve, because of
> the housing shortage.
> —Friedrich Nietzsche in *Human All Too Human*

We have come to believe, along with many others in the policy
world, that collaborative dialogue among stakeholders is the most
productive way to address complex and controversial policy questions
(Yankelovich 1999). In our research we have observed time and again
that, as skeptical and warring stakeholders begin to talk with the aid of
carefully structured meetings and facilitated dialogue, skeptics become
believers. When the process is well-managed, the stakeholders are
interdependent, the issue demands action, and the stakeholders cannot
address their concerns by working alone, these warring participants stay at
the table, where they develop new ideas and strategies. They often
discover there is much on which they agree and begin to develop a shared
sense of the problem and of a mission. Many, if not most, end up
preferring this process to the more confrontational styles to which they
have been accustomed. They appreciate the learning that takes place and
the new relationships they build. Even when agreements are not reached,
they tell us that the process was valuable, although they cannot always put
their finger on just why. What they do know is that the old way was not
working and that is why they came to the table.

When it comes to evaluating these collaborative processes,
however, public and media assessments, and even the assessments of
participants, often suggest a process has failed when no formal agreement
was reached, if an agreement was reached but it was without some
participants' assent or was later challenged by a participant, or if the

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[1] The conceptual framework for this paper is found in two earlier articles (Innes 1999;
Innes and Booher 1999a). The findings about outcomes were developed by Connick
(forthcoming).

agreement turned out to be something people believed would have happened anyway. In general, assessments tend to point to failures instead of successes, to things that did not happen rather than things that did. But these assessments miss most of what collaborative dialogues actually accomplish. In focusing on formal agreements and what becomes of them, they miss the ways such dialogues change the world and reshape the policy context. Forms of collaborative policy making such as consensus building represent an entirely new paradigm in public policy. While people have tried to reach consensus in small groups that often have been quite collaborative, the techniques and principles of interest based negotiation (Fisher and Ury 1981) and the increasingly codified practices of consensus building (Susskind, et al. 1999) permit collaborative policy dialogues to be conducted on a much larger scale, to involve more stakeholders, and to be done in a more systematic way than ever before. These practices are converging with the work of social theorists such as Habermas (1981), whose theory of communicative rationality basically reflects a consensus building process built on interests (Dryzek, 1990), and Anthony Giddens, who recognizes the importance of forums, arenas and courts in societal decision making (Giddens 1984; Bryson and Crosby 1993).

The reason that many formal and informal evaluations of consensus building and policy mediations miss the point, we believe, is that they are coming from the perspective of a different and older paradigm of governance and policy making. They apply criteria to these new practices that are appropriate for assessing institutions such as legislative or bureaucratic decision making. But these criteria are not appropriate for collaborative policy dialogues because they are built on an entirely different theory of the world; they work in different ways, produce different sorts of results, and are accountable in different ways. But as Nietzsche said, even when we change our beliefs we continue to dwell within the old institutions because we don't have new ones to move to. That is the case here. We need to build new institutions that mesh better with collaborative policy making and other forms of alternative dispute resolution. This paper is an effort to move that process along by, on the one hand, outlining a world view grounded in the idea of complex adaptive systems within which collaborative policy making makes far more sense than in the much more mechanical view of the world that now governs bureaucracies and legislatures. On the other hand, our purpose is to use this world view to help us to "see" and appreciate the many types of outcomes of collaborative policy making, of which formal agreements may be the least important.

Contemporary institutions of formal governance in the United States consist of legislative bodies and elected leaders, whose task in principle is to set broad policy. Formal governance institutions also include executive agencies, which are responsible for implementing these policies with programs and regulations, and a judiciary, where those who are unsatisfied with the bureaucratic and legislative decisions can go to battle over their legality and constitutionality. The overall institutional framework gains its legitimacy by the fact that leaders are elected by the people, and presumably all that happens is a reflection of this will and done through a due process of law following well established procedures and criteria. There are many ideas and assumptions about human nature and the workings of society behind these institutions and the ways we evaluate them or hold them accountable. Perhaps the most important assumption behind these familiar institutions is that the world works rather like a machine—that it is predictable and, at least in theory, it should be possible with adequate information and expertise to come up with the policy, program or regulation that will meet a defined objective and produce the desired outcomes. It also assumes that procedures for adjudication will resolve differences and the results will be fair and beneficial for society.

There are many problems with this idealized version of governance today, of which waning legitimacy is probably the most significant. Trust and confidence in government is now at a low level for many reasons. The public does not see the outcomes it wants. California's famous tax limitation voter initiative, Proposition 13, was passed more than 20 years ago as a result of pervasive distrust of government as a fiscally responsible agent, and polls today show that trust has not increased. Campaign contributions interfere with voters' ability to believe that elected officials respond to the people's will. In California, few initiatives have emerged from the state legislature or governor in the last decade that were bold attempts to resolve complex problems, just as few such initiatives have emerged from the federal government. The occasional bold initiative has often produced unanticipated, counterintuitive and destructive results. California's power deregulation scheme is just the most recent example where the goal of reducing power costs through creating a market has instead resulted in skyrocketing power costs with the potential to cripple the state's economy. Proposition 13, which was intended to reduce the amount of "fat" in government, instead ended up reducing the operation of essential services and transferring power and resources from local to state government. Whatever regulations bureaucracies or legislatures can invent, there is always someone who can find a way around them. Few public programs produce their intended outcomes, and programs and

regulations often work in completely different ways in one context than another. Globalization interferes with control by government at all levels. Political fragmentation among public agencies makes concerted governmental effort on any shared problem, like water supply or transportation, almost impossible through the traditional institutional forms. And the private profit and nonprofit sectors are increasingly necessary partners in any action, although they have no direct, or even legitimate, official role in these formal institutions. President Bush's recent initiative to fund faith based organizations to provide social services poses serious dilemmas for the constitutionally required separation of church and state, but it is also a recognition that such organizations already play a central role in service delivery to many needy populations and that such separation is increasingly difficult to define. Courts often are unable to produce wise solutions as they find in favor of one disputant or another without the opportunity for reaching mutually satisfactory solutions, much less societally beneficial results. These kinds of problems in attaining desired outcomes are behind the growth of alternative dispute resolution and collaborative policy making.

We are unlikely to get out of a situation in which the norms, concepts and expectations we have offer such a poor match to reality and provide us so little in the way of results unless we begin to rethink our world view. In doing so, we can understand the underlying dynamics and logic of emerging practices and begin to build institutions that are more likely to produce the kind of results that we want. In particular, we contend that the premise of our understanding needs to be that the world is a complex, evolving system, the behavior of which, unlike a machine, cannot be controlled by any agency, person or institution, regardless of how clever and well informed. The world is a system that has its own dynamics, even its own life (Kauffman 1995; Capra 1996). In the right circumstances (and assisted by appropriate institutions, norms, and heuristics) complex systems, whether natural, social or physical, can become intelligent adaptive systems. These systems can respond proactively to stresses, demands, and information from the environment, and to unanticipated consequences of their own internal dynamics, with the result of not just surviving but also moving to higher levels of performance. They can do this because individual agents or nodes in a networked system in effect experiment, often by random selection, with various actions. Some experiments fail but others succeed and, in the process, the whole system evolves and develops. Complex adaptive systems can innovate and move to a higher level of performance without central guidance, but rather through distributed intelligence. Information

flows and feedback from actions allow each agent to adjust its activities based on its own local knowledge.

