

**Trading zones: cooperating for water resource and ecosystem management
when stakeholders have apparently irreconcilable differences.**

by
Boyd Fuller

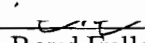
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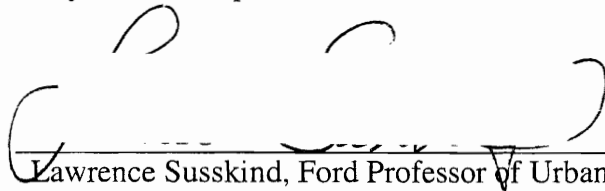
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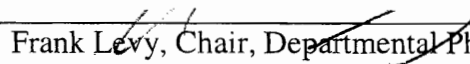
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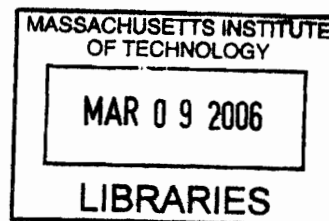

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ABSTRACT

Disputes over the management of water resources in the United States often seem irreconcilable because stakeholders' differences in values, beliefs, and identities are so hard to resolve. Yet, while many efforts to resolve such disputes fail to generate agreement, some do. Looking at these fundamental disagreements about how to manage water, this dissertation attempts to understand why stakeholders in some consensus building processes were able to generate and agree on specific solutions while in other they were not. Two extended disputes about how to manage regional water resources in California and Florida are the focus of this inquiry. In each case, decision-makers convened both collaborative efforts that reached agreement as well as efforts that failed.

The findings from this study show that consensus building theory provides some useful explanations for why stakeholders were able to reach agreement in the face of their entrenched value-based differences. The experiences in the two case studies described here show that trading zone theory offers some needed insights that complement consensus building theory's focus on process structure, facilitation, and interest-based problem solving. In the processes that reached agreement in both cases, maps, words, spreadsheets, diagrams, expressions, and calculations were generated by stakeholders following procedures they agreed were valid to describe the natural, political, cultural, and administrative situation on the ground. Like pieces of a puzzle, these partial representations were then combined and manipulated until stakeholders had constructed a vision of a future situation that they agreed was both desirable and feasible.

Dissertation supervisor: Lawrence Susskind

Title: Ford Professor of Urban and Environmental Planning

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INTRODUCTION

"In the water wars, when Californians are forming a firing squad, they form a circle facing inwards." Bruce Babbitt¹

Throughout the United States, Canada, and rest of the world, decision-makers are struggling to create and implement plans and policies about how to manage water resources. Many ecosystems are dying because water no longer arrives in a timely fashion, is in short supply, or contains salts or pollutants that damage the ecosystem. Most major rivers in the United States are dammed in multiple sections as water users strive to use every ounce of water in them; water in some rivers like the Colorado River no longer reach the sea.

Water problems can be quite complex. South Florida faces an interesting problem of both water scarcity and surplus. Significant sections of the Everglades were drained to enable agricultural production. Water that normally would have flowed through those sections is diverted east and west into the sea. Ironically, water users in south Florida now worry about deficits in water supply even as the needed water continues to drain into the sea. To address this problem of supply, as well as a host of problems around ecosystem degradation, the federal and state governments are working to alter the flows through the Everglades so that they more closely mimic the original flows.

In light of this experience and others, stakeholders and decision-makers now recognize that water management is a complex endeavour. Decisions about how water should be managed and

¹ Quoted in Howard, John (1998). "Governor, Interior secretary offer water plan" Associated Press, Dec 18, 1994

allocated need to consider a broader range of values and concerns than previously considered. Water users include not only agricultural, industrial, and urban consumers, but also ecological systems. Water management plans need to consider not only water quantity, but water quality and flow timing. (Postel, 1997; Lee, 1993; Kenney and Lord, 1999; Faure and Rubin, 1993; Dorsey et al., 1997; Gleick, 1999, 2000)

As decision-makers take these different concerns and interests into consideration, they place greater and greater demands upon the scientists and other technical experts. Often, however, scientists are unable to provide clear answers, which has led to an increased push for adaptive management approaches—treating solutions as experiments whose implementation is altered over time as their impacts are monitored and evaluated (Holling, 1978; Lee, 1993). The choice to use adaptive management approaches makes sense given current scientific uncertainty. However, it also means that science can no longer serve as an impartial arbiter for which policies are better (Adler, 2000; McCreary et al, 2001; Tribe et al., 1976); this is a situation that is being mirrored in decision-making for other environmental problems as well (Adler et al. 2000; Ezrahi, 1990; Jasanoff, 1990, 1995; Ozawa, 1991; Susskind, 1994; Ehrmann and Stinson, 1999).

Furthermore, stakeholders are no longer willing to let only decision-makers and scientists make these difficult water management decisions. Instead, they are demanding opportunities for influence, including the right to participate in the decision-making itself (Delli Priscoli, 1978; Bingham, 1997; Dorsey, 1997). Part of this demand comes from strong cultural and value attachments that stakeholders place on water (Tribe et al., 1976; Faure and Rubin, 1993; Hunter,

1989). Consider the relationship between water and agricultural culture in California as an example.

Without the dams built over the last 100 years or so, California could not support the industries and populations it does now. Instead of practicing dry land farming, agricultural producers have access to plentiful water supplies diverted from federal and state projects. These surpluses led to a system of water rights and water pricing that many water-rich areas envy. Based on that supply of water, a robust agricultural culture developed that prides itself on independence, efficiency, and productivity. This culture extends beyond farmers to include water districts, markets, mills, irrigation services, and a host of other activities that depend on crop production and irrigation. It is difficult for these robust and proud rural communities to separate their identities from abundant and cheap water. (Hundley, 1992; MacDonnell, 1999)

Because of this strong link between water and stakeholders' cultures and values, stakeholders are increasingly demanding a say in water management—especially as they no longer perceive government as an authoritative and impartial decision-making entity. As one stakeholder in Florida said, “when it comes to water, everyone has something to say.”²

In response to pressure from stakeholders, decision-makers are increasingly convening collaborative processes in which stakeholders are invited to sit side-by-side with governmental agencies to discuss, and sometimes seek agreement, on what policies and programs are most

² Interview with Florida state agency representative, Fall 2003.

suitable for water management (Kenney and Lord, 1999; Adler, 2000; Western Water Policy Review Advisory Commission, 1998; World Commission on Dams, 2000).

Several premises underlie decision-makers choices to convene these collaborative processes. First, they assume that each participating stakeholder constituency can identify clearly what they want from these decisions (their interests). Second, they assume that those stakeholders are able to problem solve effectively together to identify solutions that meet those interests. Third, they assume that those same stakeholders are willing to support, or at least not hinder, the implementation of the solutions they identified. (Bingham, 1997; Susskind, 1999; Susskind and Field, 1996; Moore, 1996).

However, experience with these processes has shown that stakeholders do not always reach agreement, or even cooperate effectively in searching for such solutions. Analysts looking at these disputes identified that stakeholders' differences in values are one important reason for the intractable nature of water resource and other environmental disputes (Lord, 1979 and Tribe, Schelling, and Voss, 1976).³ Other authors suggest that stakeholders may perceive that matters of identity may be at stake in important water resources management decisions (Hunter 1989; Rothman 1997; Lord 1979; and Kenney and Lord 1999). In the edited work, *Culture and Negotiation: The Resolution of Water Disputes* (Faure and Rubin, 1993), the authors make the case for the importance of culture in impeding, and facilitating, negotiations among different countries around the management of transboundary water resources.

³ See also Lord (1979), Kenney and Lord (1999), and Susskind and Field (1996) for discussions about the impacts of value differences on decision-making for water resource and environmental management.

Regardless of the differences one focuses on, it is clear that as stakeholders' differences become more pronounced, they find it increasingly difficult to cooperate to make implementable decisions about how to manage water resources.⁴ Despite the promise of possible joint gains, stakeholders often struggle to cooperate and reach agreement on how to manage ecosystems and allocate water because they can not agree on what values and beliefs should guide legitimate decision-making. This raises the important question, **“How can stakeholders with apparently irreconcilable differences cooperate and solve problems more effectively in resolving disputes about water resource management?”**

However, there are also examples in which stakeholders do cooperate to examine, discuss, and solve problems about water management and allocation, even as they continue to fight each other in other forums on similar issues. In this work, I examine two such fascinating examples, one in Florida around water management in the Everglades and another in California around agricultural water management for the Bay-Delta Estuary. These examples of successful cooperation among stakeholders are striking because both were preceded by decades of conflict and previous collaborative processes in which stakeholders did not reach agreement. These two disputes are presented in Table 1 below.

⁴ Other authors have used the term “intractable” to describe the resistance of some disputes to resolution. However, in this work I want to emphasize the importance of the differences among stakeholders that they think are preventing cooperation and agreement.

Table 1: Summary of two disputes about water management

TWO DISPUTES		
RESULTS	CALIFORNIA	FLORIDA
Sporadic or no cooperation, disagreement	BDAC Water Use Efficiency Work Group	Everglades Mediation
Cooperation and agreement	Agricultural Water Use Efficiency Steering Committee	Governor's Commission for a Sustainable South Florida

In California, stakeholders met twice under the auspices of the CALFED Bay-Delta Program, a state-federal intergovernmental organization created to facilitate comprehensive planning for the management of the Bay-Delta Estuary. In the words of stakeholders, the first collaborative process that CALFED convened, the Bay-Delta Advisory Council Water Use Efficiency Work Group, “exploded.” Coming out of that process, many stakeholders were doubtful they could find any common ground with their counterparts. To the surprise of many, representatives from those same stakeholder groups later reached consensus on a program for agricultural water use efficiency. After the agreement, lobbyists from the agricultural and environmental communities collaborated to push for funding of the program. It was an unusual sight.

In Florida, representatives from state and federal governmental agencies, as well as agricultural, tribal, and environmental groups, met in the Everglades Mediation to seek some kind of agreement about how to deal with phosphorous pollution that was threatening the Everglades National Park. By the time that process was terminated, stakeholders were accusing each other of devious practices and incompetence. Several months later, the Governor of Florida convened the Governor's Commission for a Sustainable South Florida to look at a wide array of issues that touched upon the sustainability of south Florida. That group quickly identified water management in the Everglades as the primary impediment for the region's future health. Later in

their tenure, they reached consensus on several sets of recommendations for the Central and South Florida Project Comprehensive Review Study (Restudy), which produced the Comprehensive Ecosystem Restoration Plan (CERP) for improving water management in the Everglades. As in California, lobbyists from the agricultural (Sugar) and environmental communities collaborated to push for the program's funding.

These two disputes provide remarkable examples of stakeholder cooperation and problem solving in conditions of mistrust and hostility. Furthermore, the fact that they occurred shortly after stakeholders failed to cooperate in a previous collaborative process raises interesting questions. How were they able to do so when their groups continued to fight each other in other forums? How were they able to get beyond their mistrust? Did they “compromise” or did they find a solution that respected each stakeholder's values and beliefs? And finally, **“Why are stakeholders with apparently irreconcilable differences able to cooperate, and reach agreements that all parties can support, in some consensus building processes and not in others?”**

In the next section, I examine the literature to see what insights it can shed about the character and kinds of disagreements that divide stakeholders, the challenges each pose to decision-making, and how decision-makers attempt to overcome them. In that section, I also develop a definition of apparently irreconcilable differences that guided my research. Finally, I look at what answers the literature provides to explain how such difficult disputes might be resolved.

DIFFERENT KINDS OF DISAGREEMENTS

Burton (1990) provides us with one useful framework for distinguishing among different kinds of disagreements. He argues that there are three kinds. *Management problems* are those in which people sharing interests and values seek to solve a problem jointly. However, when people disagree about what decision should be taken because of how they feel that decision will impact their interests, they are in a *dispute*. The third type of disagreement, *conflict*, occurs when people feel that the disagreement touches upon basic needs or fundamental values. Conflicts can arise, for example, when the legitimacy of interests or beliefs is challenged—for example for their moral worth or veracity. In conflicts among agricultural and environmental stakeholders in the cases presented here, each party had a history of accusing the other of not respecting or understanding what really matters.

People involved in solving a management problem share the same goal, interests, and values, and thus readily identify which among multiple potential solutions is superior. Usually, the only question is to select the method and means for identifying the set of possible options from which to make a decision. The literature on such decision methods is robust.⁵ A problem is identified, information is gathered about the problem and possible options for resolving it, different options are packaged into possible solutions, criteria are chosen and used to evaluate and choose among the different packages, and that solution is implemented.⁶

⁵ For example, see Bardach (1996).

⁶ Bardach (1996).

In the second kind of disagreement, the parties agree on what the problem is but have interests that are competing or different. In the former case, they might struggle over how to divide the benefits from a proposed dam; in the latter case, one party might be more concerned with environmental benefits of the same dam while another seeks economic ones. For resolving such disputes, there is a growing and rich literature about the application of principled negotiation in which each stakeholder identifies their set of interests (timeliness, monetary gains, stability, fish populations, etc.), prioritizes among them, and then seeks trades across those interests that are mutually beneficial (Fisher and Ury, 1991; Susskind and Cruikshank, 1987). Such solutions work when each party finds agreements better than what they could individually obtain in any other process. In other words, it is better than their best alternative to negotiated agreement (BATNA).⁷ These approaches rely on the ability of each stakeholder to identify a set of interests they want to achieve during the negotiations, their ability to communicate these interests and other information to each other effectively, and upon the existence of solutions that can produce outcomes that each party recognizes is better than his or her BATNA.⁸

When confronted with the third kind of disagreement, namely conflict, there is considerable uncertainty about what approaches are effective. Parties to a conflict disagree about something or some things they think is fundamental to how the world “ought to be.” This may include disagreements about what end states should be sought or protected (e.g. values, identities, and cultures) or about how different activities (decision-making, negotiation, dialogue, information

⁷ Fisher and Ury (1991).

⁸ Forester (1999a). This set of possible outcomes that produce gains exceeding everyone’s BATNAs is called the zone of possible agreement, or ZOPA (Fisher and Ury, 1991).

gathering and scientific analysis) should be done.⁹ For the former, stakeholders may not accept others' claims as legitimate, making negotiations difficult.

There is significant literature that deals with the causes of conflict. Some of that literature points to the differences in values that stakeholders have.¹⁰ As stakeholders are talking about "values" (what ought to be achieved or protected) and not "interests" (what they want but may be willing to accept less of), they are much less willing to "compromise." In other words, while a party may be willing to concede on some issues to achieve another interest, to make such concessions on values is typically seen as morally bankrupt.¹¹ Burton (1990) also talks about fundamental needs that can not be compromised, such as the need for shelter, food, and other means of sustenance.

Susskind and Field (1996) link values to stakeholders' identities. Values here are a subset of identifiers by which a group defines itself. A person's identities can be based on their sense of belonging to multiple groups at the same time—including for example, ethnic and national groups as well as profession, culture, gender, and a host of other attachments that we form throughout our lives.¹² People are deeply attached to their identities and may feel lost if one or more aspects of their identity are challenged.¹³ Identity conflicts pose additional challenges beyond the idea of compromise. Identities are often structured around the relationships of one

⁹ Faure and Rubin (1993), Susskind and Field (1996).

¹⁰ Tribe, Schelling, and Voss (1976), Lord (1979), Susskind and Field (1996), and Forester (1999a)

¹¹ See Susskind and Field (1996), Bingham (1986); Benjamin (1990); and Dobel (1990).

¹² See Schön (1971).

¹³ See Schön (1971) and Rothman (1997).

party with others in the world that surrounds them.¹⁴ For example, many environmentalists see themselves as the necessary and valiant opponents of rampant industry while agricultural stakeholders groups are strongly influenced by the threats they perceive are posed to their livelihoods by environmental groups and urban interests. Other classic examples include the Palestinian-Israeli and Hindu-Muslim conflicts in which some groups exist solely to oppose the efforts of the other community.¹⁵

Scholars of framing argue that parties' frame differences may cause conflict. The concept of "frames" has been defined in multiple ways, but they can be generally understood as generic descriptive/prescriptive stories that are used by stakeholders to interpret information and phenomena (Schön and Rein, 1994; Rein and Schön, 1996).¹⁶ Problems and solutions can be linked together along with some ideas of how the person or group will get from one to the other through frames. For example, most North Americans recognize that if a person approaches us with their hands outstretched, we should shake their hands and engage in polite conversation. Seeing one part of the story, we know how to act (shake hands, say hello, etc) and where we are headed (a conversation of some sort).

¹⁴ Northrup (1989).

¹⁵ Kakar (1996).

¹⁶ See Schön and Rein (1994), Rein and Schon (1996), Gray (1997), and Lewicki, Gray, and Elliott (2003). Rein and Schon note the following about defining frames: "We recognize four different ways of looking at a frame. These are distinct but mutually compatible images, rather than competing conceptions. A frame can be seen as a scaffolding (an inner structure), a boundary that sets off phenomena from their contexts (like picture frames), a cognitive appreciative schema of interpretation..., or a generic diagnostic/prescriptive story (as in our view of problem framing, and also in the writings of Paul Ricoeur and other hermeneutics." Rein and Schön (1996)

Parties with different frames, these analysts tell us, may not realize that they are attaching very different meanings and actions to the same concepts and phenomena. This leads to miscommunication and confusion. For example, Roe (1994) gives a poignant example in which a water resource dispute was strongly driven by the different ways that the parties connected the various elements of the system. For some parties, soil salinity was the cause of a problem (poor crop production), for others it was the problem (environmental degradation). As those different ways of framing the conflict were never dealt with, the parties could not cooperate to solve the problem. To illustrate, different crop choices can alleviate the impact of salinity on crop production and yet do nothing about changing how much salt is in the soil. Whether changing crop choices makes sense as a solution, then, depends on how one frames the situation.

Finally, some scholars of conflict are also interested in the role of cultural differences.¹⁷ Parties may struggle to communicate because of the differing meanings they attach to words, phenomena, and situations. Different cultures also operate with different assumptions, value different kinds of relationships, and hold to different beliefs about how to do things (deliberate, make decisions, produce knowledge, express interests and values, and so on). For example, Sanders (1997) expresses grave concerns about some of the deliberative processes used in North America today because they favor a “rational” and cool-headed mode of discussion. Some non-mainstream communities, she argues, may not feel that such a mode of dialogue is sufficient for them to communicate and argue for what they really care about. A culture that is used to expressing how much they care about an issue through emotional displays may find it difficult to talk about their values in a more emotionally-detached fashion.

¹⁷ See for example, Faure and Rubin (1993) and Avruch (1998).

My dissertation is concerned with this latter category of disagreements. Instead of trying to choose among these different ways of understanding why conflict occurs, I aggregate the differences under the concept of “apparently irreconcilable differences.”¹⁸ I do so for three reasons. First, because the above ways of understanding conflict have significant overlap and it is often difficult to know whether one is more prevalent. For example, we see Susskind and Field (1996) talk about values and identities in parallel, while other authors such as Avruch (1998), Lederach (1995, 1997), and Ross (1993a,b) talk about culture and identity as the driving forces of conflict, and conflict resolution. Second, in the various kinds of conflict, stakeholders tend to believe that their value, frame, cultural, or identity differences will never be resolved, hence are uncertain whether cooperation is possible.

Third, these cultural, identity, and value differences pose the same kinds of challenges to decision-making and negotiation in that they undermine many of the foundations for effective communication and cooperation.¹⁹ For example, stakeholders in conflicts may not acknowledge each other’s claims as valid, which significantly impedes their ability to agree on how to evaluate what solutions are appropriate or better. Similarly, cooperation requires that stakeholders agree on the definition of a problem to be tackled or some vision or goal they will seek as a group²⁰,

¹⁸ John Forester suggested the term “apparently irreconcilable differences” during a conversation among Lawrence Susskind, John, and myself about how to best frame the dynamic that occurs when stakeholders believe that their values, identities, cultures or something else can never be resolved. We had found that trying to define those situations as a “value dispute” or “identity conflict” could lead the analysts to get lost in defining what a value dispute or identity conflict was. Using the term apparently irreconcilable differences puts the focus back on what stakeholders are experiencing.

¹⁹ For example, see Schön and Rein (1994).

²⁰ For example, in a business negotiation, companies might agree that the problem is to develop a profitable supply contract with the overall purpose of making profit.

but stakeholders with apparently irreconcilable differences often find it difficult to agree on these.²¹ Furthermore, identifying and evaluating possible options requires some agreement on either the facts or what methods will produce valid information; yet stakeholders with different belief systems may disagree vehemently about these.²² Finally, consensus building processes require that stakeholders find solutions that all parties agree are better than their individual BATNA; the set of these solutions is termed the “zone of possible agreement” in the consensus building literature. Yet, in these conflicts stakeholders are unsure whether a zone of possible agreement exists because they are unwilling to compromise and perceive their values to be in direct competition. Overall, the way that stakeholders interpret and act in different situations may be so varied that they may lack the common reference points and procedures necessary to deliberate about possible solutions.

An analytical framework for identifying stakeholders’ apparently irreconcilable differences

Analytically, this research defines stakeholders as having apparently irreconcilable differences under the following circumstances:

- ❑ Stakeholders do not agree on what problems should be tackled and how they should be defined.
- ❑ Stakeholders do not agree on what values (economic efficiency, environmental quality, preserving rural identities and culture, etc.) should be used to choose among alternatives.
- ❑ Stakeholders appear to lack a common language to talk about problems and solutions. Words and phenomena are interpreted in very different ways that seem to maintain or increase the conflict. The groups may also have very different ways of expressing and talking about what is important to them.
- ❑ Stakeholders do not agree on what knowledge and facts should guide decision-making and how knowledge should be produced.

²¹ For example, is the purpose of the attempted cooperation to restore the Everglades, to improve water supply to agriculture or to the cities, to reduce or promote agriculture, or something else?

²² See Adler et al. (2000), Hunter (1989), Ehrmann and Stinson (1999), and Ozawa (1991).

AND

- ❑ Stakeholders operate under the assumption that the above differences may never be resolved.
- ❑ Stakeholders groups (as opposed to one or more individuals within those communities) are unwilling to “compromise” and change their values, language, ways of producing knowledge, and other ways of making sense of the world.

With this understanding of apparently irreconcilable differences in mind, I pose questions to the literature on dispute and conflict resolution. How can stakeholders cooperate if they are reluctant to grant legitimacy to each other’s claims? If stakeholders are unwilling to give up their individual definitions the problem, how can they organize their deliberations to produce a jointly acceptable outcome? If stakeholders disagree on the facts, as well as the assumptions and methodologies used to produce them, then how can cooperation be meaningfully informed by “good science?” Finally, does cooperation among these parties require some fundamental convergence so that the challenges of their apparently irreconcilable differences disappear, or is there some way that they can proceed even as they maintain their group characteristics?

The disputes in Florida and California studied here occur within the battlegrounds of greater conflicts, hence they provide relevant examples of when and how stakeholders are able to find creative and valuable solutions despite the constraints posed by their apparently irreconcilable differences. As the reader will see, stakeholders in these cases struggled with their fundamentally different ways of understanding the world—including what they valued, what they believed, and who they felt they were. For example, the agricultural communities in both Florida and California felt their ways of life were under constant threat by urban and environmental forces, while environmental stakeholders were convinced that the relevant environmental systems were

under dire threat. Stakeholders in both disputes struggled due to the very different meanings and frames they attached to key words and concepts such as “water use efficiency” and “restoration.”

Learning how these stakeholders managed to cooperate and reach agreement in difficult circumstances is crucial for current water management disputes, such as Klamath in Oregon, and others in the future as more and more people seek ways to cope with the increasingly scarce supplies of water. In this light, I turn here to the explanations provided by the literature about how consensus building processes might help stakeholders problem solve together.

RESOLVING DISPUTES AMIDST CONFLICT AND APPARENTLY IRRECONCILABLE DIFFERENCES

In response to the challenges posed by water disputes and conflicts, decision-makers have increasingly turned to diverse forms of collaborative processes that they hope will encourage stakeholders to buy into whatever decision is eventually taken (Bingham and Orenstein, 1989; Bingham, 1997; Kenney, 2000). Some of these processes simply provide opportunities for stakeholders to state their arguments to a body of experts or decision-makers. Others seek to engage stakeholders in an active discussion not only with the decision-makers, or their representatives, but also with each other.

Some of these processes seek to help stakeholders understand each other better in the hopes that this understanding will lessen the degree of conflict among them and lead to more informed decisions. I term these kinds of discussions as reflective dialogues. Other processes are specifically geared to help the participating stakeholders find some kind of agreement about what

decision should be made. I call these processes consensus-building.²³ In this dissertation, I am concerned solely with consensus building processes in which stakeholders actively seek to reach agreement about how to manage the water resources in question.

Looking at the experience of consensus building processes convened to tackle water resource management conflicts, it is clear that in some cases stakeholders are able to reach agreements on how to proceed and others are not (Kenney, 2000; Lord, 1979; Bingham, 1996). Which again raises my research question, namely **“Why are stakeholders with apparently irreconcilable differences able to cooperate, and reach agreements that all parties can support, in some consensus building processes and not in others?”**

To approach this question, it is useful to explore consensus building theory and its propositions for how to resolve disputes and conflicts. I introduce the basics of the theory in the next section, and then discuss some of the additional practices, theories, and techniques identified in the literature that specifically address the additional challenges posed by apparently irreconcilable differences.

CONSENSUS BUILDING

It is impossible to discuss consensus building without looking at the work of Lawrence Susskind. In addressing difficult environmental and other public policy conflicts, Susskind proposes a number of techniques that he believes all process interveners, conveners, and stakeholders should

²³ Consensus building processes can include principled negotiations, regulatory negotiations, mediation, and other efforts and terms geared towards encouraging stakeholder agreement.

use in approaching these difficult disputes when stakeholders have apparently irreconcilable differences. In short he emphasizes the following steps:²⁴

- ❑ Conduct a conflict assessment.
- ❑ Identify the relevant set of stakeholders and seek to identify representatives from them who can participate effectively in the proposed processes.
- ❑ Hire an impartial, professional mediator to help design and manage the process.
- ❑ Establish a set of ground rules that will guide group participant behaviour in and outside the process.
- ❑ Use joint fact-finding to address scientific disagreement and uncertainty.
- ❑ Use single text documents and techniques to aid participants in examining possible packages, draft agreements and to capture important milestones.
- ❑ Design a strategy for implementing the agreement.

I will briefly examine the above recommendation and then look at what additional recommendations Susskind and other in the consensus building literature propose for promoting cooperation and agreement when stakeholders have apparently irreconcilable differences.

Impartial facilitators

Susskind strongly recommends that conveners should hire a professional, impartial party to manage any consensus building process (Susskind, 1999; Susskind and Cruikshank, 1987). In the consensus building literature, these professionals are often called facilitators, mediators, or process managers. The people involved in my cases called them facilitators, hence that is the term I will use here. Facilitators are impartial, outside parties who:

- ❑ Are engaged by conveners with the consent of stakeholder representatives;

²⁴ This list is not comprehensive. For example, Susskind gives advice that parties in disputes with underlying conflict should be willing and careful to maintain an open mind to learning when there is conflict. He also highly recommends that stakeholder and process conveners choose an impartial mediator to manage the process and help parties follow through on his other advice. However, in my many discussions with Professor Susskind, he consistently makes these noted points about what mediators ought to do in these tough disputes with ongoing conflict. See, for example, Susskind and Cruikshank (1987), Susskind and Field (1996), and Susskind (1999).

- Help stakeholder representatives manage the process by providing impartial assistance in achieving all of the steps described in this section—i.e. conflict assessment, establish ground rules, engage in joint fact-finding, and so on.

Stakeholders' consent in the choice of the facilitator is essential for promoting that person's perceived impartiality. When stakeholders perceive facilitators as impartial, they will more readily accept their assistance in achieving the other steps described here. Beyond helping parties by establishing ground rules, creating and using single texts, and so on, facilitators can also help parties clarify the meaning behind their claims, statements, and arguments, both for others and for their own understanding (Moore, 1996). Forester (1999b) argues that facilitators can serve as "critical friends" who help stakeholders reflect upon what they are saying and doing. Such reflections can be crucial for rooting out what parties truly need and believe, thus opening doors for the parties to reframe the issues at hand to create more opportunities for mutually agreeable solutions.²⁵

Conflict assessment and identifying stakeholder representatives

Conducted before a consensus building process is convened, conflict assessments identify the issues and stakeholders, pinpoint areas of disagreement and potential agreement, and propose some initial ideas for the next steps in a consensus building process should the parties all agree to it. In conducting a conflict assessment, the impartial outsider will need to identify the relevant set of stakeholders and learn how they should best be represented in the proposed process.²⁶

²⁵ More robust descriptions of facilitation and mediation can be found in Susskind and Cruikshank (1987), Moore (1996), Forester (1999a,b), and Susskind et al. (1999).

²⁶ The conflict assessor might start with a list of stakeholders given to him or her by the convener, but they should be prepared to go farther. As they meet with stakeholders, the assessors should ask stakeholders to

Identifying and representing the diversity of stakeholders in the process is important in ensuring stakeholder consent to the eventual product. Conflict assessments are usually based on confidential interviews between an impartial outsider and key stakeholders.²⁷ Conflict assessments are not final, but instead are presented to the convener and stakeholders as draft documents. A conflict assessment provides an initial building block that the convener and stakeholders can use in creating a consensus building processes. (Susskind and Thomas-Larmer, 1999)

Ground rules and norms

Susskind stresses the importance of setting ground rules for a process that govern stakeholders' conduct inside and outside of meetings.²⁸ Examples of rules inside the meeting include codes of conduct (e.g. no shouting at or deriding other parties), order of speaking (e.g. one at a time sequenced by group or by show of hands), time management (e.g. keeping to the schedule), roles (e.g. when and how do observers participate?), and decision rules (e.g. consensus, supra-majority, or weighted majority). Other rules might govern how the group—as a whole and its individuals—interacts with others outside the meetings. For example, how will the group communicate with the media? How will the group keep the different stakeholder constituencies and the public informed of the deliberations and its progress?

identify additional stakeholder groups that have an interest in the problem to be discussed. In this way, the conflict assessment process should eventually reach a point where it is clear that all stakeholders have been identified. (Susskind and Thomas-Larmer, 1999)

²⁷ An initial set of stakeholders can be identified through the convener, but Susskind and Thomas-Larmer (1999) recommend that the conflict assessor expand the set of stakeholders they interview by asking interviewed stakeholders to recommend additional people who should be interviewed. Ideally, interviews will stop when the assessors find that interviewees are not recommending new people any more.

²⁸ See also Forester (1999a,b) and Moore (1996). Lewicki, Gray, and Elliott (2003) find that stakeholders can develop better “conflict management frames” that govern how they believe they should manage their relationships with others with whom they are in conflict.

However, norms in consensus building processes can go beyond formal ground rules. For example, students of group dynamics argue that groups will develop other norms for how to conduct their business and handle a variety of situations (Ancona et al., 1991; Rubin and Swap, 1994). To give two examples, participants in a group might expect that arguments be phrased in a certain way or they may say a prayer before each meeting.

In short, what do ground rules and norms do? Both provide guidelines that help the parties coordinate and regulate their behaviour—e.g. this is how you can expect we will deliberate—so that the group develops a safe space for dealing with their differences and moving forward on a difficult problem (Forester, 1999a). Forester (1999b) also suggests that stakeholders can learn norms from others as they observe each other act in the process, and see the outcomes and reactions to those moves and behaviours.

Single texts

Susskind recommends that consensus building processes create and use single texts to aid their deliberations. Single texts documents are created for consensus building processes and used to capture certain understandings. They may be records that clarify areas of emerging agreement and ongoing contention. Single texts can also be joint fact-finding reports and other documents that summarize current understandings of the scientific and other information available to the group. Draft agreements are another type of single text; stakeholders can use them to organize their deliberation by adding, subtracting, and modifying text.

While experience has shown that single text techniques help parties find agreement, consensus building theory provides little explanation as to the mechanisms for its effectiveness. We can infer from consensus building theory and practice that single texts provide a means for stakeholders to see and then choose among different packages of options.

Is there something more, though, to these texts than consensus building theory tell us? We find some hints that other objects might help parties deliberate. For example, Forester (1999b:149) notes that:

[The] seductive information technologies (interactive computing, multimedia systems, and sophisticated mapping programs, for example) pose both threats and opportunities, for different forms of representation enable different forms of interaction and deliberation, different forms of emotional responsiveness, memory, insight, and perception.

So, there is something about the objects or media that parties use in their deliberations that can change the quality of their dialogue. Can objects beyond single texts help parties create practical solutions to their disputes in the face of their apparently irreconcilable differences? If so, can we determine a more precise role for these objects? To be useful, do we need a specific process for selecting or using them?