As Innes has argued elsewhere (Innes 1999; Innes and Booher 1999a), consensus building can be best understood as part of such a complex evolving system, and its benefits can be attributed in great part to its performance in making such a system adaptive, innovative and intelligent. Collaborative policy making links the agents that produce results, and establishes information flows and feedback that help them learn, and accordingly act in more productive ways. If you think of collaborative policy making in the light of this complexity model, you get an entirely new perspective on what it can or should accomplish. Agreements may still be of some importance, if only as targets or markers of success, but in the changing complex adaptive world their value may be ephemeral. What are not ephemeral are the new relationships and institutionalized practices, norms and behaviors that emerge in the process.

Outcomes by Which to Evaluate Collaborative Policy Dialogues

Innes (Innes 1999; Innes and Booher 1999a) proposed a set of outcomes that ideally can emerge from authentic policy dialogue and consensus building. This list is based on the kinds of outcomes that we found to emerge under certain conditions in other consensus building processes that met the process criteria.[2] The list is also framed by the idea that collaborative policy dialogues operate within a complex, self-organizing adaptive system, and the outcomes are the sorts of things that would help this system move to higher levels of performance. Any of these outcomes may be sufficient to regard a process as a success.[3]

- **Social and Political Capital.** Formerly competing, or even warring, stakeholders can develop new personal and professional networks among themselves and, as a result, change the dynamic within the

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[2]   These criteria are the following:
  - The dialogue includes representatives of all relevant interests.
  - It is driven by a practical purpose and task shared in the group.
  - It is self-organizing.
  - It is engaging to participants as they learn and interact.
  - It encourages challenges to assumptions and the status quo and fosters creativity.
  - It incorporates many kinds of high quality information.
  - It seeks consensus only after discussions have fully explored issues and interests and significant effort has been made to find creative responses to differences.

[3]   The following section on outcomes is adapted from an earlier article (Innes and Booher 1999a).

dialogue as well as outside it. Instead of demonizing or stereotyping each other, they can contact each other to sort out issues before they come to a head. They can find their common interests and trust each other sufficiently to work together toward ends that require political coalitions. Social and political capital is the essence of building an adaptive, higher performing system.

- **Agreed-on Information and Shared Understandings.** At the beginning of a process, data presented by any stakeholder is typically regarded with suspicion. During a collaborative dialogue, one of the main points of discussion is normally about the "facts," about what can be regarded as true and unbiased in scientific terms. Dialogue also revolves around the meaning and applicability of any information as participants test it against what they know and have experienced. Such shared knowledge then becomes part of the thinking and actions of the stakeholders as they go about their business in many arenas beyond that of the particular dialogue.

- **End to Stalemate.** In many cases, powerful players have been at loggerheads for years, with little improvement in their situations, much less action to protect a resource or change a counterproductive policy or pattern of action. Even when formal agreements are not reached, a collaborative dialogue can produce changes in behavior and actions, allowing policies to move in new directions and players to move off of their collision course.

- **High Quality Agreements.** High quality agreements genuinely alleviate, if not solve, problems; they are widely acceptable among the parties whose support is needed and among the public; and they are practical and implementable.

- **Cost Effective Decision Making.** A good collaborative dialogue can produce its results in a way that can be more cost effective, in terms of many types of resources including time and money, than a process characterized by continuous rancor, litigation and competing legislative and citizens' initiatives.

- **Learning and Change Beyond the Original Stakeholders.** In collaborative dialogues, stakeholders and the agencies or interests they represent can learn about one another's interests and the problem, and they can change the way they view their own interests. They may change some of their own actions quite independently of anything agreed to by the group simply because they have concluded it is in their interest to do so. This learning also can transfer to those they work with outside of the process and after it has been completed.

- **Innovation.** The dynamic of a self-organizing, learning group of stakeholders trying to solve a policy problem in a consensual way often can lead to innovative ideas. Overcoming the long-term impasses often requires out-of-the-box thinking. This sort of thinking does not emerge from bureaucratic decision making almost by definition; the rigidity of rules and positions is often the source of the original conflict. Innovation is the essential element in creating a truly adaptive system that can move to higher levels of performance.

- **A Cascade of Changes in Attitudes, Behaviors and Actions.** The first-order effects that take place among stakeholders during and immediately as a consequence of the dialogues are followed by second- and third-order effects that take place in the years after the process is over. This cascade of effects can include the influence that the stakeholders have on others not at the table, and the choices players make to work collaboratively rather than bring lawsuits or work in other arenas for their own purposes. These changes may include spin-off partnerships, collaborative implementation efforts, and new practices by players who were not even at the table as they follow the example of a successful effort.

- **Institutions and Practices that Involve Flexibility and Networks.** As the ideas and experience of collaborative dialogues spread, it becomes clearer that such face-to-face dialogue allows for greater creativity and responsiveness to crises and opportunities. It becomes clearer that the mechanical model of the world is not serving us well in a period where change is so rapid and systems are complex. Increasingly, and in great part as a result of collaborative dialogues, the idea is spreading that networks are the most rapid and flexible way to work and the most effective way of gathering and using information flows among many nodes. An outcome of collaborative dialogues can be the institutionalization of the norms, heuristics, and practices used to build and function within networks to respond to societal needs. As these institutions develop, they result in increasing collaboration, and more importantly coevolution among the participants. Top-down regulation and management using blueprints are increasingly replaced by distributed intelligence and information gathering, rapid information flows among players, and distributed action.

The outcomes of collaborative policy dialogues can be seen in terms of first-, second- and third-order effects. The first-order effects, which occur during a dialogue itself, include the building of social, political and intellectual capital, agreements, and innovative ideas and strategies. The second-order effects, which tend to be visible in the

following year or two although they begin to emerge in the process itself, include new partnerships and collaborative activities, coordinated and joint action, learning that extends into the larger community, changes in perceptions of problems and of other stakeholders, changes in practices, and implementation of agreements or strategies. Third-order effects are also important, although tracing their roots back to a collaborative process is increasingly difficult as time passes and other factors are also at work. These effects include the development of institutions that are compatible with, or even built on, collaboration, along with the norms and heuristics that support the institutions; a pattern of stakeholders coevolving rather than fighting or polarizing as a way of dealing with difference; new discourses that are shared across competing players; and ultimately adaptations of cities, regions, resources, and services. It is our view that these adaptations will typically move in the direction of greater sustainability (Innes and Booher 1999b).

The Research

These ideas about outcomes were developed as a result of earlier case study research (Innes, et al. 1994) and on the practical experience of David Booher, who has managed many consensus building processes in California in the last decade. We have found the idea of complex adaptive systems to be a unifying concept for making sense of how and why these different kinds of outcomes occur and are valued. We recognized, however, that it is difficult to identify many of these kinds of outcomes in practice, especially second- and third-order effects, much less to attribute them to particular consensus building efforts or collaborative dialogues. Evaluations of alternative dispute resolution (ADR) processes and collaborative policy making efforts are most often conducted just as the processes are ending, well before many of the outcomes become visible and the real results in a sense have matured and flowered. Almost inevitably they focus on assessing the process itself, looking at whether agreements were reached and whether participants were satisfied.

Water policy making in California provided us an opportunity to identify many of the more elusive and less studied consequences of collaborative policy dialogues, and to explore their second- and third-order effects. Nearly a decade ago, Innes, in collaboration with others (Innes, et al. 1994), completed an in-depth case study of the San Francisco Estuary project, a collaborative effort involving 49 diverse stakeholders to develop a comprehensive management plan for the San Francisco Bay and Delta. This five-year effort, which was formally completed in 1993, seemed to have some modest, but not necessarily very significant, consequences when Innes looked at it in its final year. These consequences included a

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management plan that may or may not have represented what would be done anyway, a set of agreed-on data on the state of the estuary, and an indicator to use as a warning sign when the biodiversity of the estuary was particularly at risk. The plan had no particular "teeth," as many complained. The governor promptly refused to use the indicator and set up yet another group including different stakeholders to review water policy issues. Many observers and participants were disappointed because they felt the process had not been successful.

In the ensuing years, however, it became evident that there were significant additional consequences—cascades of changes had been set in motion by this process. The federal government decided to use the indicator developed by the SFEP and ultimately forced the state government to use it as well. The result was that substantial water was released into the estuary to protect the environment, over the strong objections of the powerful farming and urban water supply lobbies. The Governor's new stakeholder group evolved into another stakeholder group, and a series of short-lived agency and stakeholder agreement-seeking efforts eventually resulted in the establishment of a statewide process known as the CALFED Bay-Delta Program, which is currently making historic and extraordinary proposals in a largely consensual manner. That process has brought to an end a hundred years of water wars so that today only skirmishes are continuing. The CALFED process has raised many millions in bond issues in a state where almost no revenue raising measures pass, and it has produced innovative ideas for new institutions and practices, some of which are already being implemented.

This sequence of events provided us an opportunity to trace the short- and long-term outcomes of collaborative dialogues. We could follow-up on the specific outcomes of the SFEP, as well as trace some of the changes in the way water policy was made during the 1990s, including the new principles and practices that emerged as one process transformed into others, and as new processes were built on the experience and learning of participants and observers of other collaborative processes.

Therefore, we decided to study systematically three linked cases of water policy making in Northern California. First, we developed an epilogue to the San Francisco Estuary Project case, looking at what happened after the group disbanded, as well as at what some of its spin-off effects were by 1998.[4] The US Environmental Protection Agency (EPA) established the SFEP in 1988 as part of the National Estuary Program, convening stakeholders from real estate, fishing, farming, local

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[4]   The original case is part of a larger monograph (Innes, et al. 1994). The extended case has also been published (Innes and Connick 1999).

governments, environmental groups and builders, along with high-level staff of key state and federal agencies. It was not a full-fledged consensus building process, which always has facilitators and carefully managed dialogue, but it was a collaborative policy making effort and many of its key work groups functioned in a consensus building mode. They produced and unanimously adopted its plan—the Comprehensive Conservation and Management Plan (CCMP)—in 1993.

We studied a second project known as the Sacramento Water Forum (later the Sacramento Area Water Forum), which was initiated in 1993. This process was instigated and funded by the City and the County of Sacramento and focused on the Lower American River, which flows into the Delta and is an important element of California's water supply. Its purpose was to find a way to provide sufficient water flows to protect the endangered species that depend on the river, while also providing adequate water supplies for the growing Sacramento region. There were far more demands on the river system than could be met, and these demands had spawned disagreements on topics ranging across water rights, the construction of new facilities, groundwater management, water conservation, habitat restoration, and much more. Stakeholders included 20 different public and private water supply agencies throughout the region; developers, real estate interests, and other business groups; environmental interests; and citizens' groups. On the periphery of the process was also the East Bay Municipal Utility District (EBMUD), the primary water supplier for the counties on the east side of the San Francisco Bay but not including Sacramento. EBMUD had a long-standing claim to American River water that had been the subject of legal proceedings for nearly 20 years. The Water Forum process lasted six years, at which time it evolved into a "successor effort," a collaborative stakeholder-based group set up to oversee the implementation of the Water Forum Agreement. This collaborative and complex dialogue met the conditions of an ideal type of consensus building process to a degree neither of the others did. It was fully self-organizing, well-funded and had substantial technical assistance; it used a highly skilled facilitator and the group's dialogue reflected a genuine search for consensus based answers. While the Water Forum had no formal relationship to the SFEP, some participants were familiar with that process and its results.

The third case we focused on was known as CALFED. This process was formally established in 1995, but, as noted above, it had evolved in part from the SFEP and some of its follow-on groups. CALFED was a collaborative policy making and water management process among the 18 state and federal agencies that had responsibilities for distributing and managing water supply and protecting its quality. It

was the first time ever that such an extensive and systematic collaboration had ever been tried among state and federal agencies, many of which had been at odds with each other. The process also involved stakeholders from nongovernmental interests, Indian tribes, and local and regional water agencies that were appointed to the 35-member Bay Delta Advisory Council, a federal advisory committee that provided input to the overall effort. The CALFED project became increasingly ambitious over time, and its tasks included, among other things, identifying the actions needed and raising funding to protect the environment and water supply, developing new operations and management strategies to help make better use of water, and making decisions about needed facilities and environmental restoration projects.

In each of the cases, we observed meetings taking careful, nearly verbatim notes, reviewed hundreds of documents prepared for the process, and interviewed a representative group of participants and staff. While we came in at the end of the SFEP, we were able to follow much of the Water Forum as it was underway, and we spent over a year watching the CALFED effort.[5] We were able to interview many of the key players and staff to understand how they saw the process and various events and decisions, why they participated, and what they thought was important about what happened. We pored over mountains of documents representing not only the data and analyses they used, but also the ongoing ideas, trial balloons, controversies, and resolutions that developed during these processes.