Joint fact-finding

In promoting joint fact-finding, Susskind is directly addressing the common phenomenon of adversarial science. Public policy making in recent decades have foundered over disagreements among stakeholders about what facts and analyses should drive decision-making. Often, stakeholders end up attacking each other's science, especially the methodology underlying them. Since no scientific methodology is without assumptions and simplifications, they are easily deconstructed. The end result is that decision-makers and stakeholders end up with no legitimate

scientific framework upon which to base decision-making. (Jasanoff, 1999; Ozawa, 1991; Ehrmann and Stinson, 1999)

To counter this problem of adversarial science, Susskind recommends that stakeholders who disagree about the science conduct joint fact-finding, in which

*“[S]takeholders with differing viewpoints and interests work together to develop data and information, analyze facts and forecasts, develop common assumptions and informed opinion, and, finally, use the information they have developed to reach decisions together.”*²⁹ [1.]

If the underlying science is uncertain, how can it maintain its authority in delineating what is right or wrong? The answer might be that it can not (Jasanoff, 1990, 1995; Adler et al, 2000; Ezrahi, 1990; and Lee, 1994).³⁰ So what can be done if the ability of science to authoritatively resolve disputes is gone?

Jasanoff (1990, 1995) studies the use of science in legal and policy-making forums. She found that science could regain some of its authority through a process she calls “boundary work,” namely a process of re-establishing the authority of science. In her examinations of scientific advisory committees convened by US administrative agencies, Jasanoff found that the more successful scientific advisory committees were those that were able to (a) incorporate representatives of the different communities—although she did not think they need to be

²⁹ Susskind (1999a). See also Ozawa(1991), Ehrmann and Stinson (1999), and Adler et al. (2000).

³⁰ In fact, many of the attempts in current times to invoke science to resolve policy disputes do not succeed. A clear example is the current debate about global climate change. Even with an overwhelming number of scientists agreeing that global climate change is a problem and should be addressed, U.S. and other administrations can safely ignore such admonitions because science does not have the same authority anymore. Other examples abound and the idea of competing scientists has become a common one. It is also interesting to note that in adversarial science situations, competing scientific positions are often attacked not on their outcomes but on the methodologies of the science underlying those outcomes. **What is revealed by value ambiguity, then, is the ambiguity of what norms ought to govern the creation of good science.**

inclusive of all members and viewpoints of those communities—and (b) incorporate the different values and beliefs of stakeholders with the scientific considerations of methodology and analysis. When scientific advisory committees were able to do this, they were able to delineate what was “good science”—meaning what science is authoritative—by their agreement upon what methodologies were appropriate and what facts and theories counted.

Joint fact-finding speaks directly to this idea of boundary work for establishing what is good science. Joint fact-finding is a process by which participants in a consensus building or other multi-stakeholder process agree on the means by which common facts and analyses will be produced for the deliberations. Participants in joint fact-finding usually define a set of questions to be tackled, a method of analysis they agree is appropriate, a process for gathering the necessary data, and a set of experts that are acceptable for doing the work. In putting together a joint fact-finding process, stakeholders also need to agree on what kind of uncertainties and assumptions they are willing to accept in that analysis. (Ehrmann and Stinson, 1999; Adler et al., 2000; Ozawa, 1991)

From these descriptions of how scientific disagreement might be handled and how common facts, theories, and analyses might be generated by a group, I find that there are two key elements. First is the development of a set of common methodologies about how to handle scientific disagreement, including how new science and information might be generated. In other words, the development of norms for how the group will create good science. Second, there is the actual data and findings produced in these efforts. These are a crucial component for problem solving as they identify problems, and link problems to causes and actions to impacts.

Finally, there is the possibility that joint fact-finding or some other method of creating information for the group may produce some facts, analyses, and data about which the group still has some disagreements. For example, where the group is comprised of stakeholders with apparently irreconcilable differences, it is not unexpected that different stakeholders disagree about the meaning of the some of the information produced. In such case, there are some interesting questions about when and how they use the facts and figures. For example, imagine that the group decides to modify the joint fact-finding report to reflect these different interpretations and sketch out what those mean in terms of crafting an overall agreement. In this and other similar scenarios, we see that a joint fact-finding report or other products may enable cooperation even with ongoing disagreement about the meaning of the information.

To summarize, the consensus building literature envisions that joint fact-finding will provide an alternative to adversarial science where each side deconstructs each other's scientific arguments. Through joint fact-finding, stakeholders can develop common facts, analyses, and assumptions. They may not agree on the interpretation of the information produced by the joint fact-finding, but they can still use it in their deliberations as a common resource for constructing solutions.

Design a strategy for implementing the agreement

Lastly, Susskind recommends that parties think carefully about how their agreement should be implemented. Stakeholder representatives at the table need to think clearly about how the agreement will be vetted with their constituencies. How will stakeholders handle disputes and uncertainties about the proposed plan if they arise in the future? What regulations, guidelines, or legislation may need to be in place to enable the implementation of the agreement?

Developing researchable questions from consensus building theory

In general, consensus building as described above looks at making changes in the space where stakeholders meet to help them find jointly acceptable solutions to problems. Usually, the goal of consensus building is to craft a solution that all parties can accept so that it is easily implemented.³¹ Facilitators can not lead stakeholders to that solution, but they can help their representatives work more effectively as a group to problem solve. Consensus building processes are not designed to craft a permanent solution to stakeholders' apparently irreconcilable differences, although conveners and parties may hope that their experiences will aid them in resolving future disputes.³²

In looking at when and how stakeholders were able to cooperation in Florida and California, consensus building theory as outlined above suggests that we examine how each process within the disputes were structured and managed. For example, was a conflict assessment conducted? If

³¹ Some authors have challenged the primacy of reaching agreement as a goal for consensus building. For example, Baruch Bush and Folger (1994, 1996) argue that facilitators should prioritize the empowerment of the parties and improvements in their relationships over reaching an agreement.

³² For the purposes of my research, I am mainly concerned with the ability of stakeholders to cooperate, or not, when they have apparently irreconcilable differences. As such, I do not delve into the literature that either describes the possible benefits of consensus building processes or that discusses how to evaluate those benefits. However, I do summarize some of the discussion here. Briefly, some evaluators and analysts of consensus building argue that indicators of a process' success or effectiveness should include measurements of changes in the constituencies beyond those who participated in the initial process (Innes 1999; Todd, 2000). For example, Innes (1999) suggests that learning by participants in the process may lead to changes in participants' attitudes. Furthermore, a process might, she says, have impacts on the constituencies including the: establishment and/or improvement of overall working relations; development of long-term partnerships; and the creation of new practices and institutions that encourage and aid future cooperative efforts among the constituencies. Most of these changes indicated by Innes and other consensus building analysts at the level of constituencies focus on how groups relate to each other after the process is completed. Other possible changes include changes in the attitudes of constituencies about how the other parties and how they ought to handle future relations and disputes. Finally, while these impacts are labeled as benefits, it is uncertain how necessary they are for stakeholders to craft and implement agreements.

so, by who? Were all the relevant stakeholders represented at the table? What was the impact of that assessment on the process that followed? Similarly, were ground rules and single texts used? Were impartial facilitators hired to manage the process and, if so, what role did they play in helping or hindering stakeholders in their quest for agreement? Did the parties find ways to resolve disagreements about the science? If so, how?

At the same time, the above summary of consensus building literature does not specifically differentiate between how consensus building addresses disputes and how it addresses conflicts with apparently irreconcilable differences with the exception of joint fact-finding, which deals with how stakeholders might reconcile their different beliefs and ways of creating knowledge. Part of the reason for this lack of distinction between disputes and conflicts is that much of the literature on consensus building assumes that cooperation will ultimately be based on meeting interests. Values and identities are treated as something that is worked through in order to identify an interest-based problem that stakeholders are willing to tackle (Susskind, 1999a; Forester, 1999a; Moore, 1996).³³

The literature tries to pinpoint additional work that facilitators and parties can do when they have apparently irreconcilable differences. I outline these in the next section and explore some of the questions that remain.

³³ See for example, Susskind (1999a). Susskind does differentiate between the two in his discussion of value and identity-based conflicts in Chapter 6 of Susskind and Field (1996).

CONSENSUS BUILDING: TRADING OR BRICOLAGE?

Susskind's conception of consensus building theory revolves around the idea of stakeholders having and trading across their interests to develop better packages of solutions (Susskind and Field, 1996; Fisher and Ury, 1999). In essence, stakeholders seek to find trades in which they give away what they value less, but the others value more, in exchange for what they value more. In this way, the net gain for each party, and thus the group, is increased hence creating a deal that is both more acceptable to each party and worthwhile as a whole.

However, some consensus building theorists have suggested that a different kind of problem solving is occurring in these processes. Forester (1999b) argues that these processes can be transformative, in which problems, solutions, choices, and participants mix together and change each other as parties dialogue about what they want to do or achieve individually and as a group. Innes and Booher (1999) argue that consensus building can be understood as a process of "bricolage," which they describe here:

[The members of a group] play with heterogeneous concepts, strategies, and actions with which various individuals in the group have experience, and try combining them until they create a new scenario [product] that they collectively believe will work.

The player's discussion is in great part a dialogue with materials they have—the laws, and practices, the funding, the political resources, their concepts, their personalities, and their perceptions of public opinion. By exploring these materials, they devise actions they believe will work or improve matters. They shift the pieces, try other pieces, and, ...do not agree on their creation until the whole comes into focus.³⁴ [2.]

Instead of looking at and making specific trades, the parties in these consensus building processes are creating products and then evaluating those products for their quality as a whole. This contrast between the methods for crafting deals raises some crucial questions and

possibilities for how stakeholders with apparently irreconcilable differences can seek jointly acceptable solutions. The concept of trades in these kinds of disputes and conflicts implies “compromise” and “a deal with the devil.” If the consensus building process de-emphasize trades in favour of developing a jointly acceptable process, would this make parties more comfortable in exploring new ideas? At the same time, how do stakeholders at the table ensure that these products they are creating are respectful of their values? How can parties and facilitators create a space for bricolage?

CONSENSUS BUILDING WHEN STAKEHOLDERS HAVE APPARENTLY IRRECONCILABLE DIFFERENCES

Analysts agree that stakeholders need to listen more carefully to the claims of others and to be more open-minded when there is conflict.³⁵ Forester (1999a,b) argues that claims that values or identities are at play in the conflict should neither be taken for granted nor dismissed without examination. He recommends that parties, with the help of a facilitator, critically and respectfully examine these claims so that the parties can work through them towards identifying a set of interests they might be able to meet in their negotiations.

Susskind and Field (1996) recommend that participants,

*Search for shared or overarching principles on which to base a continuing dialogue.*³⁶

These principles, Susskind and Field argue, provide a common framework around which participants can organize the deliberation and promote possible cooperation among the parties. In

³⁵ Susskind and Field (1996) and Forester (1999a).

³⁶ From Susskind and Field (1996:166). See also Moore (1996).

short, identifying and focusing on shared principles gives the process at least a veneer of common purpose. For example, parties may simply agree that they will seek to cooperate to achieve mutual gains.³⁷ Or they may agree to seek a “sustainable solution” that balances their values and interests.

Another set of authors recommend that consensus building practitioners need to look at stakeholders’ frames; how the differences among these frames might be contributing to their conflict; and how those frames might be changed so that stakeholders can cooperate (Lewicki, Gray, and Elliott, 2003).³⁸ Lewicki and Gray (2003) state that:

[R]eframing occurs when disputants change their frames; that is, when they develop a new way of interpreting or understanding the issues in the dispute or a new way of appraising one or more of the other parties in the conflict.”³⁹

In some senses, we can imagine that the recommendations to search for shared principles represent one kind of possible reframing that can occur, in which ideas and connections are made to bridge the gaps between parties without requiring changes within those parties. Students of reframing suggest that individual parties can be transformed in how they understand the conflict and their relationship with each other (Cutcher-Gershenfeld and Watkins, 1999; Wadley (1999);

³⁷ For example, Susskind and Field (1996:176) suggest that stakeholders “[s]eek to achieve real gains and substantial improvements, as seen through critics’ eyes, rather than offering “appropriate” compensation to offset significant losses.”

³⁸ Some contemporary scholars suggest that stakeholders need to specifically engage each other in a reflective, or “frame reflective”, dialogue in which stakeholders critically examine the frames that they and others hold. Through dialogue, these authors argue, stakeholders can develop understanding of how others see the conflict and so reframe the issues, their relationships with others, and the larger conflict (Lewicki, Gray, and Elliott, 2003; Schön and Rein, 1994; Wadley, 1999).

³⁹ They argue reframing occurs when parties engage in some perspective talking, which involves a process of reflection by which parties come to realize that there is more than one way to frame the issues. Schön and Rein (1994:171) have also asserted that reframing “depends on the ability of at least some of the actors to inquire into the intentions and meanings of other actors involved with them in the controversy.”

Lewicki, Gray, and Elliott, 2003). Susskind and Field (1996) and Forester (1999a,b) also emphasizes that participants in these difficult conflicts should be prepared to learn and keep an open mind, although these authors are not specifically concerned with “frames.”

What is clear, however, is that these authors believe there is something important about the words, phrases, and stories that stakeholders tell and use to express concerns and ideas. My research examines if how stakeholders defined and used words mattered in their ability to cooperate and reach agreement. Were their words or phrases that were problematic? Were they changed or redefined and, if so, what impact did that have on the deliberations. Did the frames expressed in those words change during the deliberation? What impact did those changes have?

More insights can be gained by looking at the recommendations of consensus building theory through the lens of challenges posed by apparently irreconcilable differences, as outlined earlier.⁴⁰ One of the challenges of apparently irreconcilable differences is that stakeholders can not agree on what methodologies and assumptions should be used to garner, analyze, and verify information. Looking at joint fact-finding more closely, we see that it provides at least some answers to this challenge by encouraging stakeholders to agree on these assumptions and methodologies. However, the question remains, why would stakeholders be willing to buy into joint fact-finding, conflict assessments, and these other ways of framing the issues, problems, and solutions? Will such changes represent compromises on values and beliefs? Will they be able to take these new ideas and understandings back to their constituencies or will those constituencies see them as “deals with the devil?”

⁴⁰ The framework was outlined on page 23.

One answer given to these questions is that a good process will develop **impartial** joint fact-finding, ground rules, and conflict assessments. Being impartial and based on stakeholders' interests and beliefs, they can then be acceptable. However, impartiality does not address the fundamental problems of understanding raised by framing theorists. How do stakeholders cooperate and make meaningful agreements when they use such different means for measuring worth, creating knowledge, and expressing concerns and ideas? How does the impartiality or other characteristics of consensus building processes address these challenges?

Looking at these proposed re-examination and reframing of words and procedures, the literature is often not clear about the relationship between these changes and the existing frames, values, beliefs, and identities of the different stakeholder groups. Where are these proposed changes taking place? Are the representatives at the table changing as they learn about the issues and each other? Are the constituencies being changed, so that they no longer perceive themselves to be divided by their apparently irreconcilable differences?

REPRESENTATION, TRANSFORMATION, AND APPARENTLY IRRECONCILABLE DIFFERENCES

Both of these questions are linked to an essential question of representation; how should a representative at the table balance the tension between keeping an open mind and learning at the table with faithfully representing constituencies who are not learning and not changing? Cutcher-Gershenfeld and Watkins (1999) argue that representatives may sometimes (but not always) find it desirable to educate about what they have learned vis-à-vis defining and understanding the conflict. Susskind (1999), however, states that efforts to transform constituencies may not be

ethical. As an alternative, Wadley (1999) argues that representatives can “sell” the agreement back to their constituencies by using the old frames that those constituencies are still using. Yet this raises an important question: can a solution be created at the table, based on facts, assumptions, and procedures that the signing parties all agree to, that remains acceptable to each separate constituency despite the fact that they remain relatively static in their views and in their relationships with each other? If so, then what is happening in the process to make that possible?

Gurevitch (1989) argues that perhaps the first step is accepting that the “other” can not be understood, at least not fully. Gurevitch’s observations come from his own experiences facilitating dialogues between Israeli and Palestinians, two communities locked in an apparently irreconcilable conflict over matters of identity. What he found was that parties with apparently irreconcilable differences often seem to founder in their dialogues when they seek to reach full understanding of one another. Eventually, he says, they must confront the fact that the others are, in fact, strangers. Attempts to continue seeking greater mutual understanding at this point can not work. Once they realize that this strangeness exists, Gurevitch says, they can seek to move the dialogue forward in different ways that focus on what they can do based on those ongoing and incompletely understood differences.⁴¹

Sunstein (1995, 1999) provides a plausible next step for how stakeholders might be able to proceed in these circumstances.⁴² Sunstein argues that parties who attempt to reach full consensus and understanding can often easily escalate conflict. The alternative he proposes is

⁴¹ In her work on borderlands and interactions across differences, Leonie Sandercock (1999) also raises this specter of strangeness as one that stakeholders need to come to terms with.

⁴² See also Dryzek (2000).

that they seek to create “incompletely theorized agreements” that both parties feel comfortable agreeing to even if they do not interpret the agreement in the same way. Essentially, they agree on a set of texts and actions without agreeing to why they agree.

While Sunstein’s idea of incompletely theorized agreements raises interesting possibilities, important questions remain. How can stakeholders create these incompletely theorized agreements, especially if comprehension and translation are incomplete? How can they craft such a subtle thing as an agreement that appeals to multiple beliefs and values if those cultural elements remain elusive to the eyes of their counterparts? How can they know and measure the value of their agreement if they do not have a common scale?

In the next section, I explore an interesting theoretical lens, trading zone theory, which provides some compelling answers to these questions. Trading zone theory claims that scientists coming from different disciplines who are divided by their different values, beliefs, and identities can still cooperate in designing, constructing, and implementing complex experiments. As I discuss below, trading zone theory raises some relevant questions and propositions for how the words and procedures described above—coupled with material objects such as texts, maps, and computer models—can be interwoven to create a space that allows site-specific, pragmatic problem solving and agreement to coexist with global disagreement among values, beliefs, and identities.

TRADING ZONE THEORY

In examining successful cooperative efforts among scientists from multiple disciplines, Galison (1997, 1999) observed that people coming from different scientific subcultures are able to cooperate when they develop what he calls a trading zone. Why does he talk about subcultures? Galison explains as follows,

My use of the notion of “subculture” in this book has two aims. First, I want to indicate that experimenters, instrument makers, and theorist as groups each have a certain degree of autonomy—to call them different “cultures” or different “forms of life” would, however, suggest that these groups are totally autonomous, fully isolated, and self-contained. To call experiment or theory “subdisciplines” would also miss the emphasis I want to put on the irreducible entanglement of the way physicists want to work with the kinds of instruments they design and the modes of demonstration they employ; “subculture,” in the sense I use it, carries technical, symbolic, and social dimensions.⁴³
[3.]

What Galison has in mind is similar to apparently irreconcilable differences—the parties involved in the exchanges he describes define problems differently, use dissimilar measures to determine value, hold to different beliefs about the links between cause and effect, and focus on different parts of the universe. To illustrate his point more, Galison draws on examples from the anthropological literature. It is useful to pursue one such example here as a starting point.

Galison’s example starts by describing the interactions among the peasants and landowning classes who coexist in a particular valley in Columbia. They cooperate daily through services that involve the exchange of money, including the provision of labor by peasant and shops to serve the landowners. What is key to Galison in this example are two factors. First, the two cultures maintain their normal activities and beliefs as the exchange continues. Second, the

⁴³ Galison (1997:9). See also Galison (1997:798), “Each subculture has its own rhythms of change, each has its own standards of demonstration, and each is embedded differently in the wider culture of institutions, practices, inventions, and ideas.”

meaning that they attach to the exchanged money diverges significantly. The landowning class, he says, understand money as potential capital and as something “neutral.” For the peasants, the physical bills of money take on a much different meaning beyond monetary exchanges to include Catholic blessings. Consider the following ritual that Galison describes: the secret baptism of money.⁴⁴

*In this ritual, a godparent-to-be hides a peso note in his or her hand while holding the child as the Catholic priest baptizes the infant. According to local belief, the peso bill—rather than the child—is consequently baptized, the bill acquires the child’s name, and the godparent-to-be becomes the godparent of the bill. While putting the bill in circulation, the owner quietly calls it by its name three times; the faithful pesos will then return to the owner, accompanied by their kin, usually from the pocket of the recipient.*⁴⁵ [4.]

What is striking about this example, he says, is that when we see these apparently normal exchanges occurring among the different groups, at the stores and in the churches,

*Out of our narrow view, however, are two vastly different symbolic and cultural systems, embedding two incompatible valuations and understandings of the objects exchanged.*⁴⁶ [5.]

In other words, each group comes to and leaves these exchanges with different assumptions, beliefs, and values, but they are still able to cooperate because they agree on the procedures used for the exchange (money paid for services rendered and Catholic rituals supplemented by secreted bills), upon the physical objects used in the exchange (peso bills), and about how many of the pesos should be exchanged in each transaction, even when the meanings and uses attached to the peso bills diverge in fundamental ways.⁴⁷

⁴⁴ Galison draws this example from chapter 7 of Taussig (1980).

⁴⁵ Galison (1997: 804).

⁴⁶ Galison (1997: 804).

⁴⁷ For summarize with a crude example, five bills may mean 30 pesos to the landowners and five baptisms to the peasants

Galison (1997) extends this idea of incompletely theorized exchanges occurring through agreed upon procedures to the realm of scientific cooperation on multidisciplinary experiments in physics. In his case studies, theoreticians, experimentalists and instrumentalists—as well as various disciplines of physicists and electrical and mechanical engineers—cooperate to design, build, and operate complex research facilities for the study of physics. By looking at the interaction of these distinct scientific subcultures, Galison (1997, 1999) observes that members of the different scientific subcultures are able to cooperate when they develop a “trading zone,” which he defines as:

*...an intermediate domain in which procedures could be coordinated locally even where broader meanings clashed.*⁴⁸ [6.]

To understand trading zones, it is useful to grasp what I will call their locality.⁴⁹ From the peso example above, I postulate that trading zones exist when otherwise divergent cultures or subcultures are able to cooperate when they can: (a) define a bounded set of phenomena, issues, or exchanges for their cooperation (such as payment for sugar cane labour or Catholic rituals above); (b) agree upon a set of procedures by which to facilitate their cooperation (such as the implicit or explicit rules that govern the transfer of money for services); and (c) are able to represent the phenomena, issues, or exchanges using words, objects, or other forms that have

⁴⁸ Galison (1997)

⁴⁹ In fact, Galison (1997) identifies three characteristics for interlanguages and trading zones: locality, contextuality, and diachrony. However, I found that locality was the most crucial of these for understanding cooperation amidst apparently irreconcilable differences. **Locality**, Galison states, captures the interesting dynamic that words, objects, and practices can have a meaning that exists at the border and yet also have (divergent) meanings in the “global” worlds of each of the interacting subcultures. **Contextuality**, he argues is the idea that trading zones are shaped by the context in which they are created and used. Terms that make sense in one context may have no meaning in another. **Diachrony** refers to the time dependence of trading zones and their elements. Terms change as they are redefined, gain importance, or are discarded over the course of an extended cooperation.

both a local meaning (paper bills for services) and yet suitable global meanings for each of the interacting groups (capital, ritual object).

I explore each of these components in more detail by pursuing another example from Galison's work on scientific cooperation, the design and use of a particle accelerator.⁵⁰ The particle accelerator Galison describes was designed and is used for a certain set of activities, namely the study of the properties of individual atomic and subatomic particles. As the different groups interacted, a trading zone formed,

*... around the description of the phenomenological world of particle physics: How do protons recoil from electrons? How do electrons scatter from positrons? How do photons create pairs of electrons and positrons in the near presence of a proton? How are magnetic moments calculated for the muon?*⁵¹ [7.]

Essentially the different groups first defined a subset of issues and phenomena that they wished to study. The scientists here were not trying to learn about solar dynamics, gases, or the properties of alloys.⁵² Nor were they trying to reconcile the differences among their subcultures—for example by consolidating their individual jargons or procedures of demonstration and validation. Instead, the parties were interested in studying and influencing specific phenomena, hence the first dimension of locality.

Second, the parties involved had to describe their work on the particle accelerator. That work was divided into two volumes. The second volume contained the theory behind the experiment

⁵⁰ While I give the following example in a specific sequential order, this is my analytical organization of the material for clarity and not Galison's.

⁵¹ Galison (1997:835).

⁵² Materials made from multiple metals, for example bronze

and was mostly used to justify the experiments to the theoretical community. Galison notes that the first volume tells us more about the trading zone they formed. He describes how a group of physicist developed a meaning for the symbol Ψ to aid in their cooperation. To run the experiments, the scientists developed a book of techniques, including a set of rules for how to operate the experimental machine. In that book, Galison describes:

...[T]he basic object—the field Ψ —stands for a wave function for a single particle. The experimenters learn to manipulate this function in various ways following the rule of what is called “first” quantization: the position of x and momentum p of classical physics are replaced by the operator x and the spatial derivative d/dx . The differential equations that result are solved and the dynamics of the particle’s wave function thereby determined.⁵³ [8.]

The symbol is defined at least in part through its link to a set of rules for how it should be used in the experiments. Importantly, Galison notes:

For the theorists, Ψ does not stand for the wave function of a single particle; rather Ψ is considered to be an operator at each point in space and time.⁵⁴ [9.]

To design and operate the machine, the cooperating scientific subcultures needed some way to talk about what they wanted that machine to accomplish and how to operate it. In essence they needed some kind of “language” that made sense to both the experimenters and the theorists despite their different subcultures. Galison uses many terms to describe this language, but for the rest of this dissertation I will use “interlanguage.”⁵⁵

⁵³ Galison (1997:834-5).

⁵⁴ Galison (1997:835).

⁵⁵ I considered using “contact languages” is that the term already exists within anthropology and so the reader might assume that the meaning of the term here is the same as it is in that field. It is not, as the reader will see shortly.

The theoretical description of Ψ was not one that the experimentalists could use to design and run experiments. Instead the two groups worked out a practical definition that contained the necessary information for the operation of the experiments *and* that produced the information required by the theoreticians for their research. In that way, the definition of Ψ was both constructed, in that it was not drawn from any particular source, and intermediate between the two communities, as it had properties from, and meanings useful to, both. As Galison describes it:

*For these and similar questions, the experimenters and theorists come to agreement about rules of representation, calculation, and local interpretation. Bjorken and Drell's volume 1 is an attempt to create a stable [interlanguage] that mediates between experimenter and theorist.*⁵⁶ [10.]

Furthermore, the language that Galison identifies is not just tied to and contained in procedures. He also sees that the physical experimental machinery becomes part of the same “language” used to facilitate interaction.

*By invoking [interlanguages], I do not mean to “reduce” the handling of machines to discourse. My intention is to expand the notion of interlanguages to include structured symbolic systems that would not normally be included within the domain of “natural” languages. ... “[U]natural” (constructed) languages such as signing, FORTRAN, and even electronic circuit design can be used in such broadly expressive modes that any demarcation criterion [between natural and unnatural languages] seems bound to fail.*⁵⁷ [11.]

For Galison, the interaction in the trading zone is facilitated by a language that encompasses words, procedures, and the objects in use. Each is one part of the whole representation of reality that the interacting parties construct in order to talk about the design, construction, and implementation of scientific experiments. The definition of Ψ as “the wave function for a single particle” by itself was not sufficient for cooperation. It had to be tied to a specific equation and

⁵⁶ Galison (1997:835).

⁵⁷ Galison (1997:835).

procedure for using that equation that would allow the experimentalists to conduct the experiment in a way meaningful to the theoreticians and experimentalists. And, the definition Ψ and the procedures could only be meaningful when applied to the experimental setup.

Furthermore, the experiment can not be reduced to context because it is something that the parties actively and deliberately construct and manipulate as they coordinate their efforts. In other words, the experiment is more than the object of their actions. It is something that one party can manipulate to suggest and talk about ideas and phenomena—e.g. by showing different possible configuration of measuring devices in order to discuss the possibilities and limitations of each so that the parties can make choices among options. The action is taking place locally, because the interlanguage is created to have meaning in reference to the phenomena under investigation. It is also locally because the language has a locale within each of the larger subcultures. To use Galison's words:

At first blush, representing meaning as locally convergent and globally divergent seems paradoxical. ...[T]he holist would say that the meaning of any particular utterance is only given through the language in its totality. There is [another] alternative, namely that people have and exploit an ability to restrict and alter meanings in such a way as to create local senses of terms that speakers of both "parent" languages recognize as intermediate between the two. The resulting [interlanguage] is neither absolutely dependent on nor absolutely independent of global meanings.⁵⁸
[12.]

To summarize then, Galison identifies a language of cooperation that exists between the parties. That language uses not only words as its devices, but also procedures and objects. Each of these is constructed in the space among the interacting parties around the particular phenomena that they want to study. As they construct it at the local site where they want to act together, the language has local meaning grounded in the particulars of that site while, **at the same time**, it is

⁵⁸ Galison (1997:48)

also grounded in the separate jargons, procedures, and tacit knowledge of each of the interacting communities. To the experimenters, the configuration of Ψ , the procedures, and the experimental devices make sense because they can use it to rationally implement the experiment. To the theorists, the same configuration also makes sense because it produces meaningful experimental results. Similarly, in the Columbian example given above, “peso” is a word used for the exchange between the landowners and peasant workers. In their exchange, it refers to a piece of paper and yet globally it has very different meanings to the different communities. As it has both local meaning and global meanings, the combination of “peso” the word, peso the bill, and the procedures of its exchange serve as a focal point for cooperation. It needs an actual piece of paper to have meaning and the meanings are bound to certain procedures and rituals as well.

Developing researchable questions from trading zone theory

Galison’s trading zone theory raises some interesting questions that I ask of the data presented here. First, if stakeholders did work on the words and procedures they used in their problem solving, were they changing the meaning of those words and procedures in their heads or were they creating new meanings, and perhaps even new words, that were grounded in the specifics of the problems they were tackling. For example, did they change their definitions of efficiency so each stakeholder as well as their constituencies commonly understood it, or did they create an additional, site-specific definition that resonated with each constituency? What were the connections between words and procedures? What were the connections between words and procedures and the watersheds, farms, ecosystems, and other phenomena under examination? What role did objects play in the deliberations and how were they connected to words,

procedures, and on the ground phenomena? How were all of these elements connected to the various, divided communities who were not at the table?

SUMMARY

In exploring consensus building literature, we see that there are a number of questions we can ask when studying the two disputes about water management, and the processes convened to resolve them, in California and the Everglades. Some of these questions revolve around the use and usefulness of consensus building practices such as conflict assessments, facilitation, single texts, and ground rules. Others look at words and procedures.

Similarly, trading zone theory highlights questions about the relationships between words, procedures, and objects to each other, to a particular site of problem solving, and to the global constituencies that send their representatives to the table. Trading zone theory encourages us to not only look at words (or frames) but also the processes underlying their creation and use, the calculations that tie them to real phenomena (such as allocations of water or ecosystem health), and how they enable simultaneous local convergence and global divergence in meaning.

Furthermore, this theory directs us to ask questions about the roles of objects such as maps and single texts in helping stakeholders problem solve.

RESEARCH DESIGN

In the next section, I outline how I intend to answer the research questions. After stating my guiding research questions, I illustrate my research strategy, including why I chose to use case studies and why I chose the ones I did. Next, I develop a set of indicators that I propose to use to identify trading zones if they exist. Then, I describe the processes I used to collect and analyze the data, the assumptions with which I entered the study, and how I plan to verify those assumptions in my analysis. Finally, I outline how I present and analyze the material in the case histories that follow this chapter.

GUIDING RESEARCH QUESTIONS

I started this research wanting to tackle the problems and challenges posed by stakeholders' apparently irreconcilable differences regarding the creation and implementation of water resource management plans and policies. Therefore, my overall purpose was to provide some insights into the following question:

How can stakeholders with apparently irreconcilable differences cooperate more effectively in resolving water resource conflicts?

In recent decades, decision-makers have increasingly turned to processes in which stakeholders seek to reach an agreement about how to proceed. The underlying premise is that if stakeholders can agree on the content of a plan or policy, then they will either support its implementation or at least not hinder it. While some of these consensus-building processes have been remarkably successful, others have failed in the face of the same apparently irreconcilable differences that they were convened to address. This raises an interesting puzzle, namely:

Why are stakeholders with apparently irreconcilable differences able to cooperate, and reach agreements that all parties can support, in some consensus building processes and not in others?

In this chapter, I will introduce the reader to how I went about answering this second question.

RESEARCH STRATEGY

Why use case studies? In his work on trading zones, Galison (1997) used case studies,

*Because the argument here is for a connectivity of physics achieved through partial moves of coordination between theory, experiment, instrument making, and technology, there is no unique way to separate “science” from “context.” ... It is precisely to the denial of a rigid experimental method, fossilized forever in the early modern period, that this book is devoted.*⁵⁹ [13.]

As I have discussed above, trading zones are “local,” intermediate not only among global subcultures or conflicting communities who are seeking to cooperate, but also among those communities and the phenomena, and the representations of those phenomena, with which they choose to concern themselves. Cooperating scientists choose problems and phenomena that they will study, and then they choose machines, terms, and procedures by which they will see, interpret, and shape those phenomena.