Our primary purpose was to identify and catalogue at least the first- and second-order effects of each of these processes and to look for evidence of third-order effects. The study could not be set up to prove absolutely the degree to which a particular process was the cause of what we regarded as a second- or third-order effect. Many factors conspired to produce the changes we observed, including evolution in society and politics, and public understanding of the problem and how to go about solving it. On the other hand, we have reason to believe the "outcomes" we outline here would not have happened without the catalyst of the collaborative dialogue, and the etiology of many of the innovations and changed practices is comparatively clear. We believe it will advance the practice of evaluation of ADR and collaborative policy making and assist practitioners in seeing better what they are accomplishing if we can

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[5] At first, these meetings were closed to the public due to the CALFED legal counsel's interpretation of the Federal Advisory Committee Act (FACA). But with the advent of a new Democratic administration in Sacramento, the meetings were opened up to the public and members of the Bay Delta Advisory Council (BDAC) met alongside the leaders of the public agencies.

outline examples of some of the most important first-, second- and third-order results of these three water policy processes. This exercise also allows us to begin to test the idea that consensus building properly done can help make natural and human systems more adaptive, intelligent, higher performing and sustainable.

The Outcomes

Social and Political Capital

In each of the projects' early stages, stakeholders representing diametrically opposing views, who had fought each other in the courts or battled over legislation, tended to sit and talk mainly with others in their "caucus." But as time passed, stakeholders came to know one other and develop some empathy for each other's positions. They developed informal relationships over meals or through working together on a task force. Participants forged personal bonds that cut across their ideological and interest differences. In the Water Forum, water agency representatives teased environmentalists in good humored bantering amidst considerable shared hilarity about how the environmentalists would be out of jobs once they did not have the utilities to kick around. Environmentalists pointed out without rancor they were not being paid in the first place. Individuals began to sit and talk with those representing different perspectives, sometimes to work on how to resolve differences, sometimes just because they enjoyed each other's company. On more than one occasion, a stakeholder representing the development community stopped a discussion from going forward, although it favored his interests, because one of the key environmentalists was not there and he knew he would object. In fact this stakeholder even outlined his colleague's position for the rest of the group. These relationships often were continued outside the process itself in ways we cannot fully trace. In one example, a Corps of Engineers representative in the SFEP told us that during the course of the process he began to contact the Sierra Club representative to discuss possible projects in the hope of making alterations that would assure they could get the support of environmental interests. Similarly, one of the Sacramento water purveyors reported that he had begun to consult routinely with environmentalists on issues not related to the Water Forum because he knew they would be interested in them and could provide important input.

While this social capital and the personal and professional networks undoubtedly had many small impacts on both attitudes and actions of participants inside and outside the dialogue, it also translated into potent political capital. The trust and relationships built in the

CALFED process meant that all the important and otherwise opposing players jointly developed and publicly supported two major statewide ballot propositions designed to raise nearly $3 billion dollars for environmental restoration, water quality improvement and water use efficiency projects, and water supply facilities. The success of these measures was particularly remarkable in a state where voters routinely turn down revenue measures and where a two-thirds popular vote is required. CALFED also managed to raise substantial sums in federal funding and to get the Governor and US Secretary of Interior to sign key agreements that had been developed largely among the group. In the Water Forum, the political capital and trust the stakeholders had built in the course of developing their complex agreement on water management for the region, allowed them to effectively "sell" a proposal to the public that would require a number of unpopular water conservation measures, water metering, and rate increases. The Water Forum members even persuaded local Congressman Doolittle, who was not a fan of the Water Forum nor a supporter of environmental issues, to sponsor legislation to install a costly temperature control device on an upstream reservoir so that water could be released in a manner that would better protect the fish.

Agreed-on Information and Shared Understandings

Each of the groups developed a shared understanding of a problem and a sense of collective responsibility. At the outset of the SFEP, some stakeholders did not even believe there was a water quality or biodiversity problem in the Bay, and most were skeptical at best of the data that were offered. By the time the process was complete, however, the group had agreed on a status and trends report, and developed a shared notion that the Bay-Delta was an important regional resource affecting each of them and on which each of them had an impact. They recognized that they each were dependent to some degree on the actions of the others.

During the course of each process, participants negotiated and discussed the data and models that they would use to reflect existing conditions or predict the likely consequences of policies, actions, and other events such as droughts. In the SFEP, a status and trends report was very much a product of discussions among the technical experts representing different interests, but also included the managers, who wanted the information to be presented in a context that related to potential management options. This discussion weeded out the data that some players did not trust and produced sufficient shared confidence in other data to include. An intensive, facilitated weekend consensus building effort among experts representing the main stakeholders produced a new indicator of the health of the estuary—a salinity index—to

which all but one or two stakeholders agreed. Despite its counterintuitive quality for many of the nonscientists around the table, who could better understand indicators about levels of toxics or fish kills, virtually all the stakeholders came to understand why this was a critical indicator that reflected the complex conditions of the estuary better than other simpler measures. They even came to understand what this measure meant. Their agreement was so powerful that the federal government decided to use this measure. Eventually even the state agreed to do so, though as noted above it was politically very difficult for the governor because the consequence of using the indicator was that water which otherwise would have gone to farming and urban interests, instead had to be sent into the Bay. Since species do not vote nor give campaign contributions, this was undoubtedly painful, but the consensus around it was too powerful for him to ignore.

These discussions, along with detailed examinations of the analyses, predictions and models not only helped create comfort and trust in the data and a deeper understanding among the participants of the technical issues, they also resulted in improved information. In the most dramatic example we observed, technical experts hired by the Water Forum discovered an 800,000 acre-foot error in the projections of water supply made by the US Bureau of Reclamation. This was a huge error that could have undone much of the Forum agreement if it were not corrected. Still it took some persuasion to get the Bureau to alter its model. They were not as concerned with precision as the Water Forum, which was trying to allocate the water resources among many interests.

End to Stalemate

Countless examples can be found in these cases where stalemates dating back years or even decades were ended, and progress was made on issues long before formal agreements were reached. Sometimes stakeholders simply drew back from lawsuits and legislative advocacy, and began to talk with each other instead. For example, the Water Forum ended stalemate between environmentalists and water purveyors over the need to develop new water supplies. EBMUD and the Sacramento area groups had been in a stalemate over EBMUD diversions from the Lower American River because EBMUD wanted to divert water in dry years, when the Sacramento area interests were already planning to cut back their own diversions to protect the fish. However, talks and progress began during the Water Forum and an agreement eventually was made (see below). Water meters in the Sacramento area had been another serious bone of contention among different purveyors, as well with environmental groups. Some purveyors required water meters while others did not. Those that did not had concluded that even though metering would benefit

their agencies, their constituents would never tolerate it. Environmentalists were outraged that there were no meters on many thousands of housing units. Ultimately an agreement was worked out wherein purveyors committed to meter installation schedules that met their budget needs, and, where metering was prohibited by law, agreed to institute voluntary metering programs. Before CALFED, environmental groups had been suing the State Water Resources Control Board for more than a decade to force it to take action on water quality in the Bay. There had also been a stalemate on wetlands restoration around the Bay for years that ended as a result of a follow-on effort to the SFEP.

High Quality Agreements

In each case agreements were reached that could not have been without the collaborative dialogue process. Many of these agreements can be seen as wise, particularly in comparison to what was happening before, even if they were not necessarily the ideal that some group might have wanted. The SFEP agreements on the salinity index, status and trends reports, and the CCMP were important, but agreements in the Water Forum and CALFED were equally or more important, and they represented significant change. They were not the lowest common denominator results, which some fear from collaborative consensus building efforts. Instead participants in these processes moved well beyond the status quo to achieve mutual gains and innovative solutions to otherwise intractable issues. The Water Forum made many small agreements leading up to an overall agreement among all of the stakeholders in the immediate region.[6] The first was an agreement that protecting fisheries values and assuring a safe and reliable water supply were co-equal objectives. Another was an agreement on conjunctive use, which meant the purveyors would cooperate so that during dry years they would cut back their diversions from the river and use more ground water, and during wet years would take more water from the river, allowing the ground water basin to be replenished. This cooperative approach allowed the limited supply to serve more uses. Although attempts had been made in the past to manage the ground water collaboratively, they had not been successful. The trust and mutual understanding that developed among the parties through the Water Forum process provided the foundation for this dramatic change in practice. The Water Forum process even resulted in an agreement between EBMUD and the Sacramento area interests that would

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[6]   Some Sierra Foothills water purveyors were unable to come to an agreement with the Water Forum environmental groups because of continuing disputes with allied environmental groups in El Dorado County over plans for growth and development.

allow EBMUD to use its American River water in dry years, while also protecting the river's fisheries and the drought year supplies of the Sacramento purveyors. Under this agreement, the water destined for EBMUD will be allowed to flow to the American River's confluence with the Sacramento River, below which EBMUD will be able to divert it while still providing sufficient flows to protect the American River fisheries. Through CALFED, more than $250 million has been allocated to environmental restoration projects through stakeholder participation in a process that set priorities for funding. The CALFED process produced agreement on the design of a unique commission of nongovernmental stakeholders, and representatives of state and federal agencies and Indian tribes to oversee the state water management effort in the future instead of leaving the matter to a dozen or more uncoordinated public agencies.[7]

Cost Effective Decision Making

Our study was not designed to make cost comparisons. The processes we observed were expensive by some standards. The Water Forum cost $1.5 million per year for staff and technical assistance, not including the time spent by the stakeholders. We do not have cost estimates for the other projects, which would be much harder to calculate because so much of the cost was absorbed by the participating agencies. Staff were provided by EPA in the SFEP and loaned by a variety of agencies to the CALFED process. Certainly each of these cost at least as much as the Water Forum, as they too were heavily staffed with consultants of various kinds. The cost, however, must be compared to what the costs would have been without these processes. Of course, many of the outcomes would never have occurred using traditional institutional practices. But, if for the sake of argument, we assume both methods could produce these or comparable outcomes, much of the stakeholder and agency time spent around the table would have been spent fighting the same battles in other arenas, and developing data independently and competitively rather than jointly. The cost of these collaborative processes, if it could be measured, is likely to be at worst equal to those other alternatives, and at best much less. And those other alternatives for the most part would not have produced benefits like social, political and intellectual capital (Gruber 1994). As Fisher and Ury (1981) point out, these collaborative efforts produce allies rather than enemies, and thus have long lasting benefits rather than costs.

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[7] The California State Legislature and US Congress have not yet agreed to pass the legislation needed to establish this commission; however, the idea remains on the table as of this writing.

Learning and Change Beyond the Original Group

While learning and change that extend beyond the original group are some of the most difficult outcomes to identify, we have found considerable evidence of such second-order effects. One of the most obvious examples is CALFED itself, which resulted from the learning of many players at state and federal levels that had begun in the SFEP. Even the reluctant Republican governor had learned he could not do business as usual and that he, too, had to use a stakeholder group to move toward a viable water management policy. Less dramatically, but perhaps even more pervasively, each of these processes has changed the perceptions and understanding of players in ways that will inevitably color much of what they do in the future. The stakeholders in the SFEP came to understand the importance of science in understanding what policies and actions were needed. They developed a much more nuanced and sophisticated understanding of the dynamics of the Bay and Delta and the impacts of many factors such as wetland development, end-of-the-pipe discharges, and nonpoint source runoff. The view that the solution is simply to identify and stop polluters one-by-one, gave way to a more systems view where these polluters are only one part of a complex adaptive system as the Bay's waters respond to various changes including amounts of rainfall and farming practices as well as pollution sources. They developed an understanding that the solutions would have to be collaborative because of the complex interaction of interdependent factors. This view was then strengthened in the ensuing processes. By comparison, we studied (Innes and Gruber 2001) regional transportation planning in the Bay Area, which was not collaborative, but focused on dividing up a funding pie. In that case, the decision making group never came to understand the interdependencies in the transportation system nor did they move toward addressing congestion in an effective way.

In the Water Forum, one of the most political of the purveyors, who used the substantial control his agency had over water to try to do private deals with others, learned that such deals behind closed doors were no longer viable. He became a genuine participant in the collaborative process after a couple of years. His case was an example to others, and almost certainly the lesson will continue to influence his agency. A leading environmentalist in the Water Forum learned about the "Doolittle effect," that showed him that he could influence a local congressman not noted for his environmentalism by teaming up with other stakeholders.

Innovation

Creative ideas emerged in these lively dialogues as participants struggled to address problems that had eluded solution either because of differences and controversies over the conventional strategies, or simply because there did not seem, from a technical point of view, to be any viable answer. Many creative ideas operated first and foremost as triggers for out-of-the-box thinking. Although implementation of these ideas might not have been desirable, they were important because they were eye-opening. For example, the Water Forum stakeholders reached an impasse over the issue of how to handle the environmental mitigation requirements for projects. They had already come up with the innovative idea of creating a habitat conservation fund into which they would all contribute, but they would still be expected by federal law to do additional mitigation or contribute to a federal fund, which some purveyors objected to because they would in effect be paying twice for the same thing. Someone saw an analogy to the Boston Tea Party and suggested they should refuse to pay into the federal fund. While this was probably not a practical option, it triggered energetic discussion and ideas that helped them find a way around the impasse. In another example, a team working with CALFED came up with the idea of performance measurement scorecards. This was a novel concept designed to help stakeholders work out whether a particular strategy or program would serve their interests. Many stakeholders were fundamentally suspicious of new ideas and even resistant to them because of the unknown impacts. The idea was that stakeholders would decide for themselves what criteria they would like to apply, and a set of measures would be developed for each stakeholder. Then predictions would be made about the impact of any given project on those measures so that stakeholders could develop an informed position about the proposal and so that modifications of a proposal could also be made and tested.