Furthermore, Yin (2003) argues that case studies should be the preferred strategy for answering “how” and “why” questions. Unlike experiments or statistical studies, case studies allow the researcher to track decisions and impacts over time. Case studies are especially useful, Yin states, when dealing with problems for which the context is hard to control. This is certainly the case for water resource management conflicts in which stakeholders have apparently irreconcilable differences. These conflicts often play themselves out in multiple forums—including the

⁵⁹ Galison (1997:57, 58)

legislature halls, the courtrooms, and the media—while the parties simultaneously meet in consensus-building processes (Innes and Booher, 1999). Consensus-building processes convened to address these conflicts can often take a year or more to complete. In the case studies I chose, which I will describe shortly, one process took five years. As administrations change, so does the balance of power among different stakeholders, and the kinds of policies government agencies support.

Furthermore, knowledge provided in context has equal value as there is to context-free knowledge. Campbell (1975), a former critic of case study methodology, states that case studies are vital for learning because:

*After all, man is, in his ordinary way, a very competent knower, and qualitative common-sense knowing is not replaced by quantitative knowing . . . This is not to say that such common sense naturalistic observation is objective, dependable, or unbiased. But it is all that we have. It is the only route to knowledge—noisy, fallible, and biased though it be.*⁶⁰ [14.]

Using case studies with rich descriptions of action, events, and contexts provides the reader with more than statements of findings. It also provides information about the messiness underlying those findings so that the reader can make his or her own judgements about what findings make sense and when and how they can be applied.

In fact, if trading zone theory is right, then any finding must be renegotiated and localized in each setting where people of different subcultures interact, cooperate, and try to learn from each other—whether those divisions are professional, ethnic, disciplinary, cultural, or other.

⁶⁰ Campbell (1975: 179, 191)

Research Approach

Two approaches could have guided my research. The first option was to test trading zone theory as a particular hypothesis to see whether it could provide some insights into when and how stakeholders with apparently irreconcilable differences can cooperate. The second option was to take a more grounded approach (Glaser and Strauss, 1967; Strauss and Corbin, 1990; Glaser, 1992), in which researchers seek to elicit from interviews, observations, and written sources their own explanations. In other words, instead of using one or more specific hypotheses to inform what data will be collected and how it will be analyzed, the researcher is supposed to enter the process with an open mind and let the data generate its own hypotheses.

Such an approach does not seek to test hypotheses as a generalizable truth, but rather to elicit what truth can be found in particular cases. This does not mean that the findings cannot be applied to other cases (Flvybjerg, 2004). Instead, a grounded approach emphasizes that professionals and researchers can use the in-depth case descriptions as well as the findings to determine whether and how theories can be applied to their setting. Such an approach is directly in accordance to trading zone theory, which also emphasizes the negotiations that occur within the context in applying and generating knowledge.

Finally, a grounded approach focuses more on cases than individual variables, in part because it assumes that the possible explanatory variables interact in complex ways to produce certain outcomes. This approach fits with the open-ended questions developed earlier from examinations of consensus building and trading zone theory. Instead of presuming one theory or another, this

study used the literature to develop a set of questions to ask of the real life experiences of stakeholders in the two disputes, and four processes, studied here.

Choosing Case Studies

I decided to explore cooperation and problem solving amid stakeholders' apparently irreconcilable differences by looking at two real disputes about water resource and ecosystem management in which stakeholders were able, in one instance, to cooperate and reach agreement despite many years of ongoing and acrimonious struggles. I decided to look at water resource and ecosystem management disputes because such situations are often fraught with the apparently irreconcilable differences I described earlier. Stakeholders struggle to reconcile their different values and beliefs.⁶¹ Stakeholders often disagree about what knowledge counts in these disputes and about how to produce it.⁶² They may struggle even to define what problems they should be addressing.⁶³ Furthermore, the stakeholders in these disputes recognize that the stakes of any cooperation, or any failure to cooperate, may be high.

The two cases I chose are (1) water management and ecosystem restoration in the Everglades in Florida and (2) the management of agricultural water use and ecosystem protection and restoration in California. Both disputes seemed ideal for a number of reasons. The water resources and regional ecosystems of concern in each case were contained within the boundaries of one state, and under the jurisdiction of both federal and state agencies. For each dispute,

⁶¹ See Lord (1979) and Tribe et al. (1976)

⁶² Adler et al. (2000)

⁶³ To be able to define a problem, a group might need to agree on, for example, which phenomena seem important and what the crucial links are between those phenomena and various actions. See Hunter (1989).

decision-makers convened multiple processes to look at different elements of the dispute that they hoped would lead to either consensus among stakeholders or at least generate their support for the final product. In each case, stakeholders were able to cooperate effectively and reach consensus in one process but not the preceding one.⁶⁴

In each dispute, the broad set of stakeholders remained largely the same throughout the period studied and some stakeholder representatives attended more than one process. The most entrenched conflict in each case was among agricultural and environmental stakeholders. Each dispute had occupied decision-makers and stakeholders for at least most of the last decade and the conflict among stakeholders had earlier origins than that. Stakeholders in each dispute had what I will call “equal enough” power, meaning that (1) each stakeholder could influence, and in the past had influenced, decision-makers to consider and push their agenda and (2) each stakeholder also felt that the other stakeholders had the power to influence those in power. In each case, the stakeholders that reached a unanimous consensus on a relatively stable agreement in the last 5-6 years⁶⁵ about programs and policies.

To understand what makes these cases so interesting, consider this. In each case, there was at least one period during which agricultural and environmental stakeholders did not believe they would ever be able to cooperate, let alone find an agreement. They were not even sure whether

⁶⁴ In choosing consensus as a distinguishing characteristic for choosing cases, I knew I would be giving less attention to these other areas of possible positive results that can emerge from consensus building processes. However, I do believe that the fact that some processes were able to reach an agreement despite ongoing differences in values and cultures does distinguish them from other processes.

⁶⁵ Choosing older cases had both certain advantages and disadvantages. The advantage was that I was able to pinpoint agreements that stood out for their degree of stability and implementation, but I also knew that my data would be less reliable due to its age and the lack of opportunity to observe first-hand.

there was any purpose in talking with the other groups at all. Then, fast forward to the end of each case study, and we witness lobbyists from these same agricultural and environmental stakeholders walking hand-in-hand to state and federal legislatures to push for the funding and implementation of the programs based on their consensus recommendations. That remarkable contrast is why this research studies these disputes.

Why two case studies?

Each case study actually contains two processes that I will study. Thus, this design allows for indirect comparison of two failed and two successful instances of cooperation. Direct comparison across the two cases must be made with caution, however, due to the difficulty of delineating context from trading zones described earlier. That is why this case is presented as two case studies rather than four processes.

Having two processes within each case is fortuitous, for it allows us to ask similar questions of two different efforts at cooperation that occurred within similar, although not constant, conditions. For example, the stakeholders in each case remained largely the same, as did the federal administration. At the same time, other factors changed. For example, the representatives sent to each process differed in some instances. Over the history of the processes, stakeholders also engaged in other concurrent battles about watershed management, water rights, and punitive taxes for environmental damage, just to name a few.

Using two case studies provides several additional advantages. It offers a chance to examine and compare the creation of trading zones across two different and immersive contexts. That

comparison allows the research to identify some interesting similarities and contrasts. Similarities may provide information about how stakeholders and consensus-building professionals may promote their creation in other contexts. Contrasts can provide warnings about which practices and questions may require the prospective collaborators to consider more carefully the context before proceeding.

While studying two cases can suggest some possible lessons to be applied in other cases and situations, it is not enough to provide findings that can be generalized to all settings. In fact, according to trading zone theory, such generalization has its limits anyway. Any lesson is useful, according to trading zone theory, only once its meaning is localized and renegotiated with those with whom we are interacting.

In the next section, I briefly describe the two case studies (see also Table 2 below). After that, I discuss some of the assumptions behind and weaknesses of my research strategy. Then, I discuss how data was collected and describe the rationale for how I present and analyze the case studies here.

Table 2: Summary of two disputes about water management

Results	CASE STUDIES	
	California	Florida
Sporadic or no cooperation, disagreement	BDAC Water Use Efficiency Work Group	Everglades Mediation
Cooperation and agreement	Agricultural Water Use Efficiency Steering Committee	Governor's Commission for a Sustainable South Florida

Agricultural Water Use Efficiency in California

In September 1990, after several years of severe drought, the California legislature passed the *Agricultural Water Suppliers Efficient Water Management Act* (AB 3616)⁶⁶ which required California's Department of Water Resources (DWR) to establish an advisory committee consisting of stakeholders from state, federal, and local agencies; agricultural communities; the California university system; environmental and public interest groups; and other interested parties. The AB 3616 Advisory Committee was instructed to develop a Memorandum of Understanding (MOU) that established a list of efficient water management practices (EWMPs) for agriculture and a plan for a voluntary program to implement those EWMPs.⁶⁷ After five years the AB 3616 Advisory Committee was able to develop an MOU for agricultural water use efficiency, but only after all but one of the environmental organizations had pulled out of the process. Environmental organizations had become discouraged because they believed that the AB 3616 Advisory Committee would not result in any tangible environmental benefits. They were also hopeful that the nascent CALFED Bay-Delta Program (CALFED) would produce better results for them.

CALFED was created to coordinate the activities of state and federal agencies⁶⁸ in putting together a comprehensive program to restore the Bay-Delta Estuary, an important wetland at the

⁶⁶ Water Code §10900 *et seq.* Assembly Bill No. 3616 (AB3616), Ch. 739, Stats. 1990

⁶⁷ The instructions came from the Governor who hoped that the AB 3616 Advisory Committee could put together a similar MOU to that recently produced by urban and environmental stakeholders. Those stakeholders had reached an agreement on a set of best management practices (BMPs) for urban water conservation, developed a voluntary program for implementing those BMPs and established an organization to facilitate and monitor implementation. See the following website for more details: <http://www.cuwcc.org>.

⁶⁸ Initially, CALFED was comprised of the 10 state and federal agencies that signed the Bay-Delta Accord. However, as the program evolved, additional agencies having relevant responsibilities joined the program.

confluence of the Sacramento and San Joaquin rivers. CALFED had been produced through negotiations between state and federal agencies together with various stakeholders. CALFED had promised to create significant opportunities for stakeholder participation in the planning process. For public participation, CALFED chose to convene the Bay Delta Advisory Council (BDAC), a Federal Advisory Committee Act (FACA)⁶⁹ advisory committee. BDAC considered a wide arrange of issues, including water use efficiency, levee rehabilitation, water transfers, ecosystem restoration, and other issues relating to the restoration of the Bay-Delta Estuary.

When it became apparent to CALFED that agricultural water use efficiency, and water use efficiency in general, required more focused deliberation among stakeholders, CALFED convened a BDAC subcommittee, the Water Use Efficiency Work Group. However, after only nine meetings the work group was disbanded when it became obvious that the subcommittee was not capable of making any progress on agricultural water use efficiency issues.⁷⁰ Stakeholders left this process as or more divided than they had been entering it.

To address this stalemate, CALFED decided a year later to convene a small group of agency, agricultural, and environmental stakeholders to seek common ground. A team of professional, outside facilitators, facilitated that group. This group, called the Agricultural Water Use

Before it was changed to become the California Bay-Delta Authority in January 2003, it contained over 20 agencies. For more information, see <http://www.calfed.water.ca.gov>.

⁶⁹ The Federal Advisory Committee Act (FACA) does require that a designated federal official attend each meeting. However, this person tended to be someone who attended Policy Group meetings rather than an actual member. (Connick, 2003)

⁷⁰ This lack of progress was even more stark compared with the significant progress made on urban water use efficiency.

Efficiency Steering Committee,⁷¹ was charged with helping the CALFED Agricultural Water Use Efficiency (AgWUE) Program Manager seek ways to design a program that all stakeholders could support. In about two years, the Steering Committee was able to craft an innovative program and reach consensus where many stakeholders had feared progress was impossible. After its creation, agricultural and environmental lobbyists worked together several times to push for funding of the program.

It was a remarkable turnaround, stakeholders agreed, to go from all-out war to cooperation, consensus, and cooperative lobbying. How did this remarkable situation happen? It is a puzzle we will explore in Chapter 3.

Managing Water for Sustainability in the Everglades

The Everglades have been the topic of debate and intense disagreement for decades.⁷² In 1988, with encouragement from environmentalists, the US Attorney General filed a lawsuit against the South Florida Water Management District (SFWMD) alleging that the district was violating state water quality standards; stakeholders on each side then intervened in the lawsuit. This lawsuit soon became very acrimonious, and very important politically. After several years, the federal and state agencies involved in the litigation entered into a settlement negotiation, out of which emerged an agreement. However, it soon became apparent that other stakeholders were unhappy

⁷¹ In its first brief phase, this group of agricultural, environmental and agency stakeholders was actually called the Agricultural Water Use Efficiency Assurances Focus Group; in its second phase, it became the Steering Committee. Since its membership remained largely the same and they followed each other sequentially, I refer to both as the Steering Committee for the sake of simplicity.

⁷² Much of the description given here is taken from DeWitt (1994), Layzer (2002), Jones (2002), and Kranzer (2000).

about being excluded from the negotiations and that some were willing to spend significant resources to fight the settlement.

In response, the settlement parties decided to convene another round of negotiations, the Everglades Mediation, which would be mediated by an impartial mediator and open to all interested parties. This process achieved some early successes, including a Statement of Principles and a Mediated Technical Plan; however in the end the lawyers could not translate these early successes into an agreement.

After the mediator declared an impasse, the latest draft of the texts that the mediation had worked on was taken to the halls of the Florida Legislature. There, some of the same stakeholders reopened negotiations to see if they could craft a legislation to be enacted at the state level that would resolve their dispute. Those negotiations were held over the 60 days during which the Florida Legislature was meeting for that year. That group was able to find some agreement on what became the Everglades Forever Act (EFA). However, not all stakeholders consented to the agreement, most notably several environmental stakeholders.

The Florida Legislature passed the legislation in May 1994. Soon after, the federal and state parties to the litigation made a motion to modify their Consent Decree to bring it in line with the EFA. This movement was challenged by the Miccosukee Tribe that contended that the EFA could not alter the contract created by the Consent Decree. While that motion was denied, this was the start of a series of litigations by the Miccosukee and environmental parties related to the implementation of the Everglades Forever Act.

By 1994, it had become clear to decision-makers that the litigation and subsequent negotiations were not getting at what was really important to stakeholder in south Florida, namely improving water management and restoring the Everglades. The litigation and negotiations had concentrated mainly on the quantity of phosphorous entering the Everglades, what phosphorous level should be mandated, and what actions would have to be done to achieve that level. What stakeholders really wanted, although for different reasons, was that the overall system work better. So, the Florida government issued an Executive Order that convened the Governor's Commission for a Sustainable South Florida (Commission), with over 40 representatives from: public interests and business groups; the Seminole and Miccosukee tribes; state and regional agencies; and the state legislature. Federal stakeholders participated actively in the Commission both as non-voting members and later through the cooperation between the Corps and the Commission. Although federal members could not officially vote, the Commission in practice actively sought their consensus as well.

Governor Chiles set a broad mandate for the Commission, namely to "recommend actions for the restoration, management, preservation and protection of the Everglades ecosystem and to recommend strategies for ensuring the South Florida economy is based on sustainable economic activities that can coexist with a healthy Everglades ecosystem." The Commission was convened under the Florida's Government-in-the-Sunshine Law⁷³, which required that all of its

⁷³ Florida's Government-in-the-Sunshine Law was enacted in 1967 and can be found in Chapter 286 of the Florida Statutes. The Sunshine Law establishes a basic right of access to most meetings of boards, commissions and other governing bodies of state and local governmental agencies or authorities.

deliberations be open to the public. In their efforts, they were to be led by a Chair, a former Speaker of the House, who was in turn assisted by a team of professional facilitators.

After a year and a half, the Commission reached consensus on a 110 specific recommendations for achieving sustainability regarding the Everglades. The Commission was then asked to work with the Army Corps of Engineers (Corps) and the federal South Florida Ecosystem Restoration Task Force⁷⁴ (Task Force) in developing the Central and South Florida Project Comprehensive Review Study (Restudy), which later produced the Comprehensive Ecosystem Restoration Plan (CERP). The Restudy's purpose was to put together a plan for how the Everglades might be restored through changes in water management. From 1995 to 1999, the Commission developed a set of consensus reports that helped direct the Restudy's planning. At the end of the Commission's mandate, lobbyists from the environmental and sugar communities went hand-in-hand to lobby for CERP. Stakeholders agree that it is unlikely that the Comprehensive Everglades Restoration Plan could have been achieved nearly as efficiently or effectively without the Commission.

Stakeholders agree that the Commission marked an unprecedented level of cooperation among environmental, agricultural (Sugar), and other stakeholders; this marks a striking contrast to stakeholders' apparently irreconcilable differences at the beginning of the process, which one

⁷⁴ The South Florida Ecosystem Restoration Task Force is an umbrella organization coordinating the activities of 10 federal agencies and bureaus. It was established by Secretary Babbitt to coordinate the efforts of federal agencies regarding the development of an ecosystem-based science program for the Everglades. Their work was ongoing during the Commission's tenure, and there was much information exchange between the groups. For example, representatives of each group attended the other's meetings.

Commissioner described as “scorpions in a jar.”⁷⁵ What accounts for this astonishing about face?

I explore that riddle in Chapter 4.

In the next section, I outline how I identified the presence of trading zones in my cases. I then discuss some of the assumptions behind and weaknesses of my research strategy. Finally, I discuss how data was collected and describe the rationale for how I present the case studies here.

DATA COLLECTION

I used both interviews and document research techniques to gather data for each case. The interviews were semi-structured and occurred both in person and on the telephone. Overall, I conducted over 80 interviews with 66 people. I also made field trips to each region to learn more about the issues first hand and to retrieve documents. Documents were examined to track the flow of issues, to see what issues were prominent and controversial, and to examine them for their role as potential local objects. The documents I examined included meeting summaries, group products, official program documents and news stories.

In my interviews I asked participants various questions relating to their ability and inability to cooperate as a group. Interview questions were designed to be open-ended, so that the respondents were the ones identifying what factors they thought were important for their ability or inability to cooperate. I started each interview by asking the participant how they were involved in the case. This provided an easy question through which they could start to recall the process.

⁷⁵ Interview with Commissioner Fall 2003.

The next question asked the respondent to identify one or two of the issues or moments they thought were most challenging for the group. Follow-up questions would then probe the reasons these moments or issues were difficult and then either (a) how the group managed to get beyond those challenges or (b) how the group's deliberations were affected/impacted when those challenges were not surmounted. This question was also essential for confirming the presence of apparently irreconcilable differences that I had presumed upon entering the case. The next question was similar, but aimed at identifying and examining key breakthroughs.

These initial questions served two purposes. First, like the initial historical question, they were intended to prod the respondents' memories, in this case by evoking powerful moments. Second, these crucial moments could give insights into the groups' specific steps as they move beyond "business as normal means impasse" into new territories of cooperation and problem solving.

After these three initial questions, I asked the respondents to identify the reasons they thought their group was or was not able to cooperate. For each factor that they identified, I would follow up with questions designed to elicit specific examples that explained why these factors were important and what impact they had on the group.

Near the end of each interview, I also asked each respondent to tell me whether the process we had been discussing was "worthwhile or not." I asked this question to confirm my presumptions about the efficacy of cooperation for each process and to get a better idea of the nuances of what these processes did and did not achieve from the perspectives of their participants.

Setting up interviews

I used the same approach to set up each interview. Before the interview, I emailed a short chronology of events—both in the process and surrounding it—to the interviewee to help them recall the process. This was useful especially for those processes that had already been completed a decade ago. The chronology also gave the interviewee and me common reference points to refer to when talking about events and issues.

With the chronology, I also sent the interviewees a list of the questions described above. I hoped that seeing the questions before the interview would help respondents recall the process. In some cases, sending the questions ahead of time might curtail the effectiveness of an interview by allowing respondents to prepare answers to controversial questions. However, I felt that few of my questions were very controversial, and that the variety of people that I would talk with would allow me to check responses against each other.⁷⁶

At the beginning of the interviews, I told respondents that I would, with their permission, like to record the interview. The respondents were informed that the recordings would be destroyed six months after the dissertation was produced. Then, I explained the ground rules for the interview. Respondents were told that they could ask me to erase any portion of the recording or to stop the recording at any time. They were also told that they would receive a copy of any product that went out for publication in which they had been quoted. At the end of this recitation of the rules,

⁷⁶ In most cases, the respondents needed time to think about how to respond to each question. Also, most were extremely busy people and it was apparent that they had not had much time to peruse the interview guide. Finally, most respondents were quite frank with their responses.

I asked the interviewees if they had any questions, which I responded to as required. Finally, I obtained permission to record the interview.

Confirming stakeholders' apparently irreconcilable differences

This study proceeded on the assumptions that: (a) stakeholders in these cases believed they had apparently irreconcilable differences and (b) these differences went beyond competing interests to include beliefs, interpretations, epistemologies, and ways of acting. In my research, I checked this assumption by asking stakeholders about the nature of their difficulties with other groups and about the impasses they faced and the reasons for them. Similarly, I also drew on outsiders' analyses, both documented and elicited in interviews, to confirm that these apparently irreconcilable differences did indeed exist. The findings of these questions can be seen in the case analyses that follow. They are identified in the text as they appear.

Data reliability

As mentioned above, one limitation of this study was that it relied heavily on participants' ability to remember events and interactions that occurred three to eight years in the past. Another limitation was the lack of documentation that captured the moment-to-moment interactions among the participants. The meeting summaries from each process were useful to capture general events as well as what issues were raised during any particular day and how those issues persisted and changed over time. However, they did not provide information on why issues evolved as they did, what moves stakeholders and facilitators made, how relationships changed over the process, how stakeholders were using the various objects at their disposal, and many of the other detailed interactions and actions that provide insights into what stakeholders were

doing as they sought to solve problems amidst ongoing conflict. The same applies to outside sources, such as newspaper and journal accounts of the processes.

To compensate for the potential failings of memory, I interviewed as many people as I could, including not only the stakeholders but also the staff, facilitators, and others who attended regularly. For each process, I interviewed at least fifteen people.

In this way, I could see where some uncertainties or disagreement lay in the accounts. In a few instances, I followed up with several stakeholders to clarify apparent contradictions in the testimonies; however, in general I was surprised by how well the participants in these processes were able to remember events and by the consistency in their recollections.

Assumptions

In designing my research, I made several assumptions, most of which I verified throughout my research. The evidence of these verifications is presented in the case analyses of the next two chapters.

As mentioned earlier, in choosing my case studies, I assumed that these conflicts did indeed have apparently irreconcilable differences. The existence of these apparently irreconcilable differences will be verified by examining the data and the findings presented in the following case analyses.

In gathering my data, I assumed that the stakeholders who participated in the studied processes would accurately remember what had happened. In reviewing stakeholders' responses, I found a

remarkable convergence on key facts and observations, which I took as confirmation that they did remember well.

I was not interested in instances where stakeholders were coerced into cooperation, so I assumed that the power distribution among parties remained “equal enough” that such coercion never took place. To draw such a stark line between free choice and coercion can be problematic at times (Adler and Silverstein, 2000). For example, in one case the stakeholder representatives made remarkable progress when a higher-level decision-maker threatened to write the text himself. I present instances like this in my case analyses and show why I think these represent opportunities for creating trading zones rather instances of coercion.

CASE ANALYSIS

In the case descriptions and analyses to follow, I organize the data at two levels. First, as I have explained earlier, I studied two case studies of disagreements about how to manage regional water resource in the face of stakeholders’ apparently irreconcilable differences. The chapters to follow are likewise split between those two conflicts, as shown in Table 3.

Table 3: Summary of two disputes about water management

Results	CASE STUDIES	
	California	Florida
Sporadic or no cooperation, disagreement	BDAC Water Use Efficiency Work Group	Everglades Mediation
Cooperation and agreement	Agricultural Water Use Efficiency Steering Committee	Governor’s Commission for a Sustainable South Florida

Within each of those two case studies, I investigated two specific processes that decision-makers convened. In each case, stakeholders in the first of these processes struggled to cooperate during

the deliberations and, ultimately, did not reach agreement. Stakeholders emerged from these early processes more bitter and divided than before.

The second process in each case represents a striking contrast to the first. In these processes, stakeholder representatives were able to discuss the issues effectively; marshal and use technical information despite ongoing scientific uncertainties; reframe the issues in ways that allowed for the parties to imagine, design, and agree upon a program for managing water resources; and more. At the end of each of the latter processes, lobbyists from the two most divided groups walked hand-in-hand to lobby for the programs their representatives had negotiated and agreed upon.

In the chapters that follow, I divide the case history into two sections, one for each process. While I could have divided the chapters into four, one for each process, I wanted to emphasize that the two processes within each case share significant elements, including which stakeholders were involved, the animosity and mistrust between the agricultural and environmental groups, the physical and biological context, and the political climate. Furthermore, what happened in the first process affected the initial expectations, relationships, and framing of the issues going into the second process. Such links could not be ignored, and they provided crucial information about how each dispute moved from impasse to cooperation despite stakeholders' *ongoing* and apparently irreconcilable differences.

Within each case study, I organized the presentation of the evidence around an historical account of the general events and issues. At different stages during that chronological recounting, I

inserted more specific descriptions provided by my interviewees about events, including impasses and breakthroughs, in which their group lost or gained its ability to cooperate effectively, identified pragmatic avenues to pursue, created relevant information, and crafted solutions.

These analytical subsections were generated as follows. I went through my coded documents and interviews looking for quotes that seemed to answer the questions I posed earlier in this chapter. For example, what were the key challenges and how did the group overcome them? From there, I inserted the quotes into the case chapters that follow, placing them in the time period in which they occurred. I built my analysis on those quotes, unpacking them to determine what they revealed about each group's struggles and successes. I also looked for what these excerpts could tell us about when and how, if at all, trading zones aid cooperation. Furthermore, I discuss what these excerpts tell us about how trading zones, or the other components of success, were formed.

I also used some of these excerpts to characterize and confirm the assumptions I have described earlier, for example stakeholders' apparently irreconcilable differences in each of these cases.

At the end of each process description and analysis, I provide a summary of what the evidence presented in the excerpts tells us about why and how stakeholders were, and were not, able to cooperate, and what this tells us about how stakeholders with apparently irreconcilable differences cooperate to solve problems of water resource management. Throughout, I also reflect on the lens of trading zone theory and its possible power to explain cooperation. Finally, after the two case histories, I undertook another level of analysis in which I compared and

summarized what we learned from the two case histories about how stakeholders cooperate when they have apparently irreconcilable differences.

In the next two chapters, I describe and analyze the two case studies. The next chapter covers the first case study; CALFED and Agricultural Water Use Efficiency in California. The following chapter presents the second case study; Managing Water for Sustainability in the Everglades. Those case chapters are followed by the cross-case analysis and, finally, the concluding chapter.

AGRICULTURAL WATER USE EFFICIENCY IN CALIFORNIA

The issue of agricultural water use efficiency has been, and continues to be a hot topic in California. This case looks at two processes convened by the CALFED Bay-Delta Program (CALFED) to address the issue of agricultural water use efficiency in the latter half of the 1990's. State and federal stakeholders convened the CALFED Bay-Delta Program in 1994 to seek mutual cooperation in crafting a comprehensive program of water management for the Bay-Delta Estuary and its upstream watersheds. In the meetings among state, federal, and non-governmental stakeholders that preceded CALFED's initiation, governmental stakeholders agreed to organize the CALFED process so as to enable significant stakeholder involvement in program development.

Of the issues addressed by CALFED, agricultural water use efficiency was arguably the most contentious. The main public participation forum for CALFED, the Bay-Delta Advisory Council, realized after a year that it needed a more focused dialogue to address some of the conflict around water use efficiency, especially agricultural water use efficiency. So the Water Use Efficiency Work Group was convened to include agricultural, urban, and environmental stakeholders. However, that Work Group was largely unsuccessful and was terminated after only nine meetings.

Instead of giving up, CALFED decided to convene another group, the Agricultural Water Use Efficiency Assurances Steering Committee. The Steering Committee went through two phases. In its first phase, it was known as the Agricultural Water Use Efficiency Assurances Focus

Group. This group crafted a revolutionary program for agricultural water use efficiency that all stakeholders could support. The state and federal agencies committed to raising approximately 750 million to one billion dollars for the AgWUE Program. Similarly, a rare sight was seen in Congress and the California Legislature when environmental and agricultural lobbyists walked hand-in-hand to push for funding for CALFED's AgWUE Program.

In this case study, I will explore why stakeholders were able to cooperate in the Steering Committee and not in the BDAC Water Use Efficiency Work Group. I tell the story of each process and look more specifically at what impeded and helped cooperation.

BACKGROUND

In 1928, the California Constitution addressed the issue of water conservation in Article X, Section 2, which set the standard benchmark against which the use of all water in California is measured. This section says:

It is hereby declared that because of the conditions prevailing this State the general welfare requires that the water resources of the state be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with the view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare.⁷⁷ [15.]

Despite the billions of dollars invested by the federal and state agencies, intermittent droughts have continued to remind Californians that water is scarce. In recognition of this, there have been over the last couple of decades numerous attempts to get water suppliers and water users—both

⁷⁷ Cited from Littleworth and Garner, 1995.

urban and agricultural—to conserve more water.⁷⁸ For example, following a severe drought in 1976-1977, the state government enacted “Water Conservation Programs” as part of the Water Code.⁷⁹

In 1986, the California legislature enacted another water conservation legislation for agriculture, the Agricultural Water Management Planning Act of 1986 (AB1658).⁸⁰ AB1658 required all agricultural water suppliers delivering over 50,000 acre-feet of water per year to prepare an Information Report in which they would determine whether or not there existed opportunities to conserve significant amounts of water or reduce the quantity of saline or toxic drainage water through improved irrigation water management. Those water suppliers that did identify significant opportunities were required to prepare Water Management Plans. However, it soon became clear that agricultural water supplier efforts to meet this planning requirement were minimal at best. And perhaps that would have continued, except that in 1987, California entered the worst drought in remembered history.

This drought lasted 6 years until 1992. Rainfall and surface runoff from, among other things, snowmelt were lower during these 6 years than in any other comparable period in the history of recorded water flows. At the beginning of the drought, agricultural and urban water users were not severely impacted because existing surface storage contained some reserved from previous years. However, as the drought continued, many water suppliers were required to significantly

⁷⁸ Note that much of the following discussion on the evolution of the legislation relating to water use efficiency comes from Littleworth and Garner (1995: 265-274).

⁷⁹ Specifically, Chapter 3.5 of Division 1 of the Water Code (Littleworth and Garner, 1995).

⁸⁰ Water Code §10800 *et seq.* The Agricultural Water Management Planning Act was repealed in 1993. (Littleworth and Garner, 1995)

reduce the water that they diverted. For example, many agricultural water users who receive water from the State Water Project and Central Valley Project eventually had their deliveries cut by up to 80 and 90%. In 1991 some did not receive any water at all. During this time many agricultural lands were fallowed⁸¹ and water rationing and conservation became topics of much discussion among stakeholders and government agencies.

Beyond reducing deliveries of water, the drought also threatened key environmental resources around the state, including the Bay-Delta Estuary, about which one observer stated, "The environmental importance of the area cannot be overstated."⁸² The Bay-Delta includes the San Francisco Bay and the deltas of the Sacramento and San Joaquin. The Bay-Delta is a 738,000 acre estuary that is home to a diverse range of fish and wildlife, agriculture and recreational opportunities. It supports approximately 750 plant and animal species and contains approximately 8,000 acres of tidal marsh including the Suisun Marsh, which is the largest contiguous brackish water marsh in the United States. The Bay-Delta is also an important migration corridor for various fish and bird species.

To appreciate importance of the Bay-Delta Estuary to California, an observer must understand why one commentator referred to the Bay-Delta as "an aquatic switching yard for water destined

⁸¹ When land is fallowed, it generally means that no crop is grown on it. There are a number of reasons why farmers may choose to fallow land. Sometimes they do it because no water is available, in other cases it may be for market reasons or because they want to improve the soils.

⁸² Superior Court of the State of California, County of Sacramento (2003). Case No. JC 4152. Coordinated Special Proceeding Special Title (Rule 1550(B)): Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings. Coordinated Actions: Regional Council of Rural Counties v. State of California (Sacramento County Super. Court No. 00CS01331); Municipal Water Dist. of Orange County v. California Resources Agency (Los Angeles County Super. Court No. BC237574); and Laub v. Davis (Fresno County Super. Court No. 00CECG11667). April 1, 2003. Pg 1.

for the San Francisco Bay area, Central Valley and Southern California.”⁸³ The Bay-Delta is a vital focal point for the management of water throughout the state. Much of the water that reaches the Bay-Delta is diverted to provide water for two-thirds of California’s population and seven million acres of highly productive irrigated farmland. The Bay-Delta is also the hub of California’s two largest water distribution systems, which together divert about 20 to 70 percent of the natural flow in the system depending on the amount of runoff available in a given year.