The actual innovations adopted by these groups typically involved policies and practices that were much more adaptive and context dependent than the existing water management practices and regulations. These new practices involved stakeholder interests in decision making and allowed a real-time response to events, as opposed to the existing rote bureaucratic decision making processes that provided little leeway for dealing with unforeseen conditions. These new approaches were typically brought into practice quite independently of and prior to any formal agreement. They were ideas that everyone agreed would help, and thus people began to implement them. The innovations we identified mostly involved approaches for monitoring and evaluating information about resource conditions, and allowing designated agencies or stakeholders,

sometimes working in group processes, to react quickly according to some broadly agreed-on guidelines to manage dynamic situations. The guidelines were never hard and fast so the response could be tailored to the situation. These innovations demonstrate more than any of the other types of outcomes that a new paradigm is at work because they are not the sorts of things likely to emerge from traditional decision making institutions. More importantly, they reflect a different vision of how to get things done than we have had in the past.

An innovative example we have already discussed is the salinity measure developed in the SFEP. This sort of measure had not been used before, yet it was adopted by the federal and state management agencies as the criterion for the release of water in drought years. It was a simple measure and could be obtained quickly, allowing a rapid response before damage was done to the fisheries. The Water Forum developed an innovative flow standard that sets flow levels depending on how much rainfall there has been that year. And in the driest of dry years, when water is the most scarce, it requires the parties to come together to collectively figure out what to do. The adaptation of the temperature control device as a way of optimizing reservoir releases, in conjunction with monitoring conditions for when the migrating fish needed the cold water was a third key innovation that emerged as environmentalists and purveyors struggled to find ways to meet their differing objectives. This approach allowed water managers to respond to real-time conditions in the river and thus make more efficient use of the water resource, which allowed the water purveyors and environmentalists both to meet their objectives for the river.

Another of the most powerful innovations was a change in operations procedures. CALFED established an Operations Group, and several sub-groups that were responsible for evaluating and feeding information into the "Ops Group." Each of these groups consisted of federal and state water managers and regulators, and technical experts from diverse stakeholder groups. The idea was that information on fisheries, and water quality and flows could be evaluated quickly using the distributed intelligence of the diverse agency and stakeholder members. When conditions seemed to be threatening, the Data Assessment Team and "No Name" Group were mobilized to check the indicators, hold a meeting or conference call and collectively determine whether the conditions warranted action. Their consensus decision was then reported to the Ops Group, which implemented it, or if the Data Assessment Team and No Name Group could not agree on a recommended action, the Ops Group would make a decision itself.

In November and December of 1999, dry conditions, in combination with record high tides and the onset of a salmon out-migration, produced a very complex and difficult water management situation. The very actions that were required to protect the fish resulted in the degradation of water quality, threatening water exports to southern California. Over the five weeks during which these conditions prevailed, the Data Assessment Team and No Name Group held consultations almost daily. Using up-to-the-minute monitoring data, these groups were able to manage the situation on a day-to-day basis. Working in this manner, the resource managers were able to make key decisions at the lowest levels possible, elevate unresolved issues quickly, and keep all the agencies and stakeholders informed about the situation. The decision making was quick and effective, but the process also provided a much more nuanced response than a single bureaucratic agency could provide. Such an agency would require a standard triggered by a set of indicators. In fact, in the CALFED case, the resource managers already had several trigger-based regulatory requirements that conflicted with each other in this situation. Unlike the way decisions were made prior to CALFED, however, the regulatory agencies all were involved in the decision making, along with the resource managers and stakeholders. A particularly extraordinary aspect of this innovation was that stakeholders representing typically opposing viewpoints were able to come to agreement about the conditions. In the old paradigm, as soon as one of the conflicting regulatory requirements was exceeded, a stakeholder would likely file a lawsuit. In this case, even though some water purveyors felt the management decisions had been flawed and favored the environmental concerns over water supply needs, they also were at pains to say it was the right process and that they supported it. They wanted to continue working together to improve on the process and not to go back to the old way.

This innovation emerged in part because of the creativity of groups working together on the problem, but it was only possible because so much trust had developed among the agencies and stakeholders over the years of working collaboratively. By contrast in the transportation planning case we studied, the regional agency refused point blank to make any use of data provided by transit agencies in their efforts to measure travel times and needs in various transportation corridors. They said they would not trust the agencies to provide accurate data. In that case, the social and intellectual capital had not been developed through real collaborative dialogue nor was there the common sense of purpose that developed in these water policy examples.

Perhaps the most creative innovation to emerge from our cases, and the one that may have the most impact on California water supply,

was the idea of the Environmental Water Account (EWA) developed within CALFED. The idea emerged when one stakeholder scientist wondered, "What if there were a water agency for the environment?" This wondering led him, along with others, to develop the concept of an EWA consisting of assets—money, water, and possibly operational facilities— that would be managed cooperatively to provide water for fisheries protection on a real-time basis above and beyond what is already required by existing regulations. The idea was that by providing water for fisheries exactly when and where it is needed the water can be used more efficiently, and that by taking a preventative fishery protection approach, new regulatory measures will not be necessary. These results in turn would improve the long-term reliability of water supplies to urban and agricultural users.

This idea was a novel one that had not been tried before in California. While one of the members of the group is credited with the basic idea, the concept itself would not have been even imaginable without the trust and cooperation of the stakeholders. Moreover, the details could not have been worked out. Agency personnel and stakeholders from agricultural and urban water interests and environmental groups spent hundreds of hours working through various scenarios to test how the approach could be used, before recommending that it be implemented as a part of the overall CALFED program. The EWA concept is important not only because it incorporates complexity thinking and real-time adaptation into the management of water supplies and natural resources and collaborative management among state and federal agencies and stakeholders, but also because it is an anticipatory approach that seeks to prevent future problems. The Legislative Analyst of the state proposed that the legislature hold hearings on the EWA because it is such a new idea and its implications need to be explored (Legislative Analyst's Office 2001). The mere fact that the Analyst was proposing a serious look at this was an indication that it was viewed as a matter of substantial importance in Sacramento.

A Cascade of Changes in Attitudes, Behaviors and Actions

We can only begin to document the changes in attitudes, behaviors and actions that have resulted from these processes, based on what participants tell us and what we read in the newspapers. There is undoubtedly more that has not been noted by participants simply because it has become part of a routine way of doing things. What we have been able to observe, however, is indicative of what is happening. We have already discussed some of the cascade of changes that followed from the SFEP. Two others are particularly worth noting. The Chair of the SFEP,

who is now an Associate Administrator at the regional EPA, told us that he had learned from his experience with the SFEP. Therefore, when he put together another process to address the controversial issue of dredging in the Bay, he used what he learned to make improvements. In this process, known as the Long Term Management Strategy, stakeholders and agency employees broke through the "mudlock" that threatened to bring container shipping in the Oakland harbor to a standstill and produced a plan that is now being implemented for dredging materials reuse and disposal.

The SFEP produced another spin-off process that also has been highly successful. When the SFEP completed the CCMP, the stakeholders still had fundamental disagreements around wetlands issues. Rather than return to the intense fighting they had engaged in prior to the SFEP, however, the stakeholders formed a new collaborative process that focused solely on the wetlands issues. Five years later, this process, known as the Wetlands Ecosystem Goals Project, produced a consensus based agreement on the wetland and habitat goals for the Bay, and as a result, on-the-ground wetlands restoration projects are now underway. Upon the completion of the CCMP, a Friends of the Estuary group was formed that developed a newsletter, which has been sent regularly over the ensuing years to the widening network of those involved or interested in estuary related matters.[8] The SFEP also continues to hold State-of-the-Estuary conferences every two or three years, at which new information on a wide range of scientific and policy matters is presented by people working in the field. The sessions have included individual speakers, panel discussions, and frequent opportunity for audience questions and participation. These conferences are also used as an opportunity to track progress on the recommendations outlined in the CCMP. The popularity of the conferences has continued to increase, with growing numbers of numbers of people attending them each time.

The Water Forum was so effective and satisfying to participants and observers that a groundswell of interest among leaders in the Sacramento area led them to establish a similar forum on regional transportation and air quality, using the same facilitators.[9] These issues are of growing public concern in this sprawling region with its rapid growth, increasing congestion and deteriorating air quality. It is noteworthy that leaders in the region thought that collaborative policy

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[8] *Estuary*, an independent source for Bay Delta News and Views, completed its 9th volume in 2000. http://www.abag.ca.gov/bayarea/sfep/news/newsletter/index.html

[9] The California Center for Public Dispute Resolution, a Joint Program of California State University Sacramento and the McGeorge School of Law.

making would be the way to address this difficult set of problems. Similarly, in El Dorado County, where continuing conflicts over land use stymied water agencies' efforts to reach an agreement in the Water Forum, the County Board of Supervisors established a collaborative process modeled after the Water Forum to address the land use problem. The Water Forum also created its own successor, a collaborative stakeholder group, to oversee implementation of their agreement and to address new issues and problems as they emerged. The learning in the Water Forum was so widely shared among participants that by the end of the process they began to speak of the "Water Forum Way" to reflect the collaborative model they had been practicing and to distinguish it from ways of proceeding that were not consistent with the Water Forum Way. A leading business stakeholder in the Water Forum resisted business interests' demands that he pull out of the transportation air quality collaboration on the grounds that he had "sold out" to the environmental community. In an eloquent testimonial to the learning process he had been through he said,

> "We have no choice. We have to stay at the table.
> There is no alternative.… The Water Forum process
> transformed me. I now understand that collaboration is the
> only way to solve problems. I do it now in everything I do,
> including running my business and dealing with my
> suppliers, employees, and customers."

CALFED seems to have speeded up the larger process of change, as it has affected a much wider circle of players directly and indirectly, reaching across the entire state. It received intensive publicity in the late 1990s as it worked toward forging historic agreements, and in this process the concept has spread. It has set up numerous subgroups and working groups with diverse stakeholder and agency participants. It has become very much a self-organizing and evolving process as the players learn how to do this type of collaboration and figure out ways to apply or use what they have learned about the problems and about process.

Institutions and Practices that Involve Flexibility and Networks

We have already noted a number of new types of organizations and formal institutions that have emerged or are emerging from these processes, including the Wetlands Goals Project in the SFEP; the successor group to oversee the next steps in the Water Forum, which is set up by a memorandum of understanding among the purveyors and others; and CALFED itself with its Operations and No Name groups. Other groups were formed that, like these, seem likely to be genuine institutions

that will last over time, even without the original stakeholders. These include the Sacramento North Area Groundwater Management Agency (SNAGMA), a joint powers authority through which area water purveyors are collectively managing their ground water resource. Other new institutional arrangements are under consideration now as a result of the CALFED process, including the establishment of a statewide commission to oversee the further evolution of CALFED and its water management efforts.

What these new institutions have in common and what distinguishes them from the more traditional governance institutions with which we have been working for so many years is, first and foremost, that they all involve collaborative discussion among stakeholders over policy, monitoring, and implementation issues. They represent an understanding, which deepens through the processes, that the world is complex, ever changing, and unpredictable and that many interests will continue to have a stake over time in whatever is done. They represent an acceptance that these stakeholders' interests must be addressed. These new institutional forms also reflect the stakeholders' learning that each has knowledge to contribute to the success of any effort, as well as the potential to stop many actions. These institutions are ways of building and maintaining the networks developed in the first stages, as stakeholders in the second stages keep in touch with each other and their own networks. They are ways of building public action on distributed intelligence and encouraging distributed action as much as centralized action.

In addition, these emerging institutional forms share the characteristic that they allow a kind of flexibility and adaptive behavior that traditional forms do not. The idea of having a stakeholder based collaborative management system is a way of recognizing that unanticipated things will happen that cannot be addressed effectively through a formal bureaucratic agency working from predetermined rules and principles. On the other hand, a group of diverse stakeholders and agency representatives can be entrusted with the task of figuring out ways to handle unanticipated events. They can check in with their agencies or members to learn more about a problem more quickly and more systematically than a bureaucracy or body of elected officials can. They can come up with innovative approaches to respond to setbacks or opportunities in a way that bureaucracies are not even entitled to do. They can learn faster and respond more quickly.

Institutions are more than formal organizations. Institutions also include practices and norms and heuristics for action. If we look at the institutions emerging from these collaborative policy making activities, their impact is much more extensive. Much of this has already been

described in the sections above. The "Water Forum Way" is one such example representing a new shared set of practices, norms and heuristics for policy making via open, collaborative discussion involving stakeholders. These went way beyond the Water Forum itself and became both a motivation for other projects and a guide to individual actions. The LTMS and Wetlands Goals Project are also examples of a process that emerged from a new set of norms and heuristics about how to address controversy as a result of the SFEP. The emerging norm of cooperation among competing stakeholders made possible projects like conjunctive use in the Sacramento area, the CALFED Operations Group, and the EWA. A recent newspaper report on a regional conference of farmers and government representatives illustrated how these norms have changed as a result of the Water Forum and the CALFED process:

> "Localized partnerships that dictate the direction of water dispersion throughout the Sacramento Valley have proven a step up from the adversarial relationships of the past, a panel of valley farmers and local officials said Thursday afternoon. The event...was one in a long series designed to keep local activists updated on progress achieved by a valley-wide system of localized water distribution partnerships.... 'This is an opportunity to share experiences because we're all in some form of partnership,' said moderator Jonas Minton, Deputy Director of the State Department of Water Resources."[10]

The mere fact that this conference was held shows both the increasing value placed on partnerships rather than adversarial relationships, and the norm of following-up on decisions and making sure that players are up to date on events and conditions. In this respect, it was similar to the follow-up SFEP conferences and in the same spirit as the newsletter. It represents another emerging norm of making sure intelligence is distributed and encouraging further cooperation.