Finally, the Bay-Delta ecosystem is highly dependent on the interplay between instream flows coming from the San Joaquin and Sacramento rivers and the tidal flows from the San Francisco Bay. Even before the drought, environmentalists and policy-makers were concerned about the impacts of diversions and changed instream flows on the Bay-Delta ecosystem.⁸⁴ During the drought, instream flows into the Bay-Delta were even further reduced and altered. Thus the drought not only raised warning flags to water users, it further persuaded environmentalists that what they cared about was threatened in fundamental ways.

These problems pointed the attention of many people towards agriculture. Agriculture is the first and biggest user of water in California. At the time of the drought, agriculture, through its water rights and contracts with state and federal water projects, controlled and utilized approximately 80% of California’s developed surface water supply. Many stakeholders at this time were heard to say something like the following: “If only agriculture would use 10% less water, there would

⁸³ Perry, Tony. 1999. “Plan designed to bring Delta foes together inflames debate instead.” *The Los Angeles Times*, September 16, 1999.

⁸⁴ For example, before 1990 the State Water Resources Control Board attempted several times to establish standards for water quality and salinity for the water flowing into the Bay-Delta; unfortunately all had failed due to stakeholder lobbying and litigation.

be more than enough water to meet present and future demands.” Concerns were also raised about some crops that agriculture was growing, especially crops like alfalfa and rice that have low prices and require significant quantities of water to grow. When compared to other higher value economic activities that were also suffering from the drought, these crops did not appear to many stakeholders to be an efficient use of a scarce resource.

Furthermore, agricultural water users had not earned much trust from other stakeholders. Before 1990, there had been other efforts had been made to encourage water savings. These include AB1658 mentioned before and the U.S. Reclamation Reform Act. For the AB1658, agricultural water suppliers were required to provide analyses and plans; however many of these plans were usually half-hearted at best; sometimes a water supplier might provide a plan of only one or two pages! Environmental and some government agencies perceived a similar lack of effort by agricultural in meeting the requirements of the U.S. Reclamation Reform Act. Overall, environmental groups felt that the previous agricultural water conservation programs were just “gathering dust on shelves” because they were relying on the good faith of agricultural water users.

AB 3616 Advisory Committee

With the drought growing more severe, the California legislature passed the *Agricultural Water Suppliers Efficient Water Management Act* (AB3616)⁸⁵ in September 1990. AB3616 in some ways was a softer version of AB1658. First, it chose to state publicly what the agricultural community had often argued, namely that agriculture had already implemented many

⁸⁵ Water Code §10900 *et seq.* Assembly Bill No. 3616 (AB3616), Ch. 739, Stats. 1990

improvements to water use efficiency. Second, unlike its predecessor, AB3616 did not require agricultural water suppliers to prepare plans. At the same time, however, it encouraged the implementation of additional water management practices where they could further improve efficiency.

AB3616 defined water conservation as the “reduction of the amount of water irretrievably lost to saline sinks, moisture-deficient soils, water surface evaporation, or non-crop evapotranspiration in the process of satisfying an existing beneficial use achieved either by improving the technology or method for diverting, transporting, applying, or recovering the water or by implementation of other conservation methods.”⁸⁶ Finally, the legislation required the creation of a multi-stakeholder public advisory committee comprising agriculture, the Department of Food and Agriculture, the University of California, public interests groups, and other interested parties.

The AB 3616 Advisory Committee was convened in 1991 by California’s Department of Water Resources (DWR) and comprised of state and local agencies; agricultural communities; the California university system; environmental and public interest groups; and other interested parties to develop a Memorandum of Understanding (MOU) about how agricultural water could be best conserved appropriately. The expectation was that the MOU would be similar to one signed in 1990 by environmental and urban water suppliers on how to improve urban water conservation, the *Memorandum of Understanding Regarding Urban Water Conservation in*

⁸⁶ §10902(c)

California (Urban MOU)⁸⁷ The Urban MOU outlined a set of best management practices and a voluntary process by which urban water suppliers would implement them. The Urban MOU had demonstrated that environmental and development stakeholders could come to some kind of agreement about how to manage water, and the Governor hoped that a similar MOU between agricultural and environmental stakeholders might be a significant step to ending California's legendary water wars.

The AB 3616 Advisory Committee met for five years (1991-1996) in its attempts to develop a MOU for agricultural water use efficiency. Near the end of its deliberations, all but one of the environmental groups left the process. One of the reasons they did so was to participate more actively in the CALFED Bay-Delta Program, which was just starting. Many environmentalists felt that CALFED offered much greater opportunities for environmental improvement, especially since such improvements were one of the primary purposes of the effort. Another reason they left, however, was their frustration in the AB 3616 Advisory Committee dialogues. Many of the environmentalists that participated in that process left feeling that it would not produce a useful outcome. Some also felt that their counterparts in the agricultural community had not been negotiating in good faith, as this environmental stakeholder explains,

It was a very cynical effort, frankly, on the part of a number of the Ag interests and I say that because I went subsequently to one of the annual conferences of the Association of California Water Agencies. At a session of this meeting on the Ag MOU, ...the gist of that session was, from the standpoint of a number of the [agricultural] people, that [the AB 3616 process] was basically throwing a bone to the environmental community. That is was completely meaningless effort. ...[S]o

⁸⁷ The Urban MOU represented an agreement among a group of environmental and urban stakeholders in which they established list of BMPs for urban water conservation and set a target date and amount of water to be saved by the voluntary implementation of these BMPs by urban water suppliers over the next decade (1990-2000). Finally, the MOU set out the terms for creating an organization to oversee the implementation of the MOU. That organization was the California Urban Water Conservation Council (CUWCC).

*the Ag Water Management Council, from my vantage point, sort of came into being but it never really did or meant anything.*⁸⁸ [16.]

One environmental organization did remain and a MOU was signed in 1996. That MOU set out a set of recommended efficient water management practices (EWMPs)—divided into three categories, each with their different criteria for when they should be implemented. The MOU also called for the creation of the Agricultural Water Management Council to monitor the implementation of the MOU. Participation in the MOU and AWMC was voluntary. Finally, the MOU stated that it would not come into effect until 15 water suppliers representing at least 2 million irrigated acres signed onto the MOU.

While the Ag MOU and AWMC received little support from the environmental community and little funding from agencies, they remained an item for arguments and deliberation in later dialogues. CALFED tried to incorporate the Agricultural Water Management Council into its Water Use Efficiency Program at different junctures, as did various agricultural stakeholders. However, the environmental stakeholders staunchly resisted its inclusion. As dialogues progressed however, agricultural and environmental stakeholders began to reconsider the role of the AWMC in light of the larger program they were developing.

Stakeholders' apparently irreconcilable differences

Why were stakeholders in the AB 3616 Advisory Committee unable to cooperate. In part, as we can see in quote [16.] above, some of the agricultural stakeholders were not sure they wanted to

⁸⁸ Interview with environmental stakeholder, Fall 2004.

reach agreement with the other side. This reluctance was not limited to the agricultural community however, as this environmental stakeholder tells us.

I think there were folks on the Ag side that really felt like the environmental community was really out to destroy them. ...[T] hey were reacting to some very legitimate fears. There were some folks in the environmental community who consider agriculture the biggest enemy to the ecosystem. There are people who I work with now [in 2004] who have said that to me.

So there is a very unfortunate fear that the guys on the other side are... "They are not just my opponents, they are my enemies. They want me to go away, they don't want me to farm. ...They have no respect for what I do." ⁸⁹ [17.]

So we see here in this quote, and in quote [16.] above, that at least some members of both the environmental and agricultural communities did not accord legitimacy to the values of their counterparts. Some of those stakeholders even considered their opposites to be "enemies." Both sides feared that they would not be able to preserve what they valued most (the environment, a way of living) unless they fought the other with all the tools at their disposal.

What were some of those value differences? As this next environmental stakeholder explains, one of the deep divisions revolved around questions about the role of water measurement and pricing in water supply and conservation.

I think what we came to was an absolute roadblock on basic values. One group valued, their value was that [the concept] that if you use more water, you pay more was just completely unacceptable in their universe. Even when any empirical data showed that if you paid more, you would find more efficient ways of using your resources, even that simple fact had no bearing on some of the folks around the table. It had no bearing on their belief system. Because from their standpoint, there was nothing more they could do. They actually believed that you wouldn't do any good to measure how much water they use, so what do you do with that? ⁹⁰ [18.]

Environmental stakeholders are convinced that if agricultural water suppliers and users are forced to measure their water, they will become more efficient. Talk to any water conservation

⁸⁹ Interview with environmental representative, Fall 2004.

⁹⁰ Interview with environmental representative, Fall 2004.

minded environmentalists, they said, and they will be able to rattle off examples where the installation of measurement devices as improved water use efficiency tremendously. Another environmental stakeholder stated simply that,

*...Measurement is a tenet of our religion.*⁹¹ [19.]

Similarly, environmentalists believed that agriculture is paying too little for water, and thus it lacks the incentives to use it more efficiently. As the environmental stakeholder says in quote [18.] above, they believed in tiered pricing. Tiered pricing sets an increasing price for each increment of water that a user consumes.⁹²

On the other hand, agricultural water users hold strong beliefs that run counter to environmental claims. Consider the words of this next agricultural stakeholder, for instance:

*The fact of the matter is, we think we have sufficient data to show you that, number one, agriculture is quite efficient, and number two, efficiency doesn't make a whole lot of sense like in Northern California because the return flows are already returning to the river.*⁹³ [20.]

So here we see that agricultural stakeholders already disagree with the primary claim of the environmentalists, namely that they are inefficient. We also see another element of the agricultural belief systems, namely the idea of return flows. The basis of this belief is that, at least in some areas of the watershed, any extra water above that used by the crop will return to a source, surface or subsurface, where it can be used again. In other words, it did not matter how much water they diverted because the water not used would be available for use.

⁹¹ Interview with environmental representative, Fall 2002.

⁹² For example, the first 100 cubic metres might cost \$10, the next 100 cubic metres \$15, and so on.

⁹³ Interview with agricultural representative, Fall 2004.

Furthermore, as the agricultural stakeholder tells us as he continues, improvements in water use efficiency do not necessarily translate into a change in how water is allocated between agricultural and environmental users.

*I don't care how much water I save in [my water district] or how much water is saved in Los Angeles. It is not going to change one bucket the amount of water that the State Water Project captures and stores during wet periods for its customers and it's not going change one bucket the amount of water contractors request to be exported from the Delta.*⁹⁴ [21.]

In other words, as far as this and other agricultural stakeholders are concerned, even if they increase their water use efficiency, they are not willing to give up their allotment of water as provided by their water rights. Those water rights guarantee their holders a certain amount of water per year, except for years of drought. So, to this agricultural water use, the purpose of improving water use efficiency is not to divert water for the environment, as he explains here.

*... It almost sounds like I'm against conservation and that's certainly not true. ...[E]ven in [my water district] we are developing banking projects that are developing water for the 100-200 dollar per acre-foot range and providing us with additional dry years supplies and flexibility in normal and wet years. ...Why am I going to spend money on water conservation when it's not going to change the demands for water from the Delta?*⁹⁵ [22.]

In other words, agricultural water users would undertake water use efficiency measures only when it makes sense for improving the cost effectiveness of their water supply—for example, by improving its reliability in dry years and its flexibility in other years.

So measuring water use does not make sense according to this logic, because (a) agricultural water users are already efficient; (b) water not used returns to the watershed; and (c) any saved

⁹⁴ Interview with agricultural representative, Fall 2004.

⁹⁵ Interview with agricultural representative, Fall 2004.

water should remain in the hands of the water right holders anyway. The same argument applies to the idea of tiered pricing.

So one point of apparent impasse in this conflict was a fundamental disconnect between water use efficiency and water allocation. Environmentalists push for water use efficiency measures in the hope of reallocating that water to environmental uses. Agricultural is not willing to give up those allocations, and so they believe that water use efficiency measures only make sense if they increase the cost effectiveness of their water supply.

This next stakeholder argues that there are also important cultural differences. She is an organic farmer with sympathies for both the agricultural and environmental communities. She starts off by talking about how agricultural water users often found it difficult to listen to environmental stakeholders' advice on how to manage their water because they felt the Enviros had no understanding of the challenges of growing crops.

I'm sorry to be saying this in such dramatic terms but I really do think that's a huge cultural difference because the folks who are trying to save the environment, and who have deep beliefs about how we are trashing the environment. Basically, a lot of those folks don't have any real experience of trying to manage it to grow food or to manage it like a resource. So they are kind of in the dark when it comes to some of these policy questions around agriculture. Their language and their attitude, "well you know it's easy, you plant a seed, you water it, you harvest it. What's the big mystery there?" It's almost... yeah it's a huge cultural difference!⁹⁶ [23.]

Many of the other agricultural stakeholders also mentioned this as a reason for the difficulties in their relationships with environmentalists. This stakeholder continued, saying that it was important to understand that the agricultural representatives were also often unnecessarily arrogant and unwilling to explore the issues as well.

⁹⁶ Interview with organic farming representative, Fall 2004.

As we can see then, there are different dimensions to stakeholders' apparently irreconcilable differences. First, there are dramatic differences in how they believe water should be allocated. On top of that, we see that many stakeholders have cast their counterparts as "opponents," in part because those others do seem to be either dismissing out right what the others care about or because they act and talk as if they want to see the other's livelihood ended.

Throughout the case description that follows, we will see some other aspects of stakeholders' apparently irreconcilable differences, which I will identify as they arise.

AGRICULTURAL WATER USE EFFICIENCY AND CALFED

Contention over the allocation and quality of the water entering the Delta has been around for decades. In 1971, the State Water Resources Control Board (SWRCB or State Board)⁹⁷, issued a decision (D-1379) that found that the State Board's jurisdiction extended beyond the protection provided in the Clean Water Act—which included agricultural water supply, protection of fish and wildlife, and municipal and industrial supply—to cover all beneficial uses of water in the Delta. Furthermore, it concluded that water users could be required to refrain from interference with natural flows as required for meeting water quality and other standards, but that they could also be required to conserve a portion of water, to be set aside in storage, for these same purposes under the terms of their permits. Finally, this decision laid the entire burden for the protection of beneficial uses in the Delta on state and federal projects even though other users contributed to

⁹⁷ A department of the California Environmental Protection Agency.

the problems. However, litigation by agricultural water users halted the implementation of this decision in the same year.

Over the next couple of decades, the State Water Resources Control Board attempted several times to issue other water quality standards, as required by the Clean Water Act. Each attempt at a decision was either subsequently withdrawn by the State Board (due to stakeholder lobbying or the threat of litigation) or challenged by stakeholders in court.⁹⁸ The last attempt by the State Board (D1630) to issue standards before the advent of CALFED was withdrawn at the request of Governor Wilson when the EPA appeared ready to reject the Bay-Delta standards. At the same time, biological opinions issued by the National Marine Fisheries Service and the Fish and Wildlife Service also made the water rights decisions contained in this draft decision largely moot. Equally significant, the federal also passed the Central Valley Improvement Act, which set aside a sizeable amount of water (800,000 acre-feet) for environmental purposes and required that federal water contractors, among other things, prepare water management plans that considered conservation measures, including water quantity measurements at the farm gate level.

⁹⁸ See Littleworth and Garner (1995:126-139) for a brief history. I give a couple of brief examples here. In 1988, the State Board issued a *Draft Water Quality Plan for Salinity for the San Francisco Bay and the Sacramento-San Joaquin Delta Estuary*. This plan was withdrawn because of the controversies generated by it. Water suppliers argued among other things that its restrictions on water rights in favour of water quality were too harsh. Environmentalists on the other hand noted that the withdrawal of the plan demonstrated that the State Board was susceptible to lobbying by water users. Environmentalists took the State Board to court for its next plan, the *Water Quality Control Plan for Salinity for the San Francisco Bay and the Sacramento-San Joaquin Delta Estuary* (1991). Their primary objection to the plan was that it failed to include **flow** requirements, which they argued were essential for a number of fish species. Legally, their argument was significant because if flow requirements are tied to water quality requirements, then the EPA, which regulates water quality, could potentially gain control of water rights decisions (Littleworth and Garner, 1995:133).

Concurrently, at the end of 1992 Governor Wilson appointed two important water committees: the Bay-Delta Oversight Council with broader stakeholder representation and the Water Policy Council, which was composed of the heads of state agencies with some jurisdiction over the Bay-Delta.⁹⁹ Furthermore, he called on the Federal agencies to also coordinate themselves so that they could speak in one voice regarding the management of the Bay-Delta. In September 1993, four of the key federal agencies—EPA, FWS, NMFS and the Bureau of Reclamation (BoR)—signed a memorandum of understanding in which they pledged to cooperate in their actions regarding the Bay-Delta through the Federal Ecosystem Directorate, also termed “Club Fed”.¹⁰⁰

Golden Gate Audubon, et al. v. Browner

On April 10, 1993, plaintiffs brought this action for declaratory and injunctive relief to force the federal Environmental Protection Agency to promulgate water quality standards to protect estuarine habitat and fish and wildlife uses in the San Francisco Bay and Sacramento-San Joaquin Delta. In September 1991, EPA disapproved certain water quality standards adopted by the SWRCB in its Bay-Delta Water Quality Control Plan for not adequately protecting fishery resources as required by the federal Clean Water Act. Plaintiffs filed this suit to compel EPA to promptly prepare, publish, and promulgate water quality standards to replace the disapproved State standards.

In November 1993, the district court approved a settlement agreement requiring the EPA to propose standards by December 15, 1993. In December of 1993, Club Fed proposed its own

⁹⁹ See Connick (2003) for further information on the formation of these two state bodies.

¹⁰⁰ In 1997, Club FED changed its name to the Federal Bay-Delta Council.

water quality standards for the Bay-Delta Estuary and simultaneously proposed a critical habitat designation for the Delta Smelt that encompassed the whole Delta and a listing of the Sacramento splittail as a threatened species. In mid-1994, the parties agreed to settlement whereby the EPA would publish final standards in December 1995. One of the reasons that the parties agreed to the delay was that they had entered into negotiations on the creation of an interagency effort (soon to be known as the CALFED Bay-Delta Program) to restore the Bay-Delta Estuary for which the state and federal agencies were promising to incorporate significant public participation.

Creating the CALFED Bay-Delta Program

Federal actions in proposing water standards for the Bay-Delta Estuary and listings for the Delta Smelt and Sacramento Splittail mobilized non-government stakeholders. Believing that federal proposals and actions would reduce available flow for water supply, agricultural and urban water users mobilized to protect their supply—and water rights¹⁰¹—by developing a counter-proposal¹⁰² (Urban-Ag Proposal) that focused on the period considered the most crucial for protection of Delta aquatic species, February-June. This proposal included limits on water exports from the Delta, closures of canals at certain times and a number of non-flow measures—such as the screening of unscreened diversions throughout the entire watershed; additional controls for pollution controls, fishing, and salinity; and the restoration of various habitats. This proposal became the basis for negotiations among state and federal agencies in the fall of 1994.

¹⁰¹ Water rights are founded in the right that right-holders have to extract the water they need; by proposing to regulate water flow, federal agencies indirectly threatened the users' ability to extract "their" water.

¹⁰² The *California Urban Water Agency/Agricultural Water Users proposal* (Urban-Ag Proposal) 1993.

In 1994, state and federal agencies developed two important agreements on how they would proceed to plan the management and restoration of the Bay-Delta. First, in June 1994, the Governor's Water Policy Council and the Club Fed entered into a memorandum of understanding¹⁰³ (Framework Agreement) in which they jointly acknowledged what the problem was (preserve, restore, and enhance the critical resources of the Bay-Delta) and the interconnectedness of federal and state interests in the region. In this document, they also outlined how they planned to jointly address water-quality standards, coordinate federal and state water project operations, and develop a long-term solution to the management of the Bay-Delta. With regards to finding a long-term solution, the state and federal agencies committed to jointly manage a planning process in which a committee of "citizen-advisors, representing California's agricultural, environmental, urban, and other affected interests" would play a crucial role.¹⁰⁴

Later, in December 1994, the state and federal governments along with a select group of environmental and water user representatives signed the *Principles for Agreement on Bay-Delta Standards between the State of California and the Federal Government* (Bay-Delta Accord). The Bay-Delta Accord established a set of interim measures for both environmental protection and regulatory stability in the Bay-Delta. Intended at first to last for three years, the standards established here were extended in December 1999 extension so that they would formally expire when the ROD was produced. This agreement was significant because it represented the first

¹⁰³ Framework Agreement between the Governor's Water Policy Council of the State of California and the Federal Ecosystem Directorate. June 1994. See <http://calwater.ca.gov/Archives/GeneralArchive/Framework1994.shtml> for the full text of the Framework Agreement.

¹⁰⁴ See Exhibit C of the Framework Agreement.

time that stakeholders from the broad range of constituencies agreed on a way to move forward regarding the Bay-Delta.¹⁰⁵

These two agreements also laid the foundations for creation of the California Water Policy Council and the Federal Ecosystem Directorate Bay-Delta Program, or what was commonly known as CALFED Bay-Delta Program (CALFED). Initially, CALFED consisted of the ten state and federal agencies that signed the Bay-Delta Accord (see Table 4 below). However, as the program evolved, additional agencies having relevant responsibilities joined the program. By 2000, CALFED included over 24 agencies. Although it was understood that CALFED would undertake its activities under the direction of federal and state agencies, stakeholders agreed that CALFED should be its own entity with an executive director and dedicated staff. This staff was recruited from state and federal agencies, most especially from the California Department of Water Resources on whose premises CALFED was housed.

¹⁰⁵ Littleworth and Garner (1995:136) note that the “Statement of Principles represents the first time that all important interest groups have concurred about the measures necessary to reasonably protect the Bay-Delta environment, while also insuring the availability of reliable supplies of water for California’s urban and Ag communities.” [Emphasis in the original.]

Table 4: Current CALFED Bay-Delta Authority Agencies
 (* Indicates original 1994 CALFED Agencies)

State Agencies	Federal Agencies
<p>California Resources Agency*</p> <ul style="list-style-type: none"> • Department of Water Resources* • Department of Fish and Game* • Reclamation Board • Delta Protection Commission • Department of Conservation • San Francisco Bay Conservation and Development Commission <p>California Environmental Protection Agency*</p> <ul style="list-style-type: none"> • State Water Resources Control Board* <p>California Department of Food and Agriculture</p> <p>California Department of Health Services</p>	<p>U.S. Department of Interior*</p> <ul style="list-style-type: none"> • Bureau of Reclamation* • Fish and Wildlife Service* <p>U.S. Army Corps of Engineers</p> <p>U.S. Environmental Protection Agency*</p> <p>U.S. Department of Commerce, National Oceanic and Atmospheric Administration*</p> <ul style="list-style-type: none"> • National Marine Fisheries Service* <p>U.S. Department of Agriculture</p> <ul style="list-style-type: none"> • Natural Resources Conservation Service • U.S. Forest Service Western Area Power Administration <p>Western Area Power Administration</p>

Direction and oversight to CALFED was provided by the Policy Group—consisting of high-level leaders from the member agencies and co-chaired by the highest ranking state and federal officials amongst them. These leaders include both political appointees such as the regional EPA administrator, and dedicated agency personnel. Other inter-agency teams have been established to facilitate the operation of the program. For example, the Management Team—including agency staff one level below those in the Policy Group—deals with many of the more difficult conflicts between agencies while the Operations Group coordinates day-to-day operations and management of state and federal water projects. As for the citizen-advisory group, CALFED established the Bay-Delta Advisory Council (BDAC) as their primary mechanism for obtaining stakeholder input into the process. The role of BDAC in policy deliberations will be addressed later in this paper.

Mission

The original mission for CALFED was essentially to come up with the plan for protecting and restoring the Bay-Delta ecosystem for the next 30 years. This plan was to include long-term strategies for restoration, water conservation¹⁰⁶, water storage and conveyance, levee management, and operational actions for the system. CALFED's current mission is: "1) to restore the ecological health of a fragile and depleted Bay-Delta estuary; 2) improve the water supply reliability of the state's farms and growing cities that draw water from the Delta and its tributaries, including 7 million acres of the world's most productive farmland; 3) protect the drinking water quality of the 22 million Californians who rely on the Delta for their supplies; and 4) protect the Delta levees that ensure its integrity as a conveyance and ecosystem"¹⁰⁷.

Furthermore, CALFED seeks to achieve its mission while following a set of solution principles created through a series of facilitated workshops during Phase I (see Table 5). While these principles are fairly vague, they have been used to reject certain proposals brought to discussions.

Overall Process Design

In designing the planning process, stakeholders had to design it to follow the procedural requirements dictated by the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). This had several noticeable consequences. First, much of the CALFED deliberations tend to revolve around the production of a program policy

¹⁰⁶ Water conservation was later changed to water use efficiency. This is important as it means moves away from just reducing water use to a more flexible idea of using water more effectively.

¹⁰⁷ CALFED, 2000. *California's Water Future: A Framework for Action*. Released in June, 2000 and can be downloaded at http://www.calfed.water.ca.gov/adobe_pdf/new_final_framework.pdf

document—for example the Environmental Impact Statement/Environmental Impact Report (EIS/EIR) and the Record of Decision (ROD). Second, CALFED was designed as a linear three-phase planning process; however, as participants learned more the issues during the planning they gradually adopted a “staged decision making” approach¹⁰⁸.

¹⁰⁸ Originally, Phase I entailed identifying the problems, identifying a range of possible solutions and then packaging them into a set of possible alternatives. Phase II was to involve the refinement and evaluation—based on feasibility, cost, and effectiveness in meeting program objectives—of the alternatives leading to a decision in which a “preferred alternative” was selected. Phase III was then to be the stage in which the preferred alternative was implemented. However, this linear model evolved into a more adaptive model as participants increased their understanding of the process and program. By mid-1998 (Phase II), CALFED staff and stakeholders had adopted the concept of “staged decision making,” in recognition that, for instance: a) some decision would need to be postponed until the results of earlier actions were known and b) because the complexity of some programs required more analyses and deliberations while others were ready to be implemented. As such, some programs began implementing their plans in Phase II while others will continue their deliberations into Phase III.

Table 5: CALFED Objectives and Solution Principles¹⁰⁹**OBJECTIVES**

- ❑ To provide good water quality for all beneficial uses;
- ❑ To improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species;
- ❑ To reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system;
- ❑ To reduce the risk to land use and associated economic activities, water supply, infrastructure, and the ecosystem from catastrophic breaching of Delta levees.

SOLUTION PRINCIPLES

- ❑ **Reduce Conflicts in the System.** Solutions will reduce major conflicts among beneficial uses of water.
- ❑ **Be Equitable.** Solutions will focus on solving problems in all problem areas. Improvements for some problems will not be made without corresponding improvements for other problems.
- ❑ **Be Affordable.** Solutions will be implementable and maintainable within the foreseeable resources of the Program and stakeholders.
- ❑ **Be Durable.** Solutions will have political and economic staying power and will sustain the resources they were designed to protect and enhance.
- ❑ **Be Implement able.** Solutions will have broad public acceptance and legal feasibility, and will be timely and relatively simple to implement compared with other alternatives.
- ❑ **Have No Significant Redirected Impacts.** Solutions will not solve problems in the Bay-Delta system by redirecting significant negative impacts, when viewed in their entirety, within the Bay-Delta or to other regions of California.

Public Participation and the Bay-Delta Advisory Council

In addition, CALFED participants agreed from the beginning that the process should involve all the public and private stakeholders towards developing a consensus-based solution for the Bay-Delta area. However, observers and participants have noted that consensus building was rarely carried out in practice.¹¹⁰ Instead, CALFED treated the processes as opportunities to get feedback and ideas from the various stakeholders, which they would then take to process on their own. That CALFED did so was not controversial *except* for the AgWUE Program.

¹⁰⁹ CALFED Bay-Delta Program Phase I Final Report, September 1996.

¹¹⁰ McCreary (interview), Brooks (interview), Connick (interview), Tavanlar (1999)

Still, the concept of this extensive public participation was novel in California water policy circles and CALFED did make a great effort to consult with stakeholders as the program evolved. They did so through a number of means, including several forms of public meetings and the use of citizen advisory committees (see Table 3). However, the main forum for public participation was the Bay-Delta Advisory Council (BDAC), a Federal Advisory Committee Act (FACA)¹¹¹ committee convened by CALFED.

Bay-Delta Advisory Council (BDAC) members were initially chosen to be representative of stakeholder interests; each appointment required the approval of the Secretary of Interior and the Governor of California¹¹². While the members were supposed to be representative of stakeholder interests, they were not bound to speak for their constituencies. However, experience showed that they tended to speak only for their specific organizations¹¹³. Membership in BDAC expanded over the years as it became apparent that the CALFED initiatives affected the interests of upstream watershed, tribal, and environmental justice interests. At its termination, BDAC's membership included 35 people¹¹⁴. It was then replaced by the Bay-Delta Public Advisory Committee, which still continues to advise CALFED on various matters in the implementation of its programs as spelt out in CALFED's Record of Decision.

¹¹¹ The Federal Advisory Committee Act (FACA) does require that a designated federal official attend each meeting. However, this person tended to be someone who attended Policy Group meetings rather than an actual member. (Connick, forthcoming)

¹¹² See, for example, http://www.calfed.water.ca.gov/bdac/bdac_mission.html

¹¹³ Tavanlar (1999).

¹¹⁴ For a list of members, see http://www.calfed.water.ca.gov/bdac/calfed_advisor.html

BDAC was formed to provide advice to the CALFED Program and to give CALFED a chance to test potential stakeholder support for various proposals. As an advisory committee, BDAC did not have any formal nor active role or responsibility in decision-making. BDAC met once every one to two months and its meetings were announced in advance and open to the general public. The meetings usually start with presentations by CALFED staff on the progress and direction of the program; occasionally outside experts are also invited to provide information. BDAC members would usually then provide their reactions to the information in a discussion. There was usually little effort on part of the chairs to try to develop a consensus among participants; BDAC members tended to respond as individuals speaking from the viewpoint of their own organization. Some attempts were made to change the format of the meetings, but CALFED chose not to accept most of those changes.¹¹⁵

There was often no clear connection between BDAC advice and actual decisions made.¹¹⁶ Policy Group deliberations were confidential and no clear connection was made between its deliberations and those of BDAC. For example, while BDAC meetings include agency staff and stakeholder group representatives, Policy Group members do not usually attend them—the body that they are supposed to inform.

At the same time, BDAC was the main forum and focus of public involvement. Meetings were open to the public and each session had a public comment period. In addition, it provided opportunities for BDAC members to interact with CALFED and agency staff, and each other.

¹¹⁵ Sarah Connick (interview).

¹¹⁶ Connick (2003).

When unrepresented interests such as environmental justice, Native American tribes, and minority organizations emerged to demand attention for their concerns, one of the first things they sought was membership on BDAC. Thus, while the connection between decision-making and BDAC activities was opaque, BDAC meetings did give CALFED snapshots of public and specific stakeholder input and reactions to various programs. In the fall of 1996, CALFED, with the approval of BDAC, appointed five BDAC subcommittees to tackle particularly important or thorny issues. Of particular interest to this research is the Water Use Efficiency Work Group, which convened to tackle both urban and agricultural water use efficiency issues.

Before discussing the BDAC Water Use Efficiency Work Group, however, it is useful to understand better the nature of the divisions that were dividing the stakeholder communities.

CALFED BDAC WATER USE EFFICIENCY WORK GROUP

The CALFED Bay-Delta Advisory Council Water Use Efficiency Work Group (hereafter WUE Work Group), met for the first time on May 23, 1996. Some members of the WUE Work Group were selected from the Bay-Delta Advisory Council, including the Chair. Other members were invited from stakeholder groups who had demonstrated a significant interest in water use efficiency issues. Finally, as the WUE Work Group was a FACA subcommittee, it was open to other stakeholders and interested parties to attend as observers. At each meeting, there was at least one designated period during which observers from the public could speak to the subcommittee.

For the WUE Work Group's Chair, CALFED chose a BDAC representative from an organic farming organization whom CALFED hoped would be seen as impartial. Her main role was to work with CALFED staff in managing the dialogue during the Work Group's meetings and to prepare the agenda for each meeting.

In all, the Water Use Efficiency Work Group only met nine times to discuss a host of issues around water use efficiency, including agricultural water use efficiency, urban water use efficiency, environmental water use efficiency¹¹⁷, and water recycling. In general, meetings were organized around drafts of the various sections of the proposed Water Use Efficiency Program. These documents were prepared by the CALFED WUE Program Manager and presented to Work Group members before a meeting so that they could provide feedback on it during the meeting.

The WUE Work Group generally gave feedback to the Program Manager on three levels. The first level looked at the goal of the WUE program through attempts to develop an acceptable goal for the program and definition for "water use efficiency." The second level of feedback was about the framework for the program, which concentrated on what kinds of measures might be used—divided among market, regulatory, and mixed market-regulatory approaches—how much flexibility should be accorded water users and water suppliers, and other broad questions. The third level of feedback was about what specific tools should be used, including for example: taxes and fees based on the level of water consumed (market); required on-farm water

¹¹⁷ Environmental water use efficiency was supposed to measure the effectiveness of the water diverted and used for restoring environmental resources such as ecosystems and habitat restoration.

measurement (regulatory); and disallowing water users from participating in the water transfer market until they met a certain level of water use efficiency (mixed).

However, much of the conversation was hampered by stakeholders' disagreements and uncertainties about the definitions of key words and concepts, and by disagreements between the CALFED Program Manager and the WUE Work Group members about what procedures the group should follow in its task.

Confusion over words

As they participated in their deliberations, the stakeholders struggled over defining some key terms in the negotiations. Perhaps the most important term of debate and confusion was "water use efficiency." The WUE Work Group often debated the meaning of "water use efficiency." Many of the meetings included some debate about what definition should be put in the Program; often these definitions were attached to a position for what kind of program should be put forward. Consider the words of this CALFED staff person as he discusses this problem.

*One of the ones that comes to mind that we didn't discover until we were into it, was that people weren't using the same words to use the same things. A good example is the term "water use." "Water use," some people define as their water right; some people, it's the amount of water that they divert out of a river; for other people "water use" is the amount of water that the crops burn off and goes up into the atmosphere, recovering the loss. If you are a grower and saying, "The only water that I use is the stuff that the crop burns off. And physiologically I know that if my crop burns off less water, if it transpires less, my yield is going to suffer. So if you are telling me I use too much water, what the heck?" But someone in the Environmental camp might mean, "By water use, I mean the amount of water that you divert. And I know that you divert sometimes significantly more than the crop uses, and that extra that you divert—I don't know where it's going!" A fundamental disconnect.*¹¹⁸ [24.]

¹¹⁸ Interview with CALFED staff, Fall 2003.

So here this stakeholder shows us how simple differences in how water use is defined can cause fundamental differences and difficulties in stakeholder's abilities to cooperate. Where water use is attributed to crop consumption, then it makes sense for the farmer to say that each unit of water consumed is a benefit since it is usually directly related to how much crop is produced. On the other hand, if we look at how much water is diverted from the stream, then not all of that water goes to the crop. Some of it goes to the groundwater, some of it evaporates, and some of it may go to other nearby water uses such as other farms, local environments, and so on. The problem is, as the CALFED staff notes above, that the environmentalists and other stakeholders have no way of knowing where that water goes in specific cases. Many agricultural stakeholders argue that the water that drains from their land will return to the rivers through overland drainage and groundwater movement. While environmentalists are willing to concede that point in some cases, they certainly do not accept it as a fundamental assumption governing all water entering and leaving agricultural lands.

Sometimes, debates about the meaning of water use efficiency went beyond misunderstandings about meaning or challenges to underlying assumptions. In some cases, as this next stakeholder describes, well-meant words could also exacerbate hostility.¹¹⁹

*There was this Enviro who said "We support agriculture because they are green space. We want to preserve green space." Well, you could just see the Ags getting angry. He just didn't understand. These were not some parks we were talking; these were our farms and livelihoods.*¹²⁰ [25.]

¹¹⁹ Another interesting and poignant example is given in this example in which an environmental stakeholder is trying to reach out to agricultural ones (Interview with agricultural stakeholder, Fall 2003).

¹²⁰ Interview with agricultural stakeholder, Fall 2003.

So here we see a situation where one environmentalist is trying to reach out to the agriculture community by pointing out what he thought was a common interest. However, his gesture backfires partly because of the stereotypes that agricultural stakeholders have of environmentalists and their “pristine parks.” To them, their farms and the systems to support them were much more than pleasant greenery and wildlife; they were the products of hard work and experience.

Another element of language that was sometimes problematic was the style of speaking, as this next stakeholder describes.

You can say something is “facile” or it’s “egregious” or something. You can use terminology but the Ag people are going to go ‘yuck.’ They are not going to listen to you, it’s style. You don’t send people with a whole lot of polish to go out to talk with them, they will be turned off in the first place.
¹²¹ [26.]

In other words, there are ways of saying things in each community that are appreciated, and others that are not. In this case, using less common and more “educated” words can turn some agricultural stakeholders off. Environmental stakeholders sometimes found the more aggressive style of some of the agricultural members of the WUE Work Group difficult as well. In these and other cases, stakeholders were often unaware of how their style of communication may have been hampering their ability to deliberate.

In fact, critics of collaborative processes have pointed to this problem of deliberative styles as a source of imbalance. Sanders (1997) and Young (1990) argue that certain forms of speaking and deliberating tend to predominate in typical deliberative forums. Some communities find these

¹²¹ Interview with federal agency stakeholder, Spring 2003.

styles of communication difficult for expressing what they care about or bringing in information they think is relevant.

In all these ways, the use and meaning of language was problematic to the WUE Work Group. Throughout the dialogue, the meaning of “water use efficiency” was continually contested. The CALFED Program Manager tried to establish a definition throughout the process but only through his own efforts. He never let the stakeholders seek agreement about how they would like to define it. He did so despite continual warnings from stakeholders that they did not accept the process he was trying to implement.

In this struggle over the language for the program, and from Young and Sander’s commentaries on deliberation as a whole, we start to see that the failure to create meaningful terms and concepts can stall or even derail the dialogue among stakeholders. Stakeholders may use the same terms and yet have no consequential exchange of meaning. Here, the weight of interpretation is taken on by the AgWUE Program Manager, but he fails to resolve stakeholders’ ongoing differences in how they use words.

Furthermore, we see another dimension of language that trading zone theory does not consider, the style of speaking. In essence, not only do words matter, but it’s also how you use and package them. In this case, we see that some stakeholders may find others’ style of speaking off-putting. Young (1990) and Sanders (1997) argue that these differences in style go further. How people speak when deliberating is related to how well they can argue for and achieve their

interests. If the style chosen for deliberation is imposed on some of the parties, those parties may find their effectiveness reduced as negotiators.

If the inability of the group to define words and a style of speaking can hamper attempts at cooperation, what happens when stakeholders also disagree about how they ought to go about the task at hand?

Norms and procedures: problematic interactions

Throughout its duration, the BDAC Water Use Efficiency Work Group struggled to define how it would deliberate and solve problems together as a group. They contested what the role of the Work Group would be in CALFED's decision-making about the AgWUE Program. The Chair and CALFED staff found it difficult to manage the participants' behaviour during meetings. Finally, CALFED had no answers as to handle the various impasses that arose during the process.

In the first two meetings, the CALFED Program Manager tried to clarify and settle the mission of the Work Group. CALFED had in mind that the WUE Work Group members would not make decisions as a group, but rather provide advice to the CALFED Program Manager.¹²²

*The most valuable input for the Work Group to offer will be evaluation of strengths and weaknesses of approaches, and advice on an effective and implementable approach or combination of approaches that CALFED can use to ensure efficient use. Work Group input will also be very helpful in recommending the tools that are most suitable to implement selected approaches.*¹²³ [27.]

¹²² "Participants in the Work Group will not be voting on any issue, nor will the Work Group itself be making any decisions." **Minutes of the CALFED Water Use Efficiency Work Group Meeting, May 23, 1996.**

¹²³ CALFED (1996) *Process for Participation in Component Refinement*, pg. 2. Draft document included in the meeting packet for the second meeting, June 27, 1996.

More specifically, they were to provide input to the CALFED WUE Program Manager towards the development of the Water Use Efficiency Common Program portion of the Programmatic Environmental Impact Statement/Environmental Impact Review for Phase II. The Program Manager stated that CALFED's desire that the Work Group would provide the forum for a more focused discussion on the Water Use Efficiency Program, from which he could get a better understanding of what the crucial issues were and what the positions of the different sides were for these crucial issues. He would then use that feedback to frame an initial draft proposal for the WUE Common Program. At that point, he said he would look to the WUE Work Group for feedback on proposed programs, various alternatives and tools for water use efficiency.

In pursuit of that task, the CALFED WUE Program Manager said that the subcommittee could carry out research, draft position papers for deliberation by BDAC, and "any other activity for fact-finding and analysis."¹²⁴ The Program Manager explained that the reason he kept the decision-making to his staff

However, many of the Work Group members were resistant to the proposed mission of the Work Group and the issue remained debated throughout the WUE Work Group's tenure, as the CALFED Program Manager for water use efficiency explains.

There was always some tension at the working group level and at the BDAC level, about whether the members should be advising the program or whether they should be making decisions about program formulation and program decisions and that sort of things. That tension came out most sharply in our group with respect to our approach to agricultural water conservation. ...Some members of the Water Use Efficiency Working Group seemed to me to feel like that they had the right of veto over ideas and approaches that were discussed by the group. And I guess as a practical matter they did because they held enough sway among the agricultural community that the Ag

¹²⁴ CALFED (1996). Minutes of the CALFED Water Use Efficiency Work Group Meeting, May 23, 1996.

community, it was feared, would not go along with the whole CALFED effort over disagreements related to conservation.

So conservation was important enough that it could affect the other programs?

Well, that was the fear [of CALFED staff]. I'm not sure it was the reality, but that was certainly the fear.¹²⁵ [28.]

One key issue revolved around what say the Work Group members would have in the final product. While the Program Manager had envisioned this role as “advisory,” some stakeholders asserted that in the early meetings, and indeed throughout the process, that their consent was in fact necessary. They stated that the program would have to be acceptable to them. If not, they would find ways to stop it in other forums.

It appeared that even CALFED was unsure of which way they should go with this group. For example, compare the following two excerpts from the meeting minutes of the fifth meeting. The first excerpt states,

*It was concluded that the scope and role of the work group need to be better defined before the group will be able to **develop consensus** on an agricultural water use efficiency approach.¹²⁶
[Emphasis added] [29.]*

As we can see here, CALFED is talking about consensus. While they did not define it exactly, we might imagine that stakeholders would expect that all members of the Work Group would have to agree for the program to go forward. Contrast that with the second excerpt.

*There was a question regarding the way in which proposed approaches developed by stakeholders would be incorporated into the process. [The CALFED Program Manager] replied that ...in order to assure that water use efficiency approaches meet objectives and balance the needs and concerns of all stakeholders, **CALFED will develop approaches after considering all stakeholder comments and proposals.**¹²⁷ [Emphasis added] [30.]*

¹²⁵ Interview with CALFED Program Manager, Fall 2003.

¹²⁶ CALFED (1996). Meeting Minutes for the 5th Meeting, September 26, 1996.

¹²⁷ CALFED (1996). Meeting Minutes for the 5th Meeting, September 26, 1996.

Here we see a vision of process in which stakeholders' inputs would be processed away from the table by CALFED and incorporated in a subsequent draft document. This is markedly different from an approach in which stakeholders would have a direct say into the content of the program.

Because of the ongoing disagreement and confusion about the role of the Work Group, CALFED agreed in the fifth meeting to bring the matter to the Bay-Delta Advisory Council in order to get some kind of agreement on what the role of the Work Group should be. However, the BDAC members were unable to provide clear guidance on the role of the WUE Work Group, and the group continued to struggle over this issue for the remainder of its duration despite the CALFED Program Manager's attempts to end the issue.

On the other hand, agricultural stakeholders stuck with their contention that they had veto power. Agricultural stakeholders believed their support for the program would be essential for its implementation. Agriculture's contention that its participation is essential did seem congruent with both its power and influence among decision-makers and with the role it played, along with urban and environmental stakeholders, in designing and initiating the CALFED Bay-Delta Program. While the quote above emphasizes the claims and power of the agricultural groups, other stakeholder groups also held significant power as well. However, the urban program was much less contentious, partly due to their own Urban MOU, and environmental stakeholders felt that CALFED was their best chance for pushing for environmental benefits.

Overall, the CALFED Program Manager continued to assert that the role of the group would be to provide advice and feedback; however CALFED would retain decide upon the content of the

program and how the process would be run. The CALFED Program Manager said that he wanted to keep control of program design and decision-making because he wanted to retain the right to put forward the best program, even if course of action was contrary to the positions and advice of one or more of the groups. In his mind, the quality of the program was more important than achieving consensus in the group. Furthermore, as he stated in his comments above, he was not convinced that stakeholders would be able to fully block it. In the end, it would turn out that he was wrong.

In this disputes about the rules for the process, we can see two interesting insights. First, we see a dispute about what counts as a “quality” program. The Program Manager is clearly using an administrative model of what quality is, pointing to some unarticulated scientific measures.

Same old interactions

Another challenge to creating productive procedures for the deliberation arose from the past history of agricultural and environmental stakeholders. For example, consider this environmental stakeholder as she tells us a story about how and why she changed her normal seating position at one of the AB 3616 Advisory Committee’s meetings. Before the meeting she is describing, she used to sit opposite the agricultural representative [Dan] she mentions here.

The three years that I was in the first Ag negotiation in which we were trying to set up the council, they were just horrible, just horrible. Ag sent into that arena some very obnoxious people. They were very condescending to all the Enviro. In one meeting, I sat down beside this representative [Jack] who liked to shake his finger and talk at people. And I sat next to him and he had to sit across from [Fred], a representative of Ag for years and years. [Dan] had to shake a finger at [Fred], so [laughs]. You couldn’t sit across from [Dan], it was impossible! ¹²⁸ [31.]

¹²⁸ Interview with environmental stakeholder, Fall 2003.

So we see here the view of this environmental representative about one of her agricultural counterparts, who apparently did not treat the environmentalists with respect. Talking with other agricultural and environmental representatives, the story is often the same. Representatives from both communities had found their counterparts' difficult to talk with, not only because of their different values, but also because those counterparts often did not act in a respectful manner. Unfortunately, that trend continued into the Bay-Delta Advisory Council WUE Work Group as well.

In talking about the WUE Work Group, stakeholders described a process in which there was great mistrust and animosity among the agricultural and environmental stakeholders.¹²⁹ Consider the words of this next stakeholder. This stakeholder is not one of the professional and established representatives from either the environmental or agricultural communities, but is familiar, and shares some values, with both groups. This stakeholder is making observations about the contrast between the professional stakeholder representatives and ad hoc representatives.

*That contrast was particularly striking to me—the contrast of an insider and an outsider. I would as a general statement say that the expectations that these folks brought to these meetings were the expectations of people who go to meetings all the time. When you actually listened and watched what they were doing, it was the same old story that had happened ten times already. I think that when you are a professional representing an organization, you know that you have an agenda or you have a policy platform that your organization is trying to pursue. It is very important to you that you get some points. ...They weren't being paid to stretch themselves. I just don't think that the people there were really invested in overcoming their differences.*¹³⁰[32.]

¹²⁹ Urban water supply stakeholders also participated but urban water use efficiency issues were not hampered by the same mistrust and animosity.

¹³⁰ Interview with BDAC Water Use Efficiency Work Group member, Summer 2004. As she continued to reflect on these differences, she makes an interesting point about the potential limits and possibilities that might arise from including non-professional representatives.

I think there is a huge level of constraints if you are working with volunteers or non-professionals too because they think things are possible that really aren't. They think they can do things that they can't. But I think it is a really good dynamic to have people involved who are going to bring a fresh—perhaps inappropriate but certainly fresh—look at the issues because they are actually out there dealing with things.”

We get the sense from this stakeholder that parties did have a way of dealing with one another, but that it was not a productive way. While they had agreed to be around the table together, they seemed to be stuck in a routine of how they would approach the issue, what their role was as individuals in the process and how they should interact with each other. Part of that inflexibility, she proposes, came from the fact that many of the people attending the WUE Work Group were paid representatives who had incentives to “get some points” and promote a rigid agenda rather than exploring issues. Furthermore, there were other constraints on the representatives. Their actions were scrutinized intensely by observers at the meetings, especially their peers. In previous collaborative forums, people who had started to explore possible cooperation with the other side had been reprimanded by their peers and employers. For example, consider the words of this one agricultural member of the AB 3616 Advisory Committee. He is describing his peers’ reactions after he had made some initial moves to look for productive trades on some of the issues.

*After that meeting, some of the Ag representatives came up to me and they said, “What are you doing?” They didn’t like the fact that I had started exploring possible options with the Enviros. ...It was not all of them, but some of the Ags didn’t want to compromise on anything.*¹³¹ [33.]

So we see here, in these description of how agricultural and environmental stakeholders interacted with one another, a challenge that trading zone theory has very little to say about, namely the willingness of the parties to cooperate. As we will see later in this chapter, we do not need to give up when parties are reluctant to cooperate and so we will need to add something to

¹³¹ Interview with agricultural stakeholder, Fall 2004.

trading zone theory that provides advice and guidance about how to encourage stakeholders to open dialogue and seek the means of cooperating.

Disagreement about roles

If the stakeholders were fulfilling their expected roles, even if doing so seemed to be unproductive, then CALFED was not providing much direction to take them out of that ongoing and expected framework, as this next stakeholder describes.

So, with respect to the water use efficiency work group, there really wasn't much of a framework. [It was] establish a working group, assign a member of the [Bay-Delta] Advisory Council to chair it, give them some staff and anyone who wants to show up can participate. Now, there is nothing inherently wrong with that as a model of public involvement, but with this working group in particular, because of the passion that people on both sides of the issue feel about whether or not they are using water efficiently and who gets to tell who how to do it. That didn't work so well because what it meant was that sometimes there were meetings where ...about 80 people showed up, with no distinction between who was at the table and who was sitting around the room, who got to talk, and what their responsibility was as a participant.¹³² [34.]

So we see here that there was no clear and enforced guidelines about how people could participate and what the different roles and responsibilities were for the various people—including both appointed members and observers—attending the meetings. This made many of the meetings, as the stakeholder described above, unwieldy. When agricultural water use efficiency issues were on the agenda, many non-appointed stakeholders would attend the meetings. In some cases, they were just seeking to outnumber the other side.

Furthermore, there were no enforced guidelines about how and when observers could participate; so often the dialogue would have to be spread out over the 20, 30, or even 80 participants. While

¹³² Interview with environmental BDAC WUE-Work Group member, Fall 2003. This member now leads an organization that promotes collaboration in public policy, so her comments also reflect a professional understanding of consensus building that postdates her participation in the WUE-Work Group.

the group had a Chair and CALFED staff to help run the process, they did not know how to organize the deliberations of such a large group. In most cases, people would just take turns in stating their objections to the current draft on the table. There was rarely any attempt to dialogue directly with the counterparts across the table. When such exchanges took place, they were usually hostile and unforgiving. For example, consider the following exchange as described by an agricultural stakeholder.

I think the polarization of the positions became very clear when, at what eventually became the last meeting of the subcommittee, one member of the environmental community stood up and said "Well, we have just got to remember that before people came here, the fish got all the water." And that was really... a pretty insulting thing to say. One of the agricultural group stood up and said 'Oh my God! When you move, I'll move!' ¹³³ [35.]

This was a typical exchange among the agricultural and environmental stakeholder. Stakeholders agreed that the participants did not know how to, or in many cases, even want to, listen to one another or explore solutions as a group. In fact, one reason for stakeholders' frustrations and inability to dialogue seems to have been their lack of vision of what they might be able to accomplish together.

It was immensely challenging to establish the framework for people in the Water Use Efficiency Work Group to really look at what interests they were trying to protect that underlay their very closely protected held positions on what constituted Ag water use efficiency and what did not. It really wasn't clear what their purpose [as a group] was and so there never really was a formal mission that everyone agreed was the reason why they were putting themselves through this every month or every two months.

And what kind of impacts did that have?

I don't think the group ever developed a coherent group identity. ¹³⁴ [36.]

The incidence this stakeholder is describing shows us that CALFED seemed to go into the process with the belief that they just had to bring people together. CALFED and the Chair did

¹³³ Interview with agricultural stakeholder, Fall 2003.

¹³⁴ Interview with environmental stakeholder, Fall 2004.

not try to manage the process deliberately in many ways, except by setting the agenda, keeping meeting minutes and attendance, and preparing the CALFED draft documents for participant feedback. Overall, the participants and CALFED were stuck in a "same old tired" drama in which the stakeholders would continue to oppose each other because the other would never understand and so it was better to advocate a strong position. The participants, this stakeholder says, really needed some kind of forum where they could get at what their interests are. Furthermore, she notes that it was not clear what the purpose of the group was, and what participants were being asked to do. So, without some guidance, they fell into what was comfortable, as described by the preceding stakeholder. Until CALFED could provide another way for stakeholders to interact, and provide the context in which they could explore that new way of interacting, it was business as normal, which included insults, misunderstandings and a pervasive belief that it was not desirable nor possible to cooperate productively with the other side.

This inability of the Water Use Efficiency Work Group to develop a set of procedures for operating as a group is a striking contrast to model of cooperation proposed by trading zone theory. Trading zone theory postulates that cooperation is based largely on the creation of a set of procedures by which, for example, experiments are run and data collected. In this process, we see that each stakeholder, including CALFED, seems to be insisting that the process follow its procedures. Arguments over which procedures were never directly addressed; instead the CALFED Program Manager tried to adjudicate the decision while "listening" to the feedback of the participants. No effort is made to create suitable and agreeable procedures to which all the stakeholders could agree.

Objects and words: inability to represent reality

Stakeholders also seemed to lack the means by which they could represent a “reality” to assess for defining problems and to manipulate for crafting solution. For example, as one stakeholder mentioned above (see quote [36.]), the group had no mission statement or defined purpose that allowed them to visualize what they would try to accomplish as a group. Furthermore, they did not agree on the analysis that CALFED did to estimate how much water could be saved by water use efficiency measures.

Such numbers were crucial for a number of reasons. First, the higher the amount of expected water savings from the AgWUE Program, the greater the pressure there would be to reallocate water from agriculture to other users. If the numbers were high, Ag was worried that the environmentalists would use them to accuse agriculture of “wasting water.” Such an accusation if proven correct could result in water suppliers losing some of their water rights. On the other hand, environmentalists desperately wanted to see more water supply making its way to the Bay-Delta and other regional ecosystems. They were convinced that some reallocation would be necessary to maintain and improve those deteriorating systems.

At the same time, CALFED had to demonstrate that some conservation had been achieved so that it could move forward with the new water supply projects it was exploring. The US Army Corps of Engineers’ 404 permitting process requires that proponents of new water management structures demonstrate that these structures are the Least Environmentally Damaging Practical Alternative. In other words, they must show that the other methods of generating new water

supply, including conservation, had already been implemented. If opponents of a new structure could show that additional conservation could produce less environmental damaging water supply through savings, then new structures would not be permitted. So CALFED needed to demonstrate that it had already achieved what savings it could before moving ahead with some of the proposed new projects. This is one of the reasons why agricultural water use efficiency as a whole was so important to environmental and agricultural stakeholders.

Beyond those numbers for conservation potential, however, stakeholders lacked a model or representation of reality that they agreed was useful as a framework for talking about what they could achieve together. For example, consider the words of this next stakeholder.

All of those misunderstandings that people have, I had a sense that some of this could be overcome if we came to agreement on [some version of reality]. You know, farmers always say “Well, when the water leaves my farm, it goes to the next farm and so it is not being wasted.” And some of that is just basic “what’s happening in the aqueduct, on the farm, on the ground? What is the hydrology?”

I think there was a sense that if people accepted at least some version of reality that they could all agree upon, that would be helpful. And so I think there were some efforts to lay the groundwork in terms of people’s basic understandings, but ...I don’t think that we made a whole lot of headway.¹³⁵ [37.]

So the first challenge that she sees is simply that agricultural and environmental stakeholders are simply seeing the phenomena in question in very different ways. They share no way of talking about what is happening, no language to jointly describe the situation. They have no map, no model, no picture, no text that they can point at to say, this is what we might change or try to achieve. She says that while the group tried to develop some of that language, they were largely unsuccessful. Agricultural stakeholders felt that the environmental stakeholders did not have the practical experience to really understand the agriculture and hydrology in their regions.

¹³⁵ Interview with WUE Work Group Chair, Summer 2004.

Environmental stakeholders pointed to the limited perspectives of agriculture that focused on individual districts and farms without considering the broader implications of ecosystems and water quality. Neither had a way of combining their experiences and knowledge into one framework or medium they could all use to construct a product.

One poignant example of the group's lack of a common framework for talking about and shaping reality was their ongoing debate about the definition of water use efficiency. Some of that debate and confusion was covered in **Confusion over words** section above.¹³⁶ Beyond the meaning attached to the words water use efficiency, however, there was also a need to have a model that linked water use efficiency actions and impacts.

CALFED as a whole did provide new opportunities for reframing how stakeholders might think about water use efficiency. CALFED included multiple agencies from state and federal governments and thus could address jurisdiction issues comprehensively. CALFED also seemed willing to provide at least some funds to promote water conservation projects, although parties were not sure how much funds would be available and for what. CALFED also contained the potential to look at problems using a watershed perspective. These factors prompted some stakeholders on both sides to explore more innovative ways of linking water use efficiency and environmental goals. For example, one environmental stakeholder had this to say in a letter to the WUE Work Group.

Without a focus on solution driven objectives, including water and ecosystem quality, we will not make progress in achieving an effective agricultural water use efficiency program. ... An alternative approach would be to start with a look at a Bay/Delta solution, determine what is needed in terms of

¹³⁶ See on page 103 above.

*water use efficiency to achieve that solution, and then set specific targets that must be achieved at various water management levels to make a solution a reality.*¹³⁷ [38.]

The current program, he continued to argue, was considering tools without specifically linking the application of those tools to specific desired targets or outcomes. If the Water Use Efficiency Program was not seeking to achieve particular goals, then what was its purpose he asked (thus raising again the question of “what is water use efficiency?”)? Similarly, an agricultural stakeholder brought to CALFED and the group a proposed outline for a watershed-based plan.¹³⁸

At the time, CALFED responded negatively to these overtures to redefine water use efficiency on a watershed level. With regards to the watershed proposal, CALFED argued that watershed approaches were being covered in another of its programs, the Watershed Program. CALFED also stated that the scope of the WUE Program would only look at diverted water, and so rejected calls for this more comprehensive look at water use and the flows that connected water use efficiency measures to downstream impacts. The comprehensive integration of parts, they said, would take place when the “pieces,” the multiple different CALFED programs were integrated systematically at the end.

While it rejected these and other calls for a more explicit link between water use efficiency measures and downstream impacts, CALFED could not provide another framework for justifying and planning for water use efficiency that stakeholders could agree was appropriate. Many of the

¹³⁷ Letter sent by Richard Izmirian (Sportfishing Alliance) to CALFED’s Water Use Efficiency Program on December 26, 1997.

¹³⁸ In a letter to CALFED’s WUE Program on February 3, 1997, Alex Hilderbrand wrote that the program may be ignoring “the substantial potential for more multiple use and reuse of water on a watershed basis.”

targets set for water use efficiency were based on setting standards for the physical efficiency of water use, namely the amount of water used (or lost) divided by the amount diverted.

Unfortunately, this was a model of water use efficiency that agricultural stakeholders had been fighting against for years. Similarly, it put environmental stakeholders as well as CALFED in a position of pushing for numerical targets without the means to justify those positions with regards to sought after environmental benefits.

Another interesting issue raised in the Water Use Efficiency Work Group was the distinction between those actions that are cost efficient at the local level (i.e. the individual farmer, water district, or other entity that is implementing the measure) and cost efficient at the statewide level. The idea of statewide efficiency raised again the possibility of a different definition of water use efficiency that would incorporate multiple users into the calculations. For example, consider a water use efficiency measure that could significantly improve a downstream environmental resource. That measure might not be cost efficient at the local level because the water supplier would not include the downstream environmental resource in its calculations, but it might be efficient at the statewide level because that calculation would include the value of the environmental improvement (in one form or another). While CALFED accepted the idea of statewide efficiency in principle, they did not actively pursue stakeholder initiatives to discuss it in more depth. This was unfortunate because without including the environmental benefits into the discussion, there was no way of comparing the proposed water use efficiency measures and the intended environmental benefits.

This left many unresolved questions that haunted the process throughout. How might water management use efficiency be implemented so that environmental conditions are improved? If water is being saved, who gets it? What is the specific link between water use efficiency and sought after benefits? If economic criteria are used to distribute water, what happens to agriculture and the communities that depend on it? Without a way of representation reality and manipulating it together, stakeholders lacked the means to imagine a possible joint venture and the means to achieve it.

Again, in this lack, we see a striking contrast to the picture of cooperation outlined by the trading zone theory. There, trading zones are created as stakeholders agree what they want to measure and influence. As the scientists' work towards their cooperation, they create words, procedures, and even material local objects to create ways of talking about, acting upon, and defining a local slice of reality that facilitates cooperation and simultaneously suits their radically different ways of understanding reality within their own communities. In the Water Use Efficiency Work Group, we see no such local representation of reality; instead the global realities contained within each community clash directly, and unproductively.

Summary

Perhaps the easiest sign of stakeholders' apparently irreconcilable differences was their reluctance to even speak to each other directly. By the end of the BDAC Water Use Efficiency Work Group's meeting

The meetings of the working group occasionally became very heated. ...[T]he disagreements between the environmental representatives and agricultural representatives were so sharp that each of them would talk to me and would talk to the Chair of the group, but they wouldn't talk to each

*other directly any more. It really became a very difficult group to manage in a constructive way.*¹³⁹ [39.]

As we saw, this process was unable to achieve any of the elements that trading zone theory suggests is essential for cooperation among stakeholders' with apparently irreconcilable differences. Stakeholders in this process were unable to agree upon a local definition of words and concepts. They stuck to old ways of dealing with one another, and did not seek to develop local procedures that might have enabled cooperation without compromising values and identities. They struggled over how to represent a local reality that they could use to talk about and shape solutions. In all these ways, they lacked the local elements that make up a trading zone.

Furthermore, we see that the group missed something else, an understanding of what roles each party should take in producing an acceptable AgWUE Program. In trading zone theory, the role of each party seems to be taken for granted, but the interactions here suggest that parties' roles may need to be examined in further detail. Consensus building theory agrees with this assessment. Consensus building theory plays a strong emphasis on the role of third parties¹⁴⁰, especially impartial facilitators as well as independent experts who act as joint fact-finders (Susskind, 1999; Forester, 1999a,b). This raises an interesting question. If trading zone theory does provide an explanation for when and how stakeholders cooperate, can that theory accommodate considerations of roles, especially those of third parties, or do we need to bring in these considerations in complimentary ways?

¹³⁹ Interview with CALFED AgWUE Program Manager, Fall 2003.

¹⁴⁰ A third party is someone who contributes to a process but is not negotiating for any of the interested parties. For example, a facilitator, an independent expert who provides advice, and so on.

Termination of the Water Use Efficiency Work Group

The BDAC Water Use Efficiency Work Group was disbanded in March 1997. When describing it, most stakeholders made statements that it had ended because “it blew up.” CALFED had originally planned that the Work Group would continue longer, but came to the realization that the current group was not viable. Stakeholders came out of those meetings again with the feeling that agricultural and environmental stakeholders could not agree on water use efficiency issues. They continued to have bad relationships overall and there seemed to be no way forward to resolving their disputes about how water could be managed more efficiently. They were still stuck in the same tired way of interacting with each other. They still had not resolved the ambiguity in their language regarding water use efficiency. They still had no success stories, symbols, or common reference points that cooperation was possible.

Building on the last draft document presented to the WUE Work Group, CALFED proposed a Water Use Efficiency Program in its draft Programmatic Environmental Impact Statement/Environmental Impact Review in March 1998, which they released for public comment. However, stakeholders on both sides made it clear that they remained both unhappy with the current direction of the AgWUE Program and deeply divided about what directions the program should take. In fact, the Water Use Efficiency Program received more negative comments than any other of CALFED’s programs.

FOCUS GROUP AND STEERING COMMITTEE

Believing that the agricultural component of the Water Use Efficiency Program remained too controversial to ignore, CALFED decided that it would try another approach to seeking greater stakeholder support for its Water Use Efficiency Program. It was clear from the negative experiences of tackling agricultural water use efficiency issues in the formal and public setting of the BDAC Water Use Efficiency Work Group was not going to work. So, CALFED decided that it would convene a different kind of dialogue. First, the group would be ad hoc instead of formal. Its task would be to inform the AgWUE Program Manager as he strove to produce a program. It was not planned originally that this committee would seek consensus among themselves. As the group was not convened under FACA, CALFED could both be selective in whom it selected to participate and what information from the group would be made available to the public. At the same time, whatever program the AgWUE Program Manager eventually crafted with the help of the group would be subject to the usual public review, including BDAC's scrutiny.

To help them manage this new group, the new CALFED AgWUE Program Manager hired a team of professional facilitators. One of the first things that the facilitators suggested was a conflict assessment.

Issue Audit—a Conflict Assessment

Before the group was convened, the facilitators conducted a conflict assessment to assess the dispute in more detail. The document they produced contained a summary of the main issues and outlined what appeared to be areas of agreement and disagreement. These documents also

summarized participants' aspirations and degree of support for the proposed Focus Group process.