Interestingly, Minton, a long-time employee of the Department of Water Resources (DWR), served as a key staff member to the Water Forum before returning to the DWR as Deputy Director. In the Water Forum process, Minton reported having learned a great deal about facilitating and structuring collaborative dialogues among diverse stakeholders. In bringing these skills back to the DWR, his appointment is just one example of how agencies are evolving as a result of these processes.

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[10] Sanders, Wes. "Cooperation: Water Pulls Groups Together, Partnerships Replacing Adversarial Relationships." *Marysville Appeal Democrat*, January 26, 2001.

An assistant county public works director, continuing to discuss these partnerships, said,

> "Each water district learned a lot more about surrounding water districts...but what made this special was that it was ours. It had local support—it had local credibility. The partnership brought together just about every politician in the area.... Now local newspaper stories tell of cooperation over water issues instead of criticism from all sides. I can't tell you there was a master plan. I can't tell you where this partnership is going to go. I can tell you things have gotten a lot better.… That's what CALFED did. It got people working together instead of looking for someone to blame."

These comments illuminate another emerging heuristic that is critical to working effectively with complex systems. The public works director not only did not expect to have a master plan, he was comfortable not knowing the future or where the partnership was headed. He was responding to the short-term feedback that things were improving and going in the right direction. This is exactly what agents in a complex system at the edge of chaos do necessarily, whether they are species or molecules or even bits of computer program. They pay attention to the immediate information they can gather about their environment and the effect of their actions to make a decision about their next actions. This is the only way humans can work effectively in such a complex system if they want it to move to a higher level of performance.

The overall approach of CALFED has moved toward institutionalizing a new approach to water management, which is both flexible and outcome oriented, rather than like the bureaucratic model, which is inflexible and input oriented. An article in *Estuary*[11] quotes a Sacramento Valley irrigation district official who characterized the old model and expressed his wonder at the changes. "We have been stuck in the West with a concept of water conservation that says, 'Here's the bar. We want you to jump this high.'" While such a bar may work for cities uniformly plumbed with pipes and faucets, it does not work so well for farm fields with different crops, soils and systems for irrigation, drainage and water delivery. The irrigation official added, "Moving away from the regulatory approach is the greatest step forward in conservation I have seen in 30 years. It is close to miraculous." The article continues,

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[11] "Gangbusters on Efficiency." *Estuary* 9(5):1,8. October 2000.

> "Rather than giving farmers and water districts a laundry list of Best Management Practices to carry out (line your canals, install drip irrigation, etc.), the new CALFED program would work by setting ecological and water quality objectives, assessing local and regional flow patterns, evaluating how area farms might change their water use to achieve the objectives, then providing financial incentives for them to do it.
>
> What's important is the outcome, not the specific actions for how to get there," says CALFED's Tom Gohring. "It's a shift from command and control to an incentives- and objectives-based program," expands Scott McCreary of CONCUR, hired to help CALFED facilitate a steering committee of 14 stakeholders… that began brainstorming a new tack on efficiency in October 1998."

It takes time for these new institutional forms to be understood, much less implemented, by those accustomed to the old paradigm. CALFED produced a Record of Decision (CALFED Bay-Delta Program 2000) that supposedly reflected the group's agreement, but the same irrigation district official, according to the *Estuary* article, complained that his stakeholder group would never have agreed to some of the stipulations, which assume a certain percentage of efficiency improvements for local, state, and federal projects. These types of assumptions are contrary to the notions of flexibility and being prepared for unexpected events and unpredictable conditions. "I have dim hopes for a program that expects us to cost share 50% of something that is not economically feasible.... Politics must have entered in here." It also remains to be seen whether the state Legislature will go along with the idea of creating a federal-state-stakeholder commission to oversee CALFED and potentially undermine what they see as their own authority to allocate funds or make big decisions—despite the reality that they have not been able to make the sorts of decisions that CALFED has. Three groups are bringing lawsuits in the hope of getting a better deal than CALFED seems to be offering them. In the scheme of things, however, these lawsuits reflect a relatively small amount of discord with the process and its outcomes. Whether these parties win or lose their cases, the sea change in water policy making has already happened. It will not go back to the old paradigm now because understandings and practices have already changed so much. One CALFED official quoted in the *Estuary* article noted, "To a person, everyone in CALFED is committed to the soft path approach first." This

consensus, that efficiency improvements, conservation and other management strategies should be employed before even considering new dams and conveyance systems, is a dramatic change from the positions of stakeholders only a few years ago.

Summary and Conclusions

We have seen from our studies of collaborative dialogues focusing on water policy making in California that these efforts have produced robust and lasting outcomes that extend well beyond the resolution of specific disputes. Together these and other examples demonstrate how such dialogues have profoundly transformed the policy making practices, as well as the way in which day-to-day decisions about on-the-ground management and operations are made. The California water policy arena has been a notoriously conflictual environment, in which parties frequently were at odds with one another on multiple fronts simultaneously, fighting one another through the regulatory and resource management agencies, the courts, Congress and the Legislature, and the voters. Today, however, these diverse parties are engaging in collaborative dialogues, focusing on joint problem solving rather than mutual destruction, and more often than not going to the legislative bodies and voters with one voice in seeking remedies to their problems.

When we see our world as a complex system, in which learning, feedback, and adaptations take place through highly linked, self-organizing networks, as opposed to a mechanistic model of inputs and outputs, we can understand better how collaborative dialogue processes function and produce the wide variety of types of results we have discussed here. We can also see that if the evaluation methods we are using are based on a mechanistic world view, we will fail to identify many of the most important results of these processes. If we approach evaluation as it has been done traditionally and focus first and foremost on whether agreements were obtained and how strong the consensus was, we will miss the truly important results of these processes, including the building of social and political capital, the learning and change, the development of high quality information, new and innovative ideas, new institutions and practices that are adaptive and flexible, and the cascade of changes in attitudes, behaviors, and actions.

The challenge before us is to approach the evaluation task from a complex systems perspective, and to identify and seek to develop a robust understanding of the significance of the first-, second-, and third-order outcomes of these processes in the contexts in which they occur. This has implications not only for what we look for in conducting evaluations, but

also when and where we look for outcomes. In interviewing process participants, they themselves may be focused on agreements and not recognize the significance of some of these outcomes until much later. As we have seen, first- and some second-order outcomes, such as the development of social and political capital and high-quality, trusted information, begin to occur during the collaborative dialogue process themselves. Other second- and third-order outcomes most often emerge after the reaching of a formal agreement. And although a process may have finished in a formal sense, it can continue to produce results as the changes in attitudes and practices continue to propagate through the system. As one of our respondents once observed, "Consensus-building is forever." And so, too, are the outcomes that continue to emerge from these processes. In evaluating how well they are working, we must also develop frameworks that are flexible and allow us to incorporate our ongoing learning and adapt as new and different results emerge.

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