With regards to stakeholders' concerns and aspirations for the process, the issue audit found that in general there was strong support for the idea of a Focus Group. At a minimum though, stakeholders hoped that would be able to reach consensus on a list of issues and options that could be addressed by CALFED and future deliberative efforts. In general, the issue audit found that there was broad support for CALFED's overall aims and for the Focus Group's proposed format. More specifically, stakeholders agreed that strong ground rules would be helpful if they encouraged frank discussions and brainstorming. Stakeholders also agreed that an Independent Review Panel for assurances might be useful, although many also stated that it was too early to truly evaluate its feasibility. Finally, many stakeholders believed that the Focus Group should not pursue agreement nor seek to define a set of broad principles, because they were concerned that it might be too difficult. They wanted the Focus Group to inquire into areas of substantive disagreement instead. The latter finding of the issue audit is very interesting because it was contrary to one of CALFED's original objectives for the Focus Group, as quoted in Table 6 below, in which CALFED stated its hope that the Focus Group could develop some broad principles that could be included in upcoming project documents.¹⁴¹

Convening the Focus Group

The group that CALFED convened was called the Agricultural Water Use Efficiency Assurances Focus Group (Focus Group). The Focus Group was comprised of a select group of stakeholders

¹⁴¹ A more comprehensive summary of the Issue Audit can be found in Appendix A.

from the environmental and agricultural communities as well as state and federal agencies. Initially, the CALFED Agricultural Water Use Efficiency Program's Program Manager asked the members of the Focus Group to help him "plan a plan"¹⁴² for addressing agricultural water conservation with respect to CALFED's broad goal for program, which was to "define an assurance mechanism that provides sufficient demonstration of agricultural water use efficiency to meet the needs of CALFED agencies and stakeholders."¹⁴³ CALFED's focus on defining an assurance mechanism was largely due to the federal permitting requirements for constructing new diversions as described earlier.¹⁴⁴ If CALFED wanted to build new infrastructure to increase water storage and improve water supply, it would first have to demonstrate that it had implemented the other less environmentally damaging alternatives, including water conservation.

At first, CALFED was not expecting the group to achieve consensus on an actual program. Instead, the Focus Group was expected to be an informal group that would lay some groundwork upon which future dialogues could be based.¹⁴⁵ As the facilitator described it, they were asked to answer the question "can we solve this problem?" rather than "how can we solve this problem?" In other words, this group was to see if some common basis existed that all stakeholders could agree was a viable starting point upon which to seek agreement. More specifically, the Program

¹⁴² Written Communication with Scott McCreary, May, 2000.

¹⁴³ Quoted from Ag WUE Assurances Stakeholder Focus Group document: *Agricultural Water Use Efficiency Assurances Stakeholder Focus Group—Description* (10/6/98)

¹⁴⁴ In preparing applications to get EPA permits for new water infrastructure, CALFED would have to demonstrate that the new facility was the least environmentally damaging practical alternative, or LEDPA. In other words, those alternatives that would cause less environmental damage and would still be considered practical in terms of financial, cost effectiveness, and technical terms, would have had to be implemented first.

¹⁴⁵ "The Agricultural Water Use Efficiency Assurances, Stakeholder Focus Group is an informal group of CALFED agency, agricultural and environmental stakeholders convened to engage in preliminary discussions that will help lay the groundwork for building broader consensus around agricultural water use efficiency." *Agricultural Water Use Efficiency Assurances Stakeholder Focus Group—Description* (10/6/98)

Manager stated that he hoped the Focus Group could help the Program by developing “some broad principles ...to guide future deliberations around agricultural water use efficiency.” To achieve that goal, CALFED and the facilitators identified three specific objectives for the Focus Group (see Table 6).

Table 6: Objectives for the Focus Group¹⁴⁶

- | |
|--|
| <ol style="list-style-type: none"> 1. Clarifying areas of agreement and disagreement among stakeholder groups, and increasing understanding of the reasons for disagreement; 2. Providing advice on program direction, which can then be discussed in subsequent public forums such as the Bay-Delta Advisory Council. Most immediately, CALFED is interested in having this Focus Group develop, if possible, some broad principles that can be included in the revised EIR/EIS to guide future deliberations around agricultural water use efficiency. 3. Exploring stakeholder ideas and desires for an Independent Review Panel that might be useful in developing assurances for agricultural water use efficiency. If the Focus Group believes that such a panel would help CALFED achieve consensus on water use efficiency, the Focus Group is to help define the expertise necessary on the panel, develop a list of potential panelists, and put together draft questions that could be posed to the panel. This Focus Group would not be involved in the preparation for or organization of the panel. |
|--|

Participant Selection

In forming the Focus Group, CALFED established—together with a few select stakeholder informants and the facilitators, a set of criteria that it used to select potential members of the Focus Group, including:

*...1) involving strong, effective advocates who are familiar with issues and willing to think “outside the box;” 2) limiting group size to maximize productivity; 3) maintaining numerical parity between agricultural and environmental interests; 4) involving key CALFED agencies with technical expertise and/or important ties to stakeholder communities; and 5) reflecting the diversity of agricultural water use around the state.*¹⁴⁷ [40.]

¹⁴⁶ Adapted from Ag WUE Assurances Stakeholder Focus Group document: *Agricultural Water Use Efficiency Assurances Stakeholder Focus Group—Description* (10/6/98)

¹⁴⁷ Quoted from Ag WUE Assurances Stakeholder Focus Group document: *Agricultural Water Use Efficiency Assurances Stakeholder Focus Group—Description* (10/6/98)

The Focus Group was originally intended to be a short-term effort designed to meet the needs of the CALFED WUE Program Manager in (a) developing program documents for the upcoming December 1998 deadline for CALFED's *Revised Phase II Report* (December, 1998) and (b) convening an independent scientific expert panel to address the ongoing technical and scientific disputes underlying the conflict over agricultural water use efficiency. Initially, CALFED tentatively scheduled a set of 6 meetings over the period of less than two months.¹⁴⁸ In the first meeting, the number of meetings was reduced to four. However, they would end up meeting much more frequently.

In this process, considerable attention was paid to choosing the "right" people for the deliberations. As we will see, the character and actions of the individuals in the group was crucial for the group's success. Trading zone theory does not speak directly to this question of the qualities and characteristics of the people seeking to cooperate. Is this something that can be incorporated into the theory, or is some other addition required to complement trading zone theory's insights? I will return to this question later in this chapter and in my discussion of my dissertation findings.

Before describing the Focus Group's deliberations, I need to touch upon the first meeting of the independent scientific panel convened by the CALFED AgWUE Program to deal with some of the technical debates in agricultural water use efficiency. This Scoping Session preceded the

¹⁴⁸ Originally, CALFED and Concur scheduled 6 meetings, while stating that not all meetings might be required. The original schedule of meetings was as follows: October 27, 1998, November 4, 1998 (based on need), November 16, 1998 (based on need), November 24, 1998 (based on need), November 30, 1998 (based on need), December 7, 1998 (based on need) (Concur/CALFED, 1998. *Attachment 4: Preliminary Draft Ground Rules*. Prepared for the October 27, 1998 meeting of the Agricultural Water Use Efficiency Assurances Stakeholder Focus Group)

Focus Group's deliberation by one week, but the soon-to-be Focus Group members played an important role in the design and dialogue of that first meeting.

Setting the Stage—The Scoping Meeting for the Independent Review Panel

In the draft EIS/EIR, CALFED had included some estimates about how much water could be saved if the Water Use Efficiency Program (including the urban and agricultural programs) was implemented. That table became another focus for contention among stakeholders.

Environmental and agricultural stakeholders sharply disagreed on both (1) what estimates of potential savings were reasonable and (2) what methodologies were valid for making that estimation. To address this dispute and a parallel disagreement among stakeholders about what efficient water management practices were most appropriate, the CALFED Program Manager decided to convene an independent panel of scientific experts. CALFED started work on convening this panel at the same time he was convening the Focus Group. As part of its convening process, CALFED asked the prospective members of the Focus Group whether or not they would support the proposed panel. These stakeholders concurred and this led to the Independent Review Panel of Agricultural Water Conservation Potential (Independent Review Panel).¹⁴⁹

As can be seen in third objective of the Focus Group, CALFED originally intended that Focus Group members would only play a role in helping select possible panelists and preparing the

¹⁴⁹ Stakeholders referred to the success of an earlier joint fact-finding exercise convened for CALFED's Ecosystem Restoration Program Plan as their reason for demanding participation in the Independent Review Panel. Both joint fact-finding exercises are described in more detail in a paper written by the author and CONCUR staff. McCreary et al. (2001).

questions to be presented to panelists for their deliberation.¹⁵⁰ However, Focus Group members and the facilitators persuaded CALFED that Focus Group members should also be allowed to participate in the actual panel deliberations. These stakeholders had already participated in a previous, successful panel (facilitated by the same facilitators) in the Ecosystem Restoration Program.¹⁵¹ It was decided to hold a Scoping Session on October 19, 1998, just over one week before the first meeting of the Focus Group.

The Scoping Session was convened to provide stakeholders and members of the public with information on the panel and CALFED's reasons for convening it as well as to provide input into the structure and preparation of the panel. Focus Group members also selected "technical advisers" to represent the different interests. They were there to ask questions of the panelists, provide information as required, and to otherwise give stakeholders an opportunity to contribute a technical perspective to the Independent Review Panel.

The meeting was managed by the same facilitators that had been chosen for the Focus Group's process. The meeting started with the CALFED Program Manager presenting the draft list of questions that they wanted the Panel to address in their upcoming deliberations. What followed would lead to a fundamental redefinition of water use efficiency, the Program, and the ability of the Focus Group to cooperate.

¹⁵⁰ "...The Focus Group is to help define the expertise necessary on the panel, develop a list of potential panelists, and put together draft questions that could be posed to the panel. This Focus Group **would not** be involved in the preparation for or organization of the panel." (Emphasis added)

¹⁵¹ McCreary et al (2001).

A new scientific framework—first step to a trading zone

In addition, this Scoping Session turned out to be an important breakthrough for the agricultural water use efficiency deliberations. In the Scoping Session, the panelists suggested that CALFED was asking the wrong questions. Instead of focusing on developing a list of tools such as EWMPs, the panelists suggested that CALFED instead set specific goals (e.g. the restoration of a particular habitat), identify specific targets that would help achieve those goals (e.g. the reduction of salt in the water entering that habitat), quantify those targets, and then seek to identify on a case-by-case basis how these objectives might best be met. This objective-based approach quickly became one of the key frameworks underlying the consensus policy recommendations of the Focus Group, and then the Steering Committee.

Based on the deliberations of the Scoping Session, it was decided that the Independent Review Panel would seek to accomplish three broad objectives as follows¹⁵²:

- ❑ Review, critique and provide recommendations to strengthen the technical assumptions and approach of the agricultural section of CALFED’s report on the Water Use Efficiency Program (Chapter 4).
- ❑ Provide guidance on strategies for identifying Bay-Delta problems, as well as structuring solutions and quantifying potential benefits. (This discussion centered on representative case studies developed by CALFED staff).
- ❑ Identify additional data collection and research needs.

In this development of a new scientific framework, we see the first signs of a trading zone for the Focus Group. Instead of arguing over which of their frameworks is “right,” the stakeholders here now have an scientific framework provided by people they agree are impartial and created following a set of procedures upon which the stakeholders had agreed. So we see two beginning

¹⁵² CALFED (1998). *Summary Report, Independent Review Panel on Agricultural Water Conservation Potential*. December 14-16, 1998.

elements of a trading zone. First, a new definition of water use efficiency, attached with procedures for how water use efficiency can be measured and understood (measurable objectives related to upstream water use efficiency measures). In this sense, we have a first step towards creating a set of local words and concepts that the stakeholders can use to make local sense of the reality they are considering that also fits with their globally different conceptions of water use efficiency and what matters (environmental health, agricultural sustainability, etc).

Furthermore, we saw another set of procedures that consensus building theory tells us are essential, but that trading zone theory does not consider as explicitly, namely the procedures that the group used to create and analyze information. In convening the Independent Review Panel, the stakeholders agreed upon the procedures for selecting the experts, on the questions to be posed to those experts, and other elements of that process. So, we see that procedures do more than tie words to laboratory machines and representations of reality, they also guide how stakeholders talk together and how they construct these representations, machines, and other objects.

Focus Group meets: ground rules and a mission

In the first meeting of the group, the facilitators drafted and presented a few documents for the group's considerations. Two of these were draft ground rules and a mission statement. In both cases, the group members modified these documents, although neither topic was particularly controversial.

The ground rules were accepted almost in their entirety. The ground rules covered a variety of issues, including: (a) expected behaviour, rules and expected procedures for the discussion, information sharing, and (b) the roles and responsibilities of the facilitators. The rules regarding the sharing with those outside raised the most discussion with in the group. The original ground rule proposed by the facilitators and CALFED was that documents prepared by the Focus Group would not be distributed to outsiders until the group had first come to agreement on its recommendations. However, the Focus Group members amended that so that they could share information with their principals—for example, the board members of an irrigation district or other members of the Environmental Water Caucus. Thus, the ground rule was amended to allow the Focus Group members to show work products.¹⁵³ The understanding remained, however, that the Focus Group would not open its face-to-face meetings to outsiders and that they would not share their ideas with outsiders until the group agreed they were ready.

This ground rule was an important one for this group to make progress. In the earlier Water Use Efficiency Work Group, creativity and overtures to the other parties were discouraged by the presence of less open minded colleagues. In the past, some stakeholders had been reprimanded by their peers for making overtures to the other side. If this group was going to be creative, it had to do so outside the watchful gaze of their peers.¹⁵⁴ Yet at the same time, political realities and ideals of transparency required that if any new ideas emerged they would have to be vetted by

¹⁵³ More specifically, they changed the ground rule as follows (Focus Group (1998), *Ground Rules*, November 16, 1998. Additions underlined):

Prior to completion of the Focus Group's finding and recommendations, all documents are to be considered internal and not for public distribution except for as required by law. Participants may share documents with their respective principals.

¹⁵⁴ For example, see quote [36.].

the constituencies. Ultimately, the Focus Group and its reincarnation as the Steering Committee were very strategic about when and how they shared information. All participants agree that this was a necessary and very useful step given the current political climate at the time.

At the same time, the group members also agreed on another important ground rule. The facilitators had suggested that Focus Group members address many of the issues by moving through a “single-text review” of certain “most appropriate” CALFED documents. The group was not sure what those documents they would be asked to review, but they agreed that this would be one of the procedures for moving forward. As we will see, single text techniques played an essential part of the group’s ability to deliberate effectively. In fact, the group took the next step by creating much of the text themselves. Furthermore, the group also made extensive use of spreadsheets, diagrams, and other representations of concepts and reality to move forward.

Establishing a mission

In addition to agreeing on the ground rules for their discussions, the Focus Group members also came to an agreement on their mission as a group. Stating concerns that the mission statement be achievable, time-sensitive, and broad enough to enable deliberation on a wide range of topics, the stakeholders changed the proposed mission statement to the following:

*The mission of the Agricultural Water Use Efficiency Assurances Stakeholder Focus Group is to develop a blueprint to make the CALFED Agricultural Water Use Efficiency Program as effective as it can be and achieve widespread acceptance.*¹⁵⁵ [41.]

¹⁵⁵ Quoted from *Key Outcomes from the October 27, 1998 Focus Group Meeting (CONCUR)*

At this point in its existence, neither CALFED nor the group intended to actively seek consensus on an actual program documents. Instead, they saw their role as:

*...1) assessing the tools and the potential for implementation; 2) critiquing the program for accuracy; and 3) providing specific suggestions for strengthening the program (additional information, incentives, performance measures.).*¹⁵⁶ [42.]

The group decided that it would start by engaging in broader discussions about agricultural water use efficiency issues—including topics such as the appropriate goals, enforcement, and incentives—rather than in trying to find consensus on an actual program or policy. The group also looked at the prospects for the long-term involvement of the Focus Group in CALFED’s Agricultural Water Use Efficiency Program. CALFED expressed at this meeting its hope that the Focus Group would help in the development of the program’s structure, including a look at assurances and whether or not, and how, pricing and measurement might be incorporated into the Program.¹⁵⁷ However, the group’s long-term involvement was ultimately left undecided.

A quick change in mission

However, by the next time they met the group had made a dramatic change in its mission. To understand more about how that change took place, and how the group dealt with it, I turn here to the words of the CALFED Program Manager as he describes what happened. He has just received a request from the Babbitt-Dunn group—a high-level federal-state policy group that was negotiating certain elements of the CALFED Program. That group wanted the Focus Group to put together a description of the Agricultural Water Use Efficiency Program that they could

¹⁵⁶ Quoted from *Key Outcomes from the October 27, 1998 Focus Group Meeting (CONCUR)*

¹⁵⁷ “In the long term, CALFED would like to see the Focus Group develop a structure for the Agricultural Water Use Efficiency component of the CALFED plan. Possible areas for the Focus Group to discuss include guidance on assurance mechanisms to incorporate, including suggestions on how and whether to fit pricing and measurement.” Quoted from *Key Outcomes from the October 27, 1998 Focus Group Meeting (CONCUR)*

use in their expected policy document. In essence, they told the WUE Program Manager that either his group could formulate the language or they would get someone else to do it.

We took that back to the group and said, "Here's our charge. We've got about four working days to come up with this description. What do you say?" The group said no, initially. They said, "If we do something it'll get misused. We've got to have time to go back to our broader stakeholder communities and vent these ideas." My response was, "Okay. I promised Secretary Babbitt that I would give him an answer by Tuesday. What's it going to be?"

Then they knuckled down and did something. They broke into drafting teams and they actually worked on language. They bounced things back and forth in little drafting groups and came together again, and in essence collaborated to come up with something. That something is the foundation of the program we're implementing right now.¹⁵⁸ [43.]

So we see here that the group was put on the spot. Somebody was going to be crafting language for the next program document, the *Revised Phase II Report and the* group knew that if they did not create the language, someone else would. The Focus Group members were very aware of the fact that previous collaborative efforts had reached impasse. Most of the Focus Group members had even participated in one or both of those earlier dialogues. They were worried about the risks of putting together something themselves. The first dimension of that risk touches upon the constant problem of representation that environmental and agricultural representatives faced in California. What can the parties do, explore, and commit to without hurting the interests of or being punished by their employers or peers? They were also worried about their ability to develop a document to which all sides agree in such a short time. If they put together something that they later realize was detrimental to their interests, will they be stuck with the result?

At the same time, agricultural and environmental stakeholders also realized that they were facing once again the risk that someone would be putting together the program without their say. This was an almost unique chance for the non-governmental stakeholders to have a direct say in what

¹⁵⁸ Interview with CALFED Program Manager, Fall 2002.

the AgWUE Program would do. This was something that they had been pushing for in the Water Use Efficiency Work Group, now they had their chance.

This situation raises the importance of something that trading zone theory does not consider, namely when are stakeholders willing to seek to cooperate and reach agreements with their counterparts despite their apparently irreconcilable differences? In this situation, we see that the stakeholders move from an advisory, “giving feedback and suggestions” role to one where they craft the actual text for the next iteration of the Program design. They take this big step in part because of the pressure put on them by Secretary of the Interior Babbitt. This pressure forces the Focus Group members to explicitly weight the risks and benefits of writing the desired texts, and in the end they decide to proceed.

Trading zone theory generally assumes that the stakeholders in question do want to participate, but in these situations of apparently irreconcilable differences and conflict, that assumption can not always be made. Therefore, this situation suggests to us that the application of trading zone theory should be accompanied by an evaluation, such as that found in conflict assessment or in calculations of BATNA, about the willingness of parties to seek a trading zone and enable cooperation and agreement-crafting.

Taking the challenge—a trading zone grows

The Focus Group decided to take the risk and tackle the challenge. In order to complete the project in the short time they were allotted, the Focus Group decided to break up into small drafting teams to craft the language, which were brought back frequently to the whole group. A series of intense meetings were held over a period of two weeks during which the Focus Group

crafted a basic framework for an agricultural water use efficiency program based on measurable objectives, building upon the initial ideas discussed in the Scoping Session of the Independent Review Panel.

The group did not originally start with the framework proposed by the Independent Review Panel. Instead, they started with text developed from the earlier program description documents, with its focus on efficient water management practices. However, after several meetings of listening to each other, they realized that the quantifiable objectives approach posited by the Independent Review Panel made sense to all sides. For example, consider what this agricultural Focus Group representative says about measurable objectives.

*[Environmental Stakeholder A] was very concerned that we would have ways to measure success. [She/he] wanted quantifiable measures that could be reviewed one year or two years down the road to see whether people were doing what they're supposed to be doing. I guess I was the one who was most insistent on this connection between what they're asking agriculture to do and what benefits can be realized by CALFED. What are the objectives in CALFED that we're trying to meet by having Ag do certain things? That kind of combination of viewpoints, I think, kind of merged into a big part of this whole quantifiable objectives thing.*¹⁵⁹ [44.]

This agricultural stakeholder tells us that agricultural stakeholders are also concerned about downstream objectives, although in a different way. Agricultural stakeholders have been complaining for years that they were being asked to do conservation “for the sake of conservation.” Part of the reason they felt this way was because environmental and other stakeholders seemed to be ignoring their protestations that broadly-applied measures do not work because of the variability in agricultural conditions. However, another component was that explicit links were never made between what Ag would do and specific outcomes sought. Instead, Ag was asked to save water because they “ought to.”

¹⁵⁹ Interview with agricultural representative, Fall 2002.

Similarly, we can get an idea of how important setting environmental goals as the specific targets of the program was to environmental stakeholders. Environmental stakeholders all agree that the inclusion of some kind of measurable objectives for the first time was very important for them. Environmental stakeholders had generally pushed for universal best management practices and targets because they were seeking assurances that some kind of water use efficiency measures would be implemented. From their viewpoint, previous water conservation programs had failed because, despite all the best plans in the world, very little seemed to be improving. They were willing to move towards a measurable objective approach because that allowed them to target and track what they really cared about, healthy ecosystem. So, the Focus Group members find out that they both like the idea of quantifiable objectives when those measurable targets are applied to specific environmental and other downstream goals, rather than targets of how much water agricultural can save.

The text that the Focus Group created was incorporated into CALFED's *Revised Phase II Report*.¹⁶⁰ This following excerpt highlights some of the most important elements of the framework that would emerge from this group:

- *Implement agricultural and urban conservation **incentives programs** to provide grant funding for water management projects that will provide multiple benefits which are **cost-effective at the state-wide level**, including **improved water quality and reduced ecosystem impacts**.*
- *Identify, in **region-specific strategic plans** for agricultural areas, **measurable objectives to assure** improvements in water management.*
- ***Work with the Agricultural Water Management Council (AWMC)** to identify appropriate agricultural water conservation measures, set appropriate levels of effort, and*

¹⁶⁰ CALFED (1999), *Revised Phase II Report*. CALFED Bay-Delta Program.

*certify or endorse water suppliers that are implementing locally cost-effective feasible measures.*¹⁶¹ (emphasis added) [45.]

There are several key components of a framework here. First, there is the idea of “measurable objectives” as discussed above. Furthermore, by including “incentives” and “cost-effective at the state-wide level,” the Program provided a framework that all parties could accept for how costs would be distributed. For agriculture, there was the idea that they would be assistance for those water use efficiency measures that were not cost effective for the water use, but might be considered desirable on a watershed or statewide basis. For environmentalists, cost effectiveness at the district and farm level would no longer be used as an argument to stop environmentally friendly water use efficiency measures from being implemented. Now, if there was a benefit, action could be justified under statewide efficiency calculations.

Finally, agricultural stakeholders were happy to see that the Agricultural Water Management Council might have a role in the Program. The possible role of the AWMC had been an issue of great contention in the BDAC WUE Work Group. Environmental stakeholders had not been willing to support its inclusions before because they worried about its effectiveness and actual willingness to implement agricultural water use efficiency measures; that was the reason that most of them had walked out of the dialogues that created it. Here, they were willing to include a role for it, although much would still need to be discussed.

What does this wonderful moment tell us about how stakeholders’ with apparently irreconcilable differences can cooperate? We can see that in developing the initial framework for a program the

¹⁶¹ CALFED (1999), *Revised Phase II Report*. CALFED Bay-Delta Program.

stakeholders are creating the local words envisioned by trading zone theory. These words allow the stakeholders to start exploring local meaning while still paying homage to the beliefs and values of the global stakeholder communities. For example, consider the phrase “cost-effective at the state-wide level.” While this concept is not fully worked out, we can see possibilities down the road for discussions about procedures and criteria for calculating this figure. What’s important at this stage however, is that the stakeholders at the table now have words to describe what they want to do that also tell them, individually as stakeholder communities, how those ideas fit within their worldview. The same can be said about “measurable objectives,” “assure,” and several other key words in the excerpt given above. A trading zone is being created, a space where local meaning and global disagreement can co-exist.

Trusting a process—taking risks for cooperation

In many ways, the ideas in the draft EIS/EIR were as innovative as people may have thought. Each of these ideas had been presented in earlier dialogues. The Agricultural Water Management Council contained some provisions for the identification on downstream impacts, and even proposed a methodology by which those impacts might be considered.¹⁶² Isolated stakeholders in the WUE Work Group had lobbied in vain for some or all of these elements at different points at time.

Instead, what is striking is that not only do these ideas come together for the first time in one document, but that there was a group of agricultural, environmental, and agency stakeholders who were all willing to pursue them further. Moreover, that they agreed to do so before the

¹⁶² Although this methodology was quite soft and environmentalists were worried about how it would take ecosystem health into account.

actual scientific panel was convened. In other words, this group proceeded despite significant uncertainty about science—uncertainty that had proved a major impediment in previous dialogues. Why was this possible when there had been, and still generally was, so much distrust among agricultural and environmental constituencies?

The fact that the new framework seemed to offer a way forward that satisfied the key interests and is one reason why stakeholders were willing to move forward with this new idea. Also important was the fact that the framework offered a theory for the dots that integrated the ways that each stakeholder tended to connect the dots. Ag stakeholders were used to the idea of managing water resources for objectives because that is how they manage their own water districts. Allocation follows distribution targets as set by the district. On the other hand, environmentalists had always been concerned with the upstream water management impacts on flow timing and water quality. So both the groups were amenable to a system (watershed) view that connected upstream water management with downstream objectives. Despite its attractiveness however, the group was promoting an idea that they had only just begun to discuss.

However, to get a better understanding of why stakeholders were willing to take some of these risks stakeholders were willing to take this risk to put this new program into an official document, I turn to the words of the stakeholders. This stakeholder, an environmental representative, is talking about some of the uncertainty that she felt in putting together the program. The sentiments expressed here echo the uncertainty that other stakeholders expressed during their interviews with me.

*We've compromised our position a great deal. The whole idea...is very different, and will result...because it is so complicated, and I could not explain it to a 2-year-old, I can't explain it to myself! I am taking some information on faith, and there is such a need to come to agreement... Because it's so complicated, we can't see the end. We're trusting a process. ...Personally, I think I did it because this seemed to be the only venue in which we were making progress.*¹⁶³ [46.]

So from this stakeholder, we get a sense of the trepidations that she felt in proceeding with this new program. First of all, there was much uncertainty about how much they might be “giving away.” Its outcomes are uncertain. With the previous positions they had advocated, environmentalists had been seeking to promote a program whose activities they could track. Environmentalists saw EWMPs as the way to go not only because of their experience in urban water use efficiency, but because it would be easier to see measurable progress—either agricultural water users were implementing those EWMPs or they were not.

The new program that they outlined for the *Revised Phase II Report* contained two types of outcomes that would have to be monitored and assured. The first set of indicators included the traditional ones that would measure the efficiency of water users. The second set might look at downstream indicators, although the Focus Group was not sure what form those indicators would take. Measurable objectives could include not only water quantity impacts, but also flow timing and water quality. In addition, how would CALFED know which measures should be implemented upstream to achieve downstream goals? To achieve an objective, CALFED would need to backtrack from objective to local water management actions, and determine how those could be changed to further the measurable objective. The agencies did not know yet how to do this.

¹⁶³ Interview with environmental stakeholder, Fall 2002.

One of the reasons this stakeholder gives for why the group decided to go forward with this new program was simply a felt need to find any way to make progress. Conflict among environmental and agricultural stakeholders was ongoing in other forums, both within CALFED and outside it. The stakeholders felt frustrated because nothing seemed to be happening despite their ongoing efforts. Now, there seemed to be a chance to tackle one of the tougher issues through a framework that both sides felt comfortable with. They had also found they could negotiate together in a cordial and productive fashion. Nothing else seemed to be working.

This idea of trusting the procedures of a collaborative dialogue seems to reinforce what we learned about the importance of procedures for creating information in **A quick change in mission** on page 136 above. That is, the procedures that stakeholders choose to govern how they talk to each other, identify problems, imagine solutions, and make choices among those solutions matters a great deal. Furthermore, these procedures gain power when they have the local characteristic suggested by trading zone theory, namely that they have meaning that stakeholders create for the specific problems and issues at hand that can also be reconciled with each separate system of meaning, values, and beliefs that exists within each stakeholder community. Locality matters in enabling simultaneous cooperation and disagreement.

Moving forward on the science

Another striking move by the group was how it changed its approach to the estimation of conservation potential, which is captured by the following excerpt from the ***Revised Phase II Report***.

... There appears to be emerging agreement between agricultural and environmental interests on distinctions between different types of potential reductions. This is a significant breakthrough in the

*debate over agricultural water conservation potential as it enables the CALFED program and stakeholders to focus programs on different types of losses.*¹⁶⁴

In the previous draft EIS/EIR, CALFED had provided an estimate of how much water could be “expected” to be saved by water use efficiency actions. However, there was sharp disagreement among stakeholders about those estimates. The Focus Group decided to put aside their disagreement on the potential amount of conservation by “agreeing to disagree.” They changed the wording somewhat to indicate that the numbers represented “potential savings” rather than “expected savings.” Finally and most importantly, for the first time agricultural and stakeholders agreed on to divide possible reductions in current water losses into two separate categories—recoverable and irrecoverable. Irrecoverable losses occur when water flows into locations from which it does not return to the watershed. An example of an irrecoverable loss is the flow of water into a saline aquifer whose water can not be used. On the other hand, recoverable losses occur when water flows into a location from which it can be recovered. One example of this is an accessible groundwater aquifer that can be pumped. The distinction is important because recoverable water losses are not really lost, but the timing and ease and location of their access change. Water in an aquifer is not available to the same users as water in a stream. Reducing irrecoverable losses adds to the total amount of water available while reducing recoverable losses does not.

Agricultural stakeholders had been arguing for years that the amount of water that could be “saved” was much less than had been postulated by environmental stakeholders, and one of the reasons was this division between different kinds of losses. Getting environmental stakeholders

¹⁶⁴ CALFED (1999). Revised Phase II Report.

to agree to this division was not only an important step towards developing the new water use efficiency methodology, but it also represented to agriculture an instance where they had been heard, as this next stakeholder describes.

*The other category the CALFED identified, the so-called re-routable flows, identified that fact that there is no “savings” of water here but there may be other reasons to go after that water conservation because of the fact that it can have other beneficial impacts such as instream flow benefits, water quality benefits and stuff like that. **But that it’s not pure water conservation in the classic sense.** We had been, we on the Ag side, had been advocating for a long time that not all water conservation is the same. It was a very healthy thing.¹⁶⁵ [47.]*

The new definition works with this Ag stakeholder and others in his community because it affirms their belief that not all water conservation is the same. The Ag community had always argued that local conditions (crops, soils, weather, etc) needed to be considered in deciding what water use efficiency measures would be effective. That was one reason why they had always argued against the imposition of universal efficient water management practices. An efficient water management practice might be effective in one area, they would argue, and detrimental in another because of the differences in local conditions. As it focused on achieving downstream objectives, the new framework for the first time moved away from assumption that the AgWUE Program would be centred around the imposition of universal agricultural water use efficiency measures. Furthermore, the new definition reduced the pressure on agricultural water users to give up some of their current water allocations because of the division between recoverable and irrecoverable flows. Ag could now argue that only irrecoverable losses should be examined for potential waste because the recoverable losses are still available for other uses.

¹⁶⁵ Interview with agricultural stakeholder, Fall 2003.

Environmental stakeholders also found this distinction useful, especially since they now had the agreement of Ag water users that it was worth considering water use efficiency measures that would address flow timing and water quality—and we see that agreement in the excerpt above as well as this next excerpt from this environmental stakeholder.

*They have these definitions of recoverable or irrecoverable losses and the breakthrough for us was that we agreed water conservation was worthwhile even if the water didn't get transferred out. Even if it was used over and over again, there was this big push to sponsor water conservation programs that would help water quality or the timing of flows. That again was something that we had argued over for years.*¹⁶⁶ [48.]

As this stakeholder says, the new definition centers water use efficiency squarely on how to manage water for environmental health, including not only water quantity, but also flow timing and water quality. Water use efficiency might be worth doing even if water “didn’t get transferred out.” Ag has also argued that water use efficiency measures often do not make sense unless the operation saving water could transfer (i.e. sell) the saved water to other users. By accepting the new definition of water use efficiency, Ag had now accepted the possibility that environmental water uses might also justify the implementation of water use efficiency measures.

So, in this move towards adding detail and understanding to the initial scientific framework for the program that the stakeholders are building, we see again the trading zone theory’s locality of meaning. The words and concepts that the stakeholders representatives above are describing are adding to a growing set of words and procedures by which they can portray and manipulate the reality of concern, that of agricultural water use efficiency in the Bay-Delta Estuary and its watersheds. At the same time, it is clear that these new concepts, and the procedures that attend

¹⁶⁶ Interview with environmental stakeholder, Fall 2003.

them, also make sense to each community, **but in very different ways**. Agricultural stakeholders like this new definition of water use efficiency because it reaffirms their belief that local conditions are crucial in determining what practices and measures should be implemented. Environmentalists see it as reaffirming their beliefs that water quality and timing of flows need to be considered in addition to water quantity.

So we can see that, as they continue to cooperate, stakeholders are building something more than a program concept, they are also an increasingly richer set of terms, concepts, and beliefs at the border of their interaction and intermediate to their ongoing apparently irreconcilable differences. In this case, the new definition of water use efficiency—implementing water use efficiency measures to improve the water quantity, timing, and quality for downstream environmental benefits—gives them all for the first time a set of theories and terms that they can use to talk about the same thing and yet express their differences in a clear manner. With those terms and concepts, the trading zone among the stakeholders grows.

Terminating the Focus Group

The document that the Focus Group developed was completed in the first week of December and presented to the Babbitt-Dunn group by the CALFED AgWUE Program Manager on December 10th. The Focus Group had one final meeting after that to discuss the presentation to the Babbitt-Dunn group and to terminate the group. Stakeholders from the Focus Group came out of the process feeling hopeful that perhaps a solution might be possible to their long conflict. This group had found that they could deliberate together effectively. As part of their final

recommendations, they also recommended that they, or a group similar to them, be convened that would determine the shape of the program the Focus Group had outlined.¹⁶⁷

We can also see that the development of a trading zone is directly linked to their successful cooperation. The stakeholder representatives in the Focus Group developed a new set of terms and concepts that allowed them to talk about agricultural water use efficiency while still disagreeing about global meanings, theories, and values. Those local words are linked to some initial procedures (e.g. calculations and a measurable objective approach) for how they will be operationalized in the slice of the world under consideration, meaning the Bay-Delta Estuary and the upstream agricultural water districts. Furthermore, by taking a watershed approach, the group has implicitly selected a vision of the world for their cooperation that is based on watersheds and flows within them.

All of these elements of the burgeoning trading zone still required much more detail so that an implementable program could be put in place. To continue the work of the Focus Group, the CALFED AgWUE Program Manager decided to convene a second group, the Agricultural Water Use Efficiency Steering Committee. That will be described shortly.

¹⁶⁷ The language from the Meeting Minutes (Focus Group, December 4, 1998) is "The Strategic Plan is to be developed by the end of 1999. A facilitated process for such development, including non-agency stakeholders, will be undertaken. The plan will estimate water yield for CALFED purposes under alternative scenarios, including 0 to 100% of the recommended funding for the efficiency program elements, such as grants and loans and including further another scenario that describes the greatest market incentives which applicable law allow. The feasibility studies may go forward, starting on ROD adoption. Permitting will occur only if or once the full market incentives and full funding for this efficiency program have occurred, related on-ground activities have been implemented, and the need for CALFED purposes exceeds actual yield. The trial of the efficiency program should end by a specified deadline."

However, before the Steering Committee was convened, the Independent Review Panel had to finish its deliberations. While the Scoping Session of the Independent Review Panel greatly influenced the deliberations and products of the Focus Group, the Focus Group was terminated before the Independent Review Panel conducted its final deliberations. This left several unresolved questions. For example, what would the Independent Review Panel recommend vis-à-vis the science underlying the CALFED AgWUE Program? How much water would they say could be saved? What would they recommend in terms of the scientific conceptual framework to underlie the new Program being developed, and would it compliment or contradict the one developed by the Focus Group?

Interlude: The Independent Review Panel's Summary Report

The Independent Review Panel had its deliberations on December 14-16th, 1998, three days after the last meeting of the Focus Group. The Panel was comprised of five nationally recognized scientists who collectively provided expertise in the areas of irrigation science and engineering, hydrology, plant physiology and evapotranspiration, agricultural economics, and aquatic ecosystem restoration. The deliberations also included eight stakeholder technical representatives with specific regional expertise in the Bay-Delta system. These technical representatives provided clarification on specific issues as needed, and posed valuable questions and comments for the Panel's consideration. Other stakeholders could also attend parts of the deliberations. The panel was facilitated by the same facilitators as the Focus Group.

The Scoping Session had encouraged the AgWUE Program to establish measurable (quantifiable) objectives, and then see what water use efficiency measures might accomplish

those objectives. The Panel’s deliberations elaborated further on that theme by proposing that the AgWUE Program consider using the conceptual framework of “flow paths.” A flow path methodology looks at the flow of any water in the watershed from where it is introduced to the watershed until it leaves. In tracking the water flows, the methodology could consider not only how much water moves from place to place, but also the timing of its flows (how much water at what place when?) and the quality of those flows (how much pollutant at what place when?).

Looking at program implementation, the Panel recommended that the AgWUE Program also consider what they called a flow path methodology to link agricultural water use efficiency measures to CALFED objectives for the Bay-Delta Estuary. They defined flow paths as “the route that water travels to reach a problem area or another unusable destination.” They further stated that the proposed flow path strategy should incorporate information and analyses on:

- *timing of water supply and demand within a season or year and among years;*
- *location;*
- *quality;*
- *primary and secondary objectives;*
- *cost-benefit analysis; and,*
- *potential multiple benefits (water supply reliability, ecosystem restoration and water quality).¹⁶⁸ [49.]*

This methodology would become the next part of the framework that the Focus Group’s next incarnation, the Agricultural Water Use Efficiency Steering Committee, would use to put together for the AgWUE Program. Through considerations of flow paths, the CALFED AgWUE Program could link specific water use efficiency actions and desired outcomes. However, CALFED would have to do much scientific analysis and data collection to make the framework

¹⁶⁸ Independent Review Panel on Agricultural Water Conservation Potential (1998), page 7.

work. Previous approaches to water use efficiency only required knowledge of how much water users were using on an annual basis. For a flow path framework, that data would have to be time sensitive and capture not only water use but also various water quality indicators as well. Furthermore, because the AgWUE Program was accepting the premise that agricultural conditions varied in each region, this meant that data would need to be collected in each region as well. Much of that data did not yet exist or if it did exist, was incomplete and spread out among multiple entities—government agencies, water districts, even environmental organizations.

Looking at CALFED’s quantification of water conservation potential, the Independent Review Panel came to the conclusion that CALFED’s estimates of the potential to save water of agriculture offered a good “ballpark” figure. They also agreed with CALFED’s delineation of water conservation into recoverable and irrecoverable losses.¹⁶⁹

Furthermore, the panel reiterated its support for the use of measurable objectives as the basis for planning and monitoring program outcomes. Those objectives, they suggested would incorporate

¹⁶⁹ More specifically, the Panel recommended a series of actions that could make the data both more accurate and more credible to stakeholders. For example, the Panel recommended that CALFED should be more critical and transparent about the uncertainty and assumptions underling its estimation of water conservation potential. It also recommended that CALFED clearly define the terms it was using and then be consistent in their use. The Panel also suggested that CALFED should screen their proposed EWMPs for their cost effectiveness. With regards to the approaches CALFED was considering, the Panel suggested that CALFED should focus on the regional level and then determine what programs were cost efficient in each region *with and without* CALFED involvement in each region. Finally, they recommended that CALFED could improve its methodology in several ways; however, these considerations had little bearing on the Steering Committee’s deliberations. Their recommendations here were to (Independent Review Panel on Agricultural Water Conservation Potential, 1998):

1) estimate region-specific conservation potential; 2) incorporate a more elaborate analysis of evaporation and transpiration; and 3) include prescriptive information to guide and support planning on a regional basis.

measurable objectives that: (a) related to the flow path strategy; (b) incorporated adaptive management strategies, and (c) were grounded in “realistic assessments of baseline conditions.” In addition, the Panel suggested that measurable objectives be developed in consultation with stakeholders.

The Independent Review Panel on Agricultural Water Conservation Potential’s *Summary Report* established some important starting points for the upcoming work of the Steering Committee, the successor to the Focus Group. Beyond the original idea of measurable objectives, the flow path strategy would become a key underlying framework for the eventual AgWUE Program. As the Panel stated, by using flow paths CALFED could link particular, location-specific agricultural water use efficiency to particular, location-specific, desired outcomes. In other words, instead of asking agriculture to perform a uniform set of EWMPs, CALFED could target specific desired outcomes and see what actions upstream might produce the desired changes.

The Independent Review Panel also recommended that “California must move in the direction of measuring all significant components of water use – surface and groundwater – if state policy-makers and stakeholders are to fully understand and realize water use efficiency potential.” However, the fact that the Panel directed its recommendations to California rather than CALFED is likely no mistake, especially considering how polemical measurement was in the overall agricultural-environmental dynamics.

The final impact of the Independent Review Panel would be felt in the deliberations of the Steering Committee. The head of the Independent Review Panel, Jack Keller, was an expert well

known already to the agricultural community. However, his role in the Panel earned him some initial credibility with the environmental community as well. As we will see, this expert would become a key expert to the Steering Committee early on in its deliberations and had a vital role in fleshing out the framework.

The importance of his role, and that of the facilitators, raises interesting questions vis-à-vis what trading zones and the role impartial third parties in successful cooperation. Galison's (1997) initial conception does not put any importance to third parties, yet in these cases and other consensus building processes there is strong evidence of the importance of impartial mediators (Susskind and Field, 1996; Forester, 1999a,b). Are these third parties doing something to aid in the development of trading zones, are they contributing to cooperation in other ways, or both? If they are doing something beyond or besides creating a trading zone, what are those additional benefits and how can we portray them? Do these additional benefits compliment trading zone theory or contradict it? Furthermore, what kinds of skills do these third parties require to be effective?

We will explore these questions further in the remainder of this chapter and in the next as well.

AGRICULTURAL WATER USE EFFICIENCY STEERING COMMITTEE

The Focus Group had put together a brief outline, or skeleton, of a total program. The Steering Committee had the task of putting the meat on the bones. The Focus Group members had agreed on what the different components of an acceptable program might be (incentives, assurances, measurable objectives, and so on), but they didn't know what these would look like, how the

pieces would fit together and whether or not the details of the eventual program would be as acceptable as its first drafting might be.

To build the program, CALFED convened the Steering Committee in March, 1999. The members of the Steering Committee were mostly the same as those on the Focus Group; however, one important change was made. The two Co-Chairs of the AWMC were invited to participate in the Steering Committee as members and liaisons between CALFED's efforts and the AWMC. One of the Co-Chairs had already served on the Focus Group. He was asked to step down from his role as an environmental member and replaced with another person from the Environmental Water Caucus. A few other people would change over the course of the Steering Committee, but these were agency personnel.

In putting the nuts and bolts of the program together, CALFED and the Steering Committee faced certain challenges. The first was how to integrate the final recommendations of the Independent Review Panel into the Agricultural Water Use Efficiency Program. For example, what would be the form of the measurable objectives? Who would define them and what process would those people follow?

A related question revolved around the questions of assurances (consequences). For example, how would the measurable objectives be monitored? What happens when measurable objectives are not achieved? When are consequences imposed and when are incentives changed? Third, and again interwoven with the previous two questions, is what is the appropriate level of

measurement that should be required, or encouraged, of farmers and districts, and other agricultural water users?

Establishing a Mission—initial rules and goals

Part of the first meetings of the Steering Committee focused on defining their mission and specific tasks. Questions that were tackled included the expected duration and frequency of meetings of the Steering Committee, the expected work products and outcomes, the membership of the new Steering Committee, and the composition and purpose of a proposed Technical Team that would help the Steering Committee and CALFED in their program formulation efforts.

Process decisions were handled relatively quickly, as little was changed from the Focus Group. Except for the expected work products, the ground rules remained largely the same. Like the preceding Focus Group, the Steering Committee decided to adopt an approach that was strongly focused around single texts, which might be prepared by CALFED, or work teams (subcommittees) of the Steering Committee. Regarding representation, the Steering Committee representatives continued to represent only their own organizations, not speaking for the broader communities. Similarly, Steering Committee members were expected not to release information from the deliberations without checking in with other members first, so that members could try out different options without fear of repercussions.

With regards to the expected work products or outcomes, the Steering Committee agreed that its role would be to seek consensus on a set of recommendations to present to the CALFED AgWUE Program Manager. The CALFED Program Manager would then present their advice to

other relevant bodies such as the Bay-Delta Advisory Council and CALFED's Policy Group.

More specifically, the Steering Committee agreed that they would:

*...provide guidance to CALFED on the Strategic Planning Process outlined the Phase II Report released in December 1998. As part of this effort, meeting participants further agreed that the group needs to provide guidance on: 1) defining measurable objectives; and, 2) resolving two governance issues: the role of the AWMC and a process for program evaluation and refinement.*¹⁷⁰ [50.]

The Steering Committee also reviewed the *Summary Report* produced by the Independent Review Panel on Agricultural Water Conservation Potential. They approved the outcomes and agreed that their future deliberations should look at incorporating the recommendations into the program. They specifically highlighted the flow path strategy and measurable objectives as the way they thought the group should precede. They also wanted periodic updates of how the Panel's recommendations were being incorporated into CALFED documents and program decisions.

At the subsequent meeting, the Steering Committee further refined their work objectives to include: (1) defining and refining measurable objectives; (2) developing a plan for regional implementation of those objectives; (3) defining the role of the AWMC in the CALFED AgWUE Program, and (4) determining consequences (i.e. assurances) for non-attainment of measurable objectives. They also discussed other possible areas of involvement for the Steering Committee, including tracking how the final recommendations of the Independent Review Panel were being implemented (which includes the measurable objectives) as well as providing guidance on what

¹⁷⁰ CONCUR (1999). *Key Outcomes: Mar 6, 1999*. Meeting summary.

efforts CALFED might take, legislative, administrative, or otherwise, regarding defining what would be “appropriate measurement.”¹⁷¹

The creation of their mission by the Steering Committee members seems a simple thing, until it is compared with the trials of the BDAC Water Use Efficiency Work Group. A deeper look at these initial deliberations shows us a few things about cooperation. First, in choosing their mission the Steering Committee chooses what segment of reality they will try to influence with their cooperation. That reality is local in character, based on a conception of water management that links upstream water use efficiency actions to downstream impacts represented by measurable objectives, which would later become known as quantifiable objectives, or QOs. As trading zone theory predicts, this framing of the reality also fits well with what each stakeholder community cares about and believes.

Over the next year and a half, the Steering Committee met regularly, with intervals between their meetings ranging from 2 weeks to approximately one month. In the end, they reached consensus on a comprehensive program based on a conceptual framework of flow paths, quantifiable objectives and targeted benefits, and local and statewide cost efficiency. In the next sections, I will take the reader through some of the particular challenges and milestones of the group.

Crafting relationships

As the members of the Steering Committee were seeing each other at the main meetings, they were also getting to know each other personally. Some of this relationship building occurred at

¹⁷¹ The issue here was how much measurement should be done and at what level it should be done by agricultural water users.

the meetings, but the members of the Steering Committee also took advantage of opportunities to meet casually outside as well. For example, the facilitator describes here one event.

*I also think of this as [something that is] probably not given enough attention, but [the group's] interpersonal dynamics, we attended to that. We tried to create an environment where people were comfortable with each other. Of course, we always tried to work in a little humor. I remember at some stage [we] went to a tapas restaurant and they laid out this great spread of Spanish tapas. It turned out to be a great opportunity for people to get acquainted with each other in a way that they hadn't before.*¹⁷² [51.]

Many of the Steering Committee members talked about the relationships they had built with the other members. These relationships were built both during the meetings but also in activities outside. For example, many of the Steering Committee members also talked about a margarita party that was hosted by one of the members. Apparently, this event was one of the first instances where some of these stakeholders started asking each other questions about their lives outside water issues, as this next Steering Committee member explains.

[Jane] hosted a collective our'deurve and margarita party over at her house. And that also made us all humans. Not just agricultural water users or water suppliers or stupid Enviros, it made us all human.

Why is that party something that people keep talking about?

*I don't know. Perhaps, because at a certain level, we all became friends? It was more that we were just doing this job. I think for most of us it is more than just doing a job anyways.*¹⁷³ [52.]

When one of the agricultural representatives made a conscious effort to send one of the environmental representatives a baby present for her newborn child, many of the environmental representatives were touched by his actions. Many stakeholders talked about the easy going nature of the group as one of the reasons why they were able to take each other's words about where the boundaries were for what might be accepted by their constituencies and what would not.

¹⁷² Interview with facilitator, Fall 2002.

¹⁷³ Interview with facilitator, Fall 2002.

Humour was apparently another important part of the group's dynamics, as this next Steering Committee member tells us.

I don't know whether it was because of the particular individuals in the group or the presence of the facilitator, but this was a much more relaxed group. We gelled in terms of our sense of humor. This was a group where people got along with each other and laughed a lot and joked with each other, gave each other shit. So it quickly coalesced into a very good working relationship.

I think there's an ability to diffuse pretensions through play and humor that is important, but that ability to diffuse is not constructive if you defer issues but if it allows you to deal with important disagreements in a nonhostile way. That's how it happened. People were quite blunt about what their disagreements were, or their concerns, but they were not confrontational or personally directed in doing so.¹⁷⁴ [53.]

So we see here an important role for humour in enabling the Steering Committee members to balance the tensions between their global disagreements and the products and ideas they were working at the table. Through humour and their good relationships, the Steering Committee was able to handle their disagreements as information rather than something more personal.

Differences became a problem to tackle on the way to a solution rather than something to fight about. Rather than trying to avoid those differences, or getting stuck on them, this group was able to use their deeper relationships to examine their differences in more complex ways, with respect, active listening, mirroring, and jokes.

The importance of these relationships tells us something about cooperating in the face of apparently irreconcilable differences that trading zone theory does not. Beyond the products of a trading zone (terms, procedures, objects), stakeholders seem more able to tackle and work through their differences when they develop richer ways of interacting with one another. A blunt statement that might appear harsh to one stakeholder might be accepted readily by another who

¹⁷⁴ Interview with facilitator, Fall 2002.

knows the person uttering it better. Such knowledge can only be gained through common experiences together and by talking about more than the issues.

Roles—Work Teams

The Steering Committee decided early on to establish Work Teams periodically that would work more intensively on difficult issues. Membership on any particular Work Team would include agricultural, environmental, and agency representatives. While Steering Committee meetings happened approximately every month, Work Teams met more frequently in between those meetings, sometimes two or three times. Conference calls were another important media of meeting for Work Teams. Draft products from the Work Team would be brought to each Steering Committee meeting to be discussed, refined, and sent back for more revisions.

Because the Steering Committee itself was fairly small in size, Work Teams often included a good percentage of the Steering Committee members. Members chosen to the teams were generally those who cared most about the issue and/or those who the group felt had the expertise required to tackle the issues. For instance, one of the environmental representatives participated more frequently in the various Work Teams because she had greater technical experience.

One example of a work team created by the Steering Committee was the Assurances Work Team. This work team was essentially a focused dialogue between one Ag and one environmental stakeholder along with aid from agency stakeholders. While they never resolved all their differences about this difficult topic, they did put together a draft text that they agreed

would be a good starting point for a future dialogue that would start up after the Steering Committee's termination and CALFED's issuing of its Record of Decision.¹⁷⁵

In the BDAC Water Use Efficiency Work Group, we saw how that group struggled to define the roles of its various participants, and how that impeded the group's ability to cooperate effectively.¹⁷⁶ Here, we see a noteworthy example of the opposite, in which the Steering Committee deliberately organized itself to accomplish different kinds of tasks. Furthermore, the composition and division of these roles was negotiated among the Steering Committee members. Stakeholders identified this role division as an important tool by which they tackled the most difficult issues. Is the idea of role divisions fit within trading zone theory, does it contradict it, or is it something that we need to consider outside of that theory? These questions are worth keeping in mind as we continue to explore in later sections other roles that parties in the Steering Committee took.

As mentioned above, one of the important contributions of the work teams was to prepare draft texts that captured understandings of issues, new ideas, options, and possible solutions.

Objects: Single texts, spreadsheets, and more

Throughout the Focus Group and Steering Committee's deliberations, the facilitators used single text methods to organize their discussions. To understand the role that single texts and other local

¹⁷⁵ In fact, that dialogue was initiated as planned and it used that draft text as the basis to craft an initial agreement. When my field research was terminated, that document was being circulated among the official CALFED Bay-Delta Authority forums, including the Bay-Delta Public Advisory Committee (BDPAC)—the successor to next generation of the Bay-Delta Advisory Council—and its subcommittee the Water Use Efficiency Public Advisory Committee (WUE-PAC).

¹⁷⁶ See Disagreement about roles on page 114 above.

objects played in the Steering Committee's deliberations, consider the words of this Steering Committee member.

The facilitators took pains to always make sure that this brainstorming was occurring within the context of, and was captured in, a conceptual framework which made sense and which was understood and approved by the participants. They would make sure that the relationship between the objectives of the programs and the tools that the programs were employing were always represented in a conceptual model. That the relationships between the different types of programs and the different types of funding were always part of an architecture. That the relationship between the participation of various entities in the Program and the institutional, legal, political implications of that participation—in terms of assurances and other issues—was always part of an architecture. That was extremely useful because, very often, groups like these will come up with some good concepts which don't necessarily survive as part of a coherent and congruent whole.¹⁷⁷ [54.]

One example of the architecture that this Steering Committee member is talking about was a draft Table of Contents for the Strategic Plan that the facilitators and CALFED Program Manager created early in the deliberations. To start, the Steering Committee talked about what components or headings needed to be in the proposed Strategic Plan. They then worked on filling in the text for each section. Deliberating about the Table of Contents helped the Steering Committee members discuss and shape the overall product that they would seek to achieve. Throughout the deliberations, the Steering Committee members also used the Table of Contents to keep in mind the overall architecture of the product they were trying to produce.

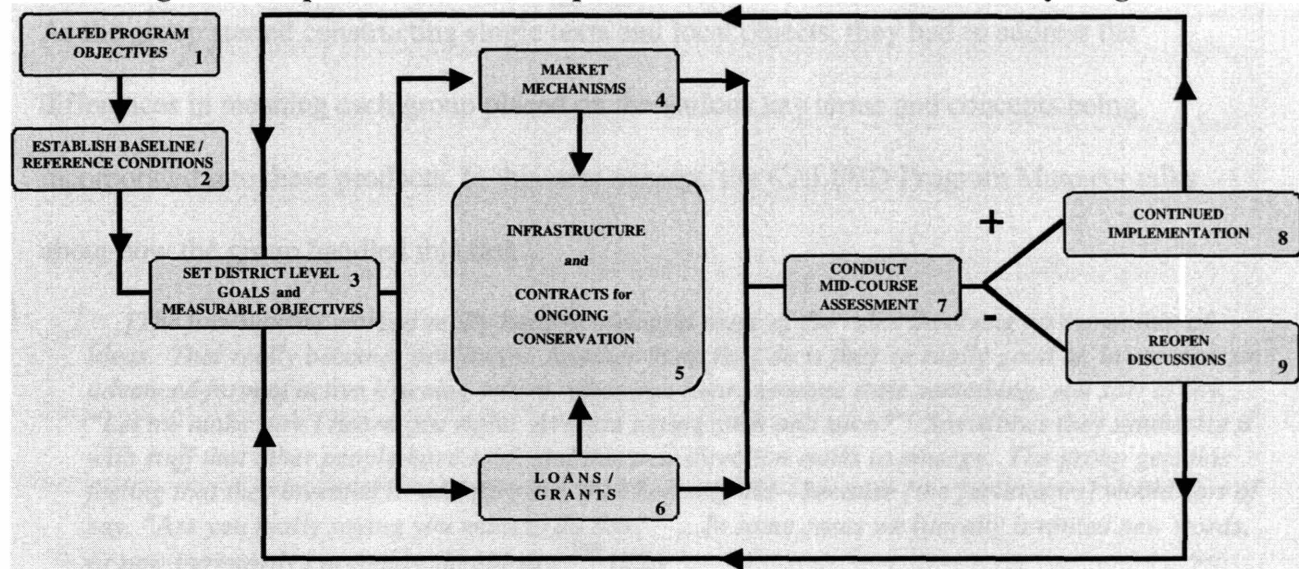
Many other draft texts were used as the Steering Committee filled in the sections of the Strategic Plan. However, their use of draft materials went beyond documents. They also used spreadsheets, organizational charts, maps, and PowerPoint presentations. For example, the facilitators created the chart in Figure 1 Figure 1: Proposed Process for Implementation of Water Use Efficiency Program to organize deliberations among Steering Committee members about the

¹⁷⁷ Interview with environmental representative, Fall 2003.

overall structure of the program. This figure appeared in two meetings during which Steering Committee members talked about and eventually changed some of the text so that they could agree upon it.

Trading zone theory emphasizes the role played by objects such as technical manuals, design diagrams, and laboratory equipment and experiments in facilitating cooperation. In the Steering Committee, these single texts serve to capture understanding, organize information, and portray possible solutions—all of these placed on an outside medium. There, ideas, understandings, and interests can be depicted as part of an overall architecture that stakeholders individually can assess for its viability vis-à-vis the beliefs and values of their constituencies. In this way, these single texts provide the means to talk about and create local meaning while still allowing for ongoing global disagreement.

Figure 1: Proposed Process for Implementation of Water Use Efficiency Program



The overall approach for the water use efficiency program, as illustrated in the above Figure 1, is as follows:

1) The CALFED Program Objectives establish the basic foundation for the Agricultural Water Use Efficiency Program.

2) Establish baseline or reference conditions, in order to evaluate future progress. Working in conjunction with an independent team and AWMC, each district will conduct an independent water use efficiency evaluation.

3) Measurable goals will be set to which each district will be held as a prerequisite to receiving CALFED benefits. Achieving these goals will be within the power of each district (i.e. no district will be held to requirements that are beyond their control). Measurable programmatic goals will be set, which will serve as the benchmark for evaluating high level of water use efficiency for the purposes of programmatic decisions, such as proceeding with surface storage. These goals will include outcome-based indicators related to actual water use.

4-6) The Focus Group believes that a package of market mechanisms, loans and grants is essential to initiating and supporting ongoing conservation efforts to improve agricultural water use efficiency. Certain water use efficiency improvements are cost-effective at the District level. CALFED will develop a loan program to help with capitalizing these projects, which will typically involve infrastructure improvements. A still higher level of water use efficiency is possible when cost-effectiveness is considered from a regional or statewide perspective. CALFED will develop a grant program to achieve these additional efficiency improvements. The market can be harnessed to help drive efficiency improvements. Specifically, district level assessments will indicate how much water is available for transfer to environmental or consumptive use at various levels of cost. This information will be made available to the water transfer clearinghouse, enabling contracts to be signed for either infrastructure improvements, or ongoing conservation/water management improvements.

7) An independent team, in conjunction with AWMC and the district, will conduct a mid-course assessment to evaluate progress toward achieving stated objectives.

8) If programmatic goals and objectives are being met, information gained during the mid-course assessment will be used to further refine and improve district level water use efficiency program.

9) If the programmatic goals and objectives are not met by the end of Stage I, the program provides for the reopening of the setting and implementation of objectives.

Building more words and styles of communicating

As the group started constructing single texts and local objects, they had to address the differences in meaning each group placed on the various key terms and concepts being incorporated into these products. In this next excerpt, the CALFED Program Manager talks about how the group handled this task.

[The facilitators] worked really hard to maintain some of the rules involving no ownership of ideas. That really becomes pervasive. Another thing they do is they're really good at, in essence, an advanced form of active listening where, when you hear someone state something, you sort of say, "Let me make sure I heard you right. Are you saying such and such?" Sometimes they synthesize it with stuff that other people have said, and this new direction starts to emerge. The group gets this feeling that they invented it--and they did, they honestly did--because [the facilitators] would sort of say, "Are you really saying you want to do this?" ...In some cases we literally invented new words, or new buzzwords I probably should say.¹⁷⁸ [55.]

Previously, I mentioned how important the creation of a new definition of water use efficiency was to the Focus Group's, and then Steering Committee's, deliberations. As the Steering Committee continued to build a Program based on measurable objectives and incentives, they had to create new terms and concepts to capture and then discuss the meaning of various Program components they were crafting. We can see that in the plethora of terms such as quantifiable objectives, targeted benefits, flow paths, and others found in the meeting summaries and stakeholder quotes. Each of these was specifically defined as the Steering Committee created its various documents. As the stakeholder quoted above said, they created new buzzwords, especially as the new scientific framework was being fleshed out. These terms were captured and modified in local objects as I have discussed above.

¹⁷⁸ Interview with the AgWUE Program Manager, Fall 2003.

This linking of words and concepts to models, architectures and procedures is striking similar to how trading zone theory's contact language links terms and words to experimental procedures, theoretical constructs, and laboratory machinery. Local meaning in these scientific settings can only be created when words are tied to the in-situ phenomena via procedures for translating those words into actions and outcomes to the global values and beliefs of the participating scientific subcultures. Similarly, local meaning in the Steering Committee is created when words and concepts are linked to an program architecture and models of the environment that also allow each stakeholder community to gauge the acceptability of the entire program. Only by tying these elements together can they have meaning at the boundary that is semi-independent from meanings found in the separate and conflicting communities. However, those local meanings should never be divorced from those global value and belief systems, or they become irrelevant.

In the except above, we also see that even in non-object facilitated conversation, the parties started to construct meaning by taking what they heard and proposing new ways of saying or capturing local meaning. "Do you really mean this? Would this word work to capture what we are talking about?" These proposals were said back to the group so that they could talk about and modify them until the group was satisfied with the product.

What also needs to be appreciated here is that the ideas or terms were placed outside the ownership of any one party. The group invented new terms and concepts for themselves so that they could move forward in creating a jointly acceptable program. As the Steering Committee members became more practiced in their interactions with one another, they began to follow the

examples set by the facilitators for how they would use questions, synthesize points, and mirror what they felt they had heard from the other parties.

In looking at this deliberate, negotiated construction of not only a set of terms and concepts, but also a style of interacting, we observe that the Steering Committee members are creating a local means by which they could communicate with each other about the particulars of the world they had chosen to study and manipulate. Trading zone theory emphasizes how terms and procedures mix and combine to form a contact language. Here we see that those procedures may include norms and habits of interacting in dialogue as well as calculations and other procedures for mediating between experimental action and theoretical findings. This mix of words and concepts with procedures for interaction also suggests interesting links between trading zone theory and consensus building theory, or more specifically between consensus building's emphasis on impartial procedures and trading zone theory's emphasis on the creation of boundary spaces that allow local meaning and global disagreement.

Creating the knowledge for the Program

While the idea of measurable objectives and flow paths sounded fine as an overall framework for moving forward, no one was sure how that framework might be implemented in practice, nor whether it would ultimately meet the interests of the different parties or fit well within the overall CALFED negotiations and program development. Many questions needed to be answered. First of all, what would be the actual objectives that the program would try to meet? Who would set them, how would they be set, and at what scale (local, regional, CALFED-level) would they be set? To answer these and other questions, CALFED proposed to the Steering Committee that a

Technical Team should be convened that would work with CALFED and the Steering Committee to create the necessary scientific framework. Steering Committee members were in support of the idea and it was quickly decided that the Steering Committee would play a role in shaping the Technical Team. The Steering Committee's role, as they defined it, was to reach agreement on:

- ❑ The types of experts that CALFED would recruit,
- ❑ The selection criteria by which panelists would be chosen, and
- ❑ The set of tasks to be tackled by the Technical Team.

Over the next few months, a Work Team from the Steering Committee deliberated on several single texts describing the composition of the Technical Team, selection criteria for its members, and the set of tasks it would be asked to address. At each Steering Committee meeting, the Work Team brought its latest single text draft to the larger Steering Committee for their feedback and suggested revisions. In the end, it was decided that there would be a Core Team would be comprised of a Senior Adviser/Integrator (Jack Keller, who had been a member of the Independent Review Panel) and a Water Conservation Specialist as well as the CALFED Program Manager, and facilitators from the facilitators. The Core Team was to be supported by three Senior Technical Advisors—including a water quality specialist and two aquatic ecosystem biologists—from different governmental agencies, who were in turn supported as required by staff. Each member was selected in consultation with the Steering Committee. In addition, the Steering Committee decided that the Technical Team would include regional liaisons from the four regions identified by the CALFED AgWUE Program and Steering Committee. Regional liaisons were to be practicing experts with on-the-ground-knowledge and expertise related to their respective regions. Besides providing advice and information, the Steering Committee hoped that the regional liaisons could also be used to give feedback on the emerging WUE

Program as the Steering Committee was developing it. The Technical Team was comprised of the Core Team plus the supporting agency and regional experts.

The Core Team was formed in the summer of 1999 and started to work with other Technical Team members to create the scientific framework for the Program. As they worked on the framework, members of the Core Team met with the Steering Committee to discuss the program, work on identifying targeted benefits and quantifiable objectives and develop the method to move from targeted benefits to quantifiable objectives to upstream water use efficiency measures. In general, the practice was that the Core Team would prepare documents, spreadsheets, diagrams, and presentations on the latest developments. These would then be shared with the Steering Committee for feedback and revision. To get a better idea of some of the issues that the Steering Committee and Technical Team faced in developing the science, it is useful to consider the words of the CALFED AgWUE Program Manager.

[W]e literally had to invent the science behind this. Inventing that science and continuing to ask for review of that science in a group that was not technical—that was in essence a policy-level group that had a very wide spectrum of technical background, all the way from layperson to expert—was tough.

...We continued to challenge ourselves to do the good work but present it in a way that was digestible by this policy group. And that's really hard for technical people to do. And I think we at the same time challenged the policy group to tell us, "Okay folks, you've got to keep grilling us until we're really sure we know why you don't like this." Then we would follow up with the challenge of, "Okay, now you've got to tell us the right way to present it." ¹⁷⁹ [56.]

Many of the discussions were difficult as the conceptual and scientific frameworks became more complex. For many of the members of the Steering Committee, the ideas and conceptual models behind the new approach of quantifiable objectives and flow path were new and daunting. First, the new approach sought to integrate agricultural water use throughout the CALFED Solution

¹⁷⁹ Interview with CALFED AgWUE Program Manager, Fall 2002.

Area (approximately 40% of the state's land area) into a holistic approach. To embrace the model, stakeholders had to think not only of the linkages across space, but also about flow timing, water quality, and ecosystem health indicators and objectives. Furthermore, in the Program envisioned, even one environmental objective might require a whole set of locally appropriate (and so diverse) actions in upstream locations. Overall, required actions were harder to predict, monitoring was more problematic, and actual impacts would have to be measured.

In addition, many of the Steering Committee members were not scientists, or were not experts. So another task that the Technical Team and Steering Committee had to undertake was to develop an explanation of the scientific framework that was not only workable for the Steering Committee's deliberations but also understandable to the stakeholder constituencies. At times, the Steering Committee itself found the details of the analysis and framework overwhelming. However, the Program Manager and Technical Team kept pressuring them to delve into those details to make sure they were acceptable and to help CALFED develop the presentations they would take out to the broader public.

Here, we observe two important findings that seem to support trading zone theory. First, we see how important procedures are to the creation and use of knowledge. Before the science needed for the program could be created, the Steering Committee members had to negotiate who would do the work, what kinds of characteristic those people should have, what kinds of activities they would do, and so on. Thus, knowledge creation is linked both to the local representations of reality that the group is creating and recreating, and simultaneously linked to the beliefs of each stakeholder community represented about how science ought to be done.

Similarly, we see that interplay of global disagreement and local meaning as the Technical Team and Steering Committee members struggle over the architecture of the science through deliberating about and creating the presentations that CALFED will use to explain the program to the broader public. Here, local objects stand front and centre as the intermediate medium for creating a program, but those objects are tied to concepts and words as well as the procedures and norms for how the Technical Team and Steering Committee discuss, negotiate, and finalize facts and analyses.

Finally, we see again the important role of Jack Keller and the Core Team as a whole in processing and creating the knowledge for the program. Each of these parties managed to establish themselves as impartial producers of texts, diagrams, and other local objects as well as procedures and language that the group could use to create their trading zone. We can see here that the Core Team's impartiality has been earned by how they carefully and respectfully work with the Steering Committee members to generate these products. Steering Committee members could see that the Core Team tried to encourage and incorporate all their feedback into each generation of the presentation or scientific framework. In playing this role, the Core Team members choose a strikingly different role than the CALFED Program Manager did in the BDAC Water Use Efficiency Work Group. Instead of setting themselves up as distant arbiters of ideas, they became part of the medium upon which stakeholders could manipulate and craft interpretations, ideas, and solutions.

Spreadsheets and other local objects

Beyond the single texts discussed above (see **Objects: Single texts, spreadsheets, and more** above), the facilitators and Steering Committee also used a number of other kinds of local objects in their deliberations. For example, the Technical Team would bring in the spreadsheets they were developing for the underlying science to Steering Committee meetings. In those meetings, the Technical Team and Steering Committee members would go over the spreadsheets as they discussed and modified the emerging scientific framework.

Another product that the Technical Team used in its cooperative efforts with the Steering Committee was PowerPoint presentations. These presentations summarized the content of the emerging Program; eventually CALFED would use them to present the program to the broader public. In the interim, however, the Steering Committee and CALFED used this as one method to summarize the concepts in the Program and to deliberate about them. As they sharpened their understanding of the program, the Steering Committee would try to capture that understanding through modifications in the presentations. Finally, when the product was ready, CALFED could use them in the public outreach meetings.

Roles

Many stakeholders credited a good part of the Steering Committee's success to one of the Technical Team members, Jack Keller. Jack Keller was on the Independent Review Panel on Agricultural Water Conservation Potential and was hired by CALFED to serve on the Core Team. He did much of the technical work to develop the methodology and specific quantifiable objectives as required by the Steering Committee. However, his role in the success of the

Steering Committee went beyond that technical work, as we see in the words of this environmental stakeholder.

I think Jack Keller was a key to the process. ... I think that we felt that people like Jack Keller—because we had such a high degree of confidence in him, that if he would say something then, okay, we could trust that, we could take that to the bank. ...

Why did you place so much trust in Jack Keller?

His twinkly eyes [laughs]. In the meetings he wouldn't say a great deal, but when he would, there was such an acknowledgement of what the environmentalists were trying to achieve. I think he had a recognition and an appreciation and a respect for our goals and he was, at the same time—because he's worked so long on agricultural water—was able to speak the language of the Ag representatives. He spoke in a way that didn't go over our heads.¹⁸⁰ [57.]

So we see here that Jack Keller was credited for both his impartiality and his ability to explain the science to the lay members of the Steering Committee. What was interesting about Jack Keller, this stakeholder says, was that he started as an agricultural water resources expert who was primarily well known in the agriculture community. However, he gained the trust of environmental stakeholders as well. This stakeholder was not sure why this was so, although he thinks it may have come about because Jack Keller maintained never tried to take a position on the program being developed. This environmental stakeholder also credited him for his careful listening and his apparent understanding of the environmental point of view as well as that of the Ag community.

It is also interesting to look at the different roles that Steering Committee participants played during the process. To get an idea of how roles were divided, let us follow the words of this environmental stakeholder as he describes what he thought were two of the key participants in the process.

¹⁸⁰ Interview with environmental stakeholder, Fall 2003.

[John] was able to be really creative at coming up with a new paradigm, a new conceptual framework. He was the guy that really more than anybody else readjusted the thinking, the whole idea of looking at the distinction between locally cost effective and regionally cost effective. He played a really key role as a creative thinker who, while clearly being somebody with a strong environmental bent, was somewhat non-partisan. I think he played a very important role.

I think [Jake], because he represented ... some of the folks who were most resistant to changes in agricultural water management. He was very interested [in finding a solution]. He played a very positive role in both being receptive to the kinds of directions that environmental groups and agencies wanted to go in and trying to think of ways in which that could be acceptable to the agricultural community.¹⁸¹ [58.]

Note that in talking about key people, this stakeholder has identified two different people and yet each person seems to have taken on a different role. The agency stakeholder he mentions seems to be taking the lead in putting forth creative ways to frame issues. The example this stakeholder revolves around the distinction between local cost effectiveness and regional cost effectiveness. Other members of the Steering Committee also credited this stakeholder with his creativity on this issue and on others. The diagram he concocted for depicting the differences between the two categories of cost effectiveness is one that sticks in the minds of many of the Steering Committee members refer to when they want to explain the division between the two levels of cost effectiveness.¹⁸²

The second stakeholder the interviewee mentions is an agricultural stakeholder who was representing a powerful water district that had proven quite difficult to influence in the past. This stakeholder, the interviewee said, was important in that he worked hard to find ways that a creative program might work with his constituents. He became an avid advocate not only for the eventual program but also for watershed approaches in general. Later on, he played a big role in

¹⁸¹ Interview with environmental stakeholder, Fall 2003.

¹⁸² I will return to this diagram later in my discussions of the boundary objects found in this process.

promoting the Program to agricultural stakeholders in parts of the Central Valley and in the follow-up dialogues held after the Record of Decision on Assurances.

Facilitation

Many stakeholders credited the facilitators for their role in setting the tone for the deliberations. Some of what the facilitation team did has already been discussed. They extensively used single texts to structure deliberations and to give stakeholders material with which to construct the Program. They also set out specific ground rules that created the space for stakeholders to explore new ideas without worrying about possible repercussions from counterparts. The facilitators also helped the group and CALFED structure the Independent Review Panel on Agricultural Water Conservation Potential that was instrumental in establishing the first elements of the new scientific paradigm for the Program.

Another key element of what the facilitators did was to model “good behaviour” in a way that inspired the Steering Committee members to follow suite. For example, consider the words of this next Steering Committee member.

For me, it [has] a great deal to do with respect. I think both of the facilitators would at times remind the rest of the group, “This is what [Tim] thought.” The magic of how they said that, “Here’s what [Tim] thought, because [Tim] is important.” That was an art. It was the art of both reminding the group of the point and [showing us] how to show respect to people.¹⁸³ [59.]

In this way and others, the facilitators helped the Steering Committee members discover how productive a dialogue could be if the members could listen and show respect to each other. The point that this stakeholder emphasizes is respect and active listening, but other stakeholders

¹⁸³ Interview with agricultural stakeholder, Fall 2002.

pointed to their insightful questioning as well. Stakeholders also noted that after a while they would find themselves listening better and asking the same kinds of questions of each other that might have been done by the facilitators previously, as the CALFED Program Manager describes in this next passage.

As the group became more familiar with one another, I think the group members rather than the facilitators would recognize when [somebody was venting] and the other members would give that person a lot of slack. Like, "this person is in a vent mode right now. We not only have to let them vent, we have to become active in trying to decipher what is going on there."

Sometimes, as the individual members got to know each other well, they would literally channel one another's position. For instance, an Ag person would say, "I hear what this Enviro is saying, and just to put it in different words, what this Enviro is saying is that you are not going to steal this water from the fish, because it's more important." Sometimes, when one person would become really strident or really appeared to be backed into a corner, you would see other people begin to do that to help them out.¹⁸⁴ [60.]

So we see that stakeholders started to recognize different situations and know what they ought to do in them. At the beginning, the facilitators may have done more of the interventions. However as the group progressed stakeholders often took on the role of handling difficult situations on their own by using the techniques that the facilitators had shown them. It also helped that they began to know each other's values and interests better as the process went along. They could show they had listened and that they understood. And then they knew how to look for solutions by asking questions and "deciphering what is going on there."

Some Steering Committee members also linked the facilitators' substantive knowledge to their ability to be effective in the deliberations. For example, this agricultural stakeholder is talking about how important that substantive knowledge was to him.

I thought it was always so neat how they could do better in their summaries than we participants could do in our original expression. I mean, I would frequently struggle with articulating a thought

¹⁸⁴ Interview with CALFED Program Manager, Fall 2003.

*only to have [Facilitator A] say it back a lot better than I had originally. It's a very high level communication skill, but it's [also] understanding enough of the water business to be able to understand some pretty complex issues and deal with them. I think because they gave credibility and we all didn't take them lightly.*¹⁸⁵ [61.]

It was clear to many of the Steering Committee members that the facilitators had done their “homework” and knew enough about the water management and environment issues that they could understand and work with the complexities emerging from the Program. In fact, he believed that only a facilitator that both has the communication skills and knows the substantive material could have succeeded in this case.

The facilitators said they gained much of their technical expertise through their extensive work in the Core Team as well. In fact, the facilitators were particularly mindful of their work with the Core Team and Program Manager outside of the group. They felt that their positive working relations with both the Program Manager and the Core Team were essential to their efforts to manage the process effectively. Besides the technical expertise that they no doubt got from some of these discussions, they also felt that their ability to think strategically with the Program Manager and Core Team about how to move the agenda process forward essential to the success of the Steering Committee.¹⁸⁶

¹⁸⁵ Interview with agricultural stakeholder, Fall 2002.

¹⁸⁶ In my discussions with the facilitators about their later work on two follow-up dialogues on Assurances and Appropriate Measurement that followed the Steering Committee, the facilitators did express a little cautionary note about their strategic planning. They worried in later processes that their ongoing strategic planning with CALFED staff might have had raised some issues about their impartiality. First, through their close cooperation with CALFED staff, they were worried about being influenced by that relationship. Second, they were worried about the perceptions of stakeholders who might worry about the closeness of CALFED and the facilitators in evaluating the impartiality of the facilitators.

What is fascinating here though, is that we see that each person seems to be credited with different actions. It is not so much that there are some leaders and then followers. Rather, people seem to take on different roles that help the group function well overall. Someone sets a good example of how to deliberate. Someone keeps the group on track. Someone helps maintain the emotional equilibrium in the group. And so on.

At the same time, there is something else going on when the facilitators participate. In this section, we see how they provide norms and examples to the Steering Committee members for how they might want to start acting towards one another and how they might want to treat the ideas that enter the discussion. For example, each idea is treated as something to work on, to clarify and redefine. Each idea is also treated with respect, and so are the people uttering and considering them. Through these actions, as well as the ground rules, mission statements, conflict assessments, program presentations, and other local objects that the facilitators produce, we can see how they provide stakeholders with the tools for creating a trading zone (words and concepts, procedures and norms, and local objects) that the group can talk about, mold, and choose as their own. Furthermore, we can see how important it is that the facilitators be more than impartial, but that they also care about the material on the table (through their own expertise as well as the thoughtfulness they use in creating products) and the people around it (through active listening and demonstrations of respect). Such dual attentions re-emphasize the unique nature of trading zones, local meaning and purpose amidst ongoing global disagreement and conflict.

Testing and Vetting the Program

As the Steering Committee started to come to agreement on the elements of a Program, it was decided that CALFED should present their work to the broader constituencies by convening regional meetings throughout the watershed. During the latter part of the summer of 1999, the Core Team and the Steering Committee worked on what CALFED's presentation at the regional meetings, which were held in September 1999. As the Program gained more focus and shape later on, CALFED also convened other public meetings in February and March, 2000.

These public outreach meetings and the effort the Steering Committee took to prepare for them raise another of the crucial dimensions of the Steering Committee's ability to cooperate, namely its ability to balance in-group creativity with its careful outreach to the different constituencies. CALFED had made some deliberate choices in convening the Focus Group and then the Steering Committee in order to encourage the creativity of the group in exploring new solutions. One of those choices was to keep the group small so that the dialogue could be more informal and focused on the material. Another was to restrict the access of other stakeholders to the dialogue. This brief excerpt from my interview with one of the facilitators gives some background of some of the representation issues.

The other thing we tried to do was be mindful of how we could get the ideas out to the larger constituency. We were very fortunate to have people at the table who ...had considerable stature and were able to float ideas [with other leaders in their constituencies] while they were still tentative, and then report their reactions back to the Steering Committee. Fairly quickly, with turnover of about a week.¹⁸⁷ [62.]

CALFED had chosen Steering Committee members for their standing in their constituencies.

Overall, the agricultural members of the group kept a few informants informed on a regular

¹⁸⁷ Interview with facilitator, Fall 2003.

basis. For example, one agricultural stakeholder told me that he had a small email list that he would send regular updates to. Another made discreet phone calls. Those key contacts included the boards of their individual water districts and maybe a few other key informants in the community with whom they felt they could test emerging ideas and programs. The regional liaisons on the Technical Team also were a route for testing ideas with the Ag community. On the other hand, the environmental representatives tended to inform their coalition at meetings of the Environmental Water Caucus.

When it did come time to make presentations to the broader communities, the Steering Committee, Technical Team, and CALFED staff would strategize about how best to make the presentations. Agricultural representatives would introduce the CALFED representatives and generally throw their support behind the idea. However, they let CALFED make the actual presentations and the ideas were attributed to CALFED. This was in keeping with the idea to reducing the attribution of new ideas to Steering Committee members in order to maintain room for creativity and exploration of new ideas. It was also important, for other reasons, as this next environmental stakeholder tell us,

I have not changed my outlook there, but I have confidence that the folks I worked with around the table will find a way to sell the process that we came up with. And that's why the environmentalists stay back. We know that we're skunks at a lawn party. Just by [our] being there, people won't listen. The messenger has to be right.¹⁸⁸ [63.]

So we see here some of the importance for creating a separation between the Steering Committee meetings and the public presentations of ideas. Relationships between the agricultural and environmental constituencies remained relatively hostile and unforgiving throughout the Steering

¹⁸⁸ Interview with environmental stakeholder, Fall 2003.

Committee's deliberations, those hostilities are still present today. Mistrust was so high, the Steering Committee members believed, that the mere presence of an environmental stakeholder at an outreach meeting to the agricultural communities would have stopped those stakeholders from listening to new ideas.

While the Steering Committee's meetings were not open to the broader public, Steering Committee members were always thinking about how the different ideas might play in their constituencies, as this next stakeholder explains.

*Oh yeah, we couldn't talk about what we did "outside of school," so to speak. Whatever you said in there remained in there, and we were all very good about respecting people's view. Again, we had people say, "I cannot say this publicly. I'll say it here but I can't say it publicly. Here's why I can't say it publicly. Now we have to figure out a way around it." ...So then, we thought: "If this is the perception out there, you can't take a frontal assault, and so what are we trying to achieve here? If this method doesn't work, is there another method that would work? ...Are there things that we can get to?"*¹⁸⁹ [64.]

First, the stakeholder mentions the ground rule that they all agreed to, in which the information coming out of the Focus Group and then Steering Committee would be limited to a few strategic people most of the time and to the broader public only at particular strategic moments when the group had a product to introduce. We also see here how careful, and daring, the stakeholder representatives were in exploring solutions. They always had to keep in mind what their peers might think of these ideas, but they also had to go beyond the initial starting points that their constituencies were working with. They explore new possibilities, and then see if and how those can be fit with their constituencies. They never forget the values and beliefs that they represent, but they also seek innovative ways to represent those in unexpected ways. Exploration, problem solving, and honest representation are being carefully balanced in these examples, with the

¹⁸⁹ Interview with environmental stakeholder, Fall 2003.

whole group helping each member to be true to their constituencies even as they help each other be creative as well.

When one of the Steering Committee members would say that a particular option or solution was unlikely to be acceptable to the community, the Steering Committee members would inquire into the reasons for that resistance to see what, if any, could be done to make the proposal acceptable. In shaping other possible solutions, the stakeholder describes, they would engage in a back-and-forth dialogue that would seek to improve the content of what was on the table by adding something, modifying something, or subtracting something. As members of the Steering Committee made suggestions, each member of the group would look at the next iteration of the product to see if that was better.

In this iterative trial-and-error way of improving proposals, the Steering Committee would develop a product that could be taken to constituencies. Each side was responsible for measuring the “value” of each iteration of the product. In this way, the improvement and optimization of the products was incompletely theorized. There was no graph or equation that they could use to determine the optimal outcome; instead everything was done through increments and separate but joint testing of the value of the modified product. Through the use of local objects and the conscious considerations of the likely reactions of constituencies, the Steering Committee members were able to craft a program that made sense locally and yet fit within the ongoing divergent values and beliefs of stakeholder groups outside the deliberations.

In talking about representation in this case, I do not want to minimize the risk that some of the representatives felt they were taking. In an earlier passage, an environmental representative described her worry that she might be giving away too much.¹⁹⁰ Similarly, agricultural representatives often worried about the same risks, as this next stakeholder describes.

I think we all lived in the constant fear that what we were agreeing to in those rooms might get us all hung when we went back to our constituents. Had they got out the lynch to hang me, I would have quickly said, "Don't nail me for whether or not this stuff gets implemented, I was only talking!" And that's true enough, but at the same time CALFED was intending to adopt whatever we produced. We knew there was pretty significant responsibility and we knew there were pretty significant risks in agreeing to those kinds of changes.

Why do you think in this case you were willing to take those risks?

At least, in my mind, what gave me the courage to do that was really the feeling that, "Hey, this is historic. This is getting us away from an old paradigm that hasn't worked to one that could work." That is really very powerful. To assess where you are at, and kind of feel like, "Hey, I'd really like something to come out of this work." ¹⁹¹ [65.]

As this stakeholder says, even with the steps that the Program took to separate the Steering Committee members from the every day scrutiny of the constituencies and the eventual content of the Program, there was still a real sense that constituents could punish Steering Committee members. What the group was considering was radically different from what had been considered in previous discussions, and so stakeholders on both sides worried at times whether or not they had gone too far. At the same time, however, they what they were putting together might accomplish something that some many other previous efforts had failed to produce.

In this section, we how mindful stakeholder representatives have to be if they are going to seek agreement with each other despite their ongoing and apparently irreconcilable differences. The Steering Committee members thought a lot about how to balance their explorations into new

¹⁹⁰ See quote [46.] on page 144 above.

¹⁹¹ Interview with agricultural stakeholder, Fall 2002.

territories with their faithful representation of constituencies. They also talked with each other a lot about this issue in their meetings, and strategically planned how they would bring ideas out to the public. Clearly, managing these tensions of representation is a significant part of enabling problem solving in these situations.

This tension is one that trading zone theory considers explicitly, but only in the abstract realm. Trading zones, as spaces of cooperation amidst diverse subcultures, allow for agreement because they attribute both site-specific and global meanings to the same words and concepts, objects, and procedures. However, trading zone theory does not tell us **how** the interacting representatives of these different groups create and maintain those different layers of meaning in the face of their communities differences. Put another way, trading zone theory as Galison proposed it does not consider the specific questions of how those global communities can be brought together without bringing their hostilities as well. Nor does it consider the question of how the local ideas, solutions, and Program can be presented to communities that are not only divided by their subcultures, but also by hostility and mistrust.

What we find in this example is that both reflection and information sharing were required. Individually, each representative was responsible for telling the other members when he or she thought an idea was crossing an impassable line. At the same time, the group was responsible for constructing an acceptable program that could be presented to each constituency. So we see here that the trading zone they created helped the Steering Committee here, but we also realize that this trading zone depended on stakeholders' individual and joint management of these tensions between creativity and ethical representation.

Furthermore, we see another interesting element of how the Steering Committee members improved their product in the face of their apparently irreconcilable differences. Instead of working with exact calculations and projections, they need to craft products iteratively in a back-and-forth trial and error method. At each step, the product is evaluated by the stakeholders to see if it is both acceptable and better than the previous product. Each stage of the product is also used by individual stakeholders as the foundation for the suggestions and modifications they propose as they seek to create a better product. From all these actions, we see a manifestation of Innes and Booher's (1999) bricolage, namely the exploration by parties that draws upon what is available to test out different possible scenarios in order to determine which one seems attractive. Such searching makes sense given the limits to how much parties can understand each other (Gurevitch, 1989) and given the tensions between creating locally meaningful programs and policies and appealing to divergent and conflicting stakeholder communities described by trading zone theory (Galison, 1997).

The Agricultural Water Management Council

After the first set of public outreach meetings, the Steering Committee began to more intensively address the role of the Agricultural Water Management Council in the proposed AgWUE Program. This topic was not a new one. Throughout the Focus Group and Steering Committee's deliberations, the Agricultural Water Management Council remained a source of contention. Although the Focus Group agreed in the Revised Phase II Report that the AWMC would have a role in the AgWUE Program, environmental stakeholders were still seriously concerned about the legitimacy and trustworthiness of the group. What was contended was not whether or not the

AWMC would have a role, but what role it would have. CALFED had always stated that they wanted the AWMC to be part of its work and the agricultural representatives naturally wanted the same, although the agricultural Steering Committee members were very careful to hear the concerns of their environmental counterparts.

In the end, the Steering Committee did agree on a role for the AWMC in the Program. In July 2001, the Water Use Efficiency Program and the AWMC officially signed an Agreement-in-Principle outlining the role of the AWMC in the Program. The terms of reference for the AWMC's role had been negotiated in the Steering Committee in the previous months and some Steering Committee members participated in the official negotiations. Later in December 2001, California's Department of Water Resources, the federal Bureau of Reclamation, and the Agricultural Water Management Council negotiated the *Cooperative Agreement*, which provided funding for the Council until 2004. Again, members of the Steering Committee participated in these negotiations as well. This agreement was the first major source of funding for its operations that the AWMC had received.

Boundaries

What is fascinating about this particular episode of the Steering Committee is how the Steering Committee negotiated its way through this controversial issue. To get a better initial understanding, let us start with this excerpt from an interview with an environmental Steering Committee member who had participated in the previous AB 3616 Advisory Committee dialogues that led to the creation of the Agricultural Water Management Council.

Except for [Environmental Organization A], there's not one environmental organization that's willing to join that council, in large part because the Enviros were steamrolled. [The co-Chairs of the AWMC] ...felt that the Council was the way to go. They kept shoehorning in: "We need to have the

Council.” Around the table, you’d see the four environmental representatives, our backbones would start getting stiffer and stiffer. Fortunately, the agricultural representatives around the table realized and accepted that we were uncomfortable with the process. They are members of it, and they probably think it’s going well, but they said, “No, this isn’t going to work for these environmentalists. We’re going down a path that isn’t going to work.” They wouldn’t let them steamroll us, or get us back to positional bargaining.¹⁹² [66.]

Earlier in this chapter, I discussed how important it was that Steering Committee members recognize and accept the boundaries imposed by each constituency’s positions and values. In the examples I provided, Steering Committee members would search for ways to craft a possible solution by feeling out the boundaries of what was possible through questioning and localized trial-and-error optimization. However, such efforts require that stakeholders accept the boundaries identified by their counterparts as real. The stakeholder above provides a poignant example in which one group accepts the reluctance of their counterparts with regards to one element of the proposed Program. And we see how important that becomes in the minds of this particular environmental stakeholder. Instead of putting pressure on the environmental representatives, which might have led to a return to hardened positional bargaining, the agricultural stakeholders de-emphasize the issue so that environmental stakeholders understand that they will have a significant say in what role if any the AWMC would play. By doing so, they made it possible for the Steering Committee to play a constructive role in the shaping the role of the AWMC and in arranging for its funding. This provides a poignant example of how the Steering Committee members carefully manage the tensions between what they are attempting to craft locally and the realities of the apparently irreconcilable differences among their communities globally.

¹⁹² Interview with environmental stakeholder, Fall 2003.

Ongoing Impasses: Assurances and appropriate measurement

As the deadline for CALFED's Record of Decision approached, the Steering Committee came to realize that there were two issues about which they would not be able to agree. The first of these issues was assurances. Assurances have always been a big issue with environmental stakeholders. They wanted some kinds of guarantees that agricultural stakeholders would make a good faith effort to implement the appropriate water use efficiency measures. For example, the AgWUE Program made distinctions between measures that were locally cost effective and those that were statewide cost effective. Environmental stakeholders wanted some provisions written into the Program that would trigger consequences if agricultural water users did not implement a sufficient amount of locally cost effective measures by certain dates. Agricultural stakeholders argued against such punitive measures, citing local conditions, problems of financing, and other issues. To address this issue in more depth, the Steering Committee convened a work team that developed a draft single text document, which I discussed earlier. However, at that time the Steering Committee did not feel it could take the issue any farther. Instead, they drafted into the Program a commitment by CALFED to convene a new dialogue on assurances after the Record of Decision. They also drafted some terms of references that would guide the convening of that dialogue.

The second contentious issue was appropriate measurement. This issue revolved around what level of measurement CALFED should require of agricultural water users participating in their program. To get a better sense of the debate around this issue, consider the words of this environmental stakeholder as she describes a typical discussion between the Ag and environmental representatives about appropriate measurement.

*[John, an agricultural representative] had said, “Okay, we understand why measurement is important. ... the sense we have is that [this is] measurement for measurement’s sake. This costs us a lot of money. We don’t think that measurement for measurement’s sake makes any sense whatsoever. We’re being very efficient.” We’d say, “How do you know you’re being efficient?” He’d say, “Here are the steps we’re taking at the non-farm level on measurement. I understand that we do need to measure but measure what and where?” Then he would have to give us some examples why what he was saying was valid. We could give him examples of places where Ag districts and farms became a lot more efficient because they were measuring [water use] on each field or each farm. Then, he would come back and say, “Yes, but this is why it was economically in their best interest in that area to do that. And over here, here’s why it’s not economically feasible.”*¹⁹³ [67.]

So we see here a probing unpacking and examination of each party’s understanding of the issue.

Environmentalists pushed for more measurement because they believe that investments in water measurement are directly linked to reduced water use. On the other hand, agricultural stakeholders argued that the current level of measurement was already sufficient given local conditions.

As the Steering Committee members talk about this issue, we also observe how the representatives start referring to specific examples. As they move towards more specifics, the group starts to see more about the reasoning of the other side. However, this was not enough for the Steering Committee to resolve this issue, as the environmental stakeholder explains as she continues.

*Boy, measurement is a tenet of our religion and to a certain extent, we had to say, “Okay, this is a big one. We can’t solve it completely here in the time we have and we are putting in the CALFED Record of Decision that there needs to be an objective group, including someone from the Steering Committee, that [is] going to look at this.” We have a commitment to “appropriate measurement”—guess how long it took us to come up with that phrase, “appropriate measurement”—and we’re working on that now in the same way we worked with the [Steering] Committee. That’s an example of the way we talked about these things, to try to get at a solution.*¹⁹⁴ [68.]

¹⁹³ Interview with environmental stakeholder, Fall 2003.

¹⁹⁴ Interview with environmental stakeholder, Fall 2003.

The Steering Committee decided that they could not resolve this issue in time for the Record of Decision. Instead, they put language into the Record of Decision by which CALFED would convene another independent scientific panel that would examine current measurement levels across agriculture water users and recommend what levels of measurement would be appropriate to achieve various goals. That group was convened after the Record of Decision, and was still continuing its deliberations when this research ended.

Both examples show how the Steering Committee managed its playing field and cooperated despite ongoing disagreement. Instead of fighting over issues that they could not resolve, the Steering Committee dealt with them in ways that all parties could accept. While not all stakeholders were happy with the delays in these aspects of the Program they had crafted was important enough to support despite these missing pieces.

However, this necessity to exclude some issues, along with our previous discussion about restricting access to the table, raises an issue that Galison's trading zone theory. In this case study we see that cooperation seem to only be possible by limiting who can participate and what issues they can talk about. Galison's conception was more focused on the difficulties of communication among participants and justification to their constituencies, although in that cooperation he also noted that sometimes scientists limited what they would talk about; however, in his cases, scientists reduced what they would talk about because some information was not necessary for cooperation. Here, we see that important issues had to be put aside so that the stakeholders could work on more tractable issues within the time allotted for their deliberations. However, we also see the willingness to come back to those issues, and to continue exploring

possible solutions. We also see that the group works on designing procedures for addressing those difficult issues, and so we see the possibility of an expanded or modified trading zone for those issues in the future.

Stakeholders in this case knew that there was no guarantee that they would find a resolution for these two issues. Committing to these next steps and procedures, however, was enough to maintain the validity of their local Program while respecting their ongoing global apparently irreconcilable disagreements.

Terminating the Steering Committee and the Record of Decision

In the final months of their deliberations, the AgWUE Steering Committee produced texts that were placed in several key program documents. The first of these documents was *California's Water Future: A Framework For Action* (CALFED, 2000) released in June 2000. Produced by the top policy-makers, this document outlined in very broad outlines the structure of the CALFED Bay-Delta Program that was emerging from CALFED's process, including a section on the AgWUE Program that was essentially written by the Steering Committee. This document also proposed 1.5 to 2 billion dollars be allocated from federal, state, and local sources for the Water Use Efficiency Program, including both the urban and agricultural programs.

The second document was CALFED's *Final Environmental Impact Statement/Environmental Impact Review*. That document included a more detailed description of the new AgWUE Program, including the use of quantifiable objectives, targeted benefits, flow paths, and incentives. Finally, in August 2000 CALFED released its Record of Decision. The text for the

AgWUE Program in both of these documents was largely written by the Steering Committee. The documents outlined the full Program for agricultural water use efficiency in CALFED that included quantifiable objectives, flow paths, and local and statewide cost effectiveness.

The Record of Decision also included a commitment by CALFED to:

- ❑ develop the full set of quantifiable objectives over the next year,
- ❑ develop an assurance package;
- ❑ convene a panel that would provide guidance on the appropriate measurement issues;
- ❑ use the Agricultural Water Management Council in implementing local cost efficient water use efficiency measures to achieve the quantifiable objectives.

LESSONS LEARNED IN CALIFORNIA

I will conclude this chapter by summarizing what we have learned about why stakeholders in the latter process, the Focus Group/Steering Committee, were able to cooperate despite their apparently irreconcilable differences, and not the stakeholders in the first process. I start by discussing what we have learned about the importance and role of trading zones, and then about what the lessons from this case tell us about the promise and limitations of trading zone theory as an explanation for cooperation in conflicts.

Terms and concepts

The BDAC WUE Work Group processes struggled with stakeholder disagreement and ambiguity about the meaning of key terms and concepts. At times, individual stakeholders would push for innovative definitions, however the WUE Work Group never specifically worked together as a group to establish a definition.¹⁹⁵ When the topic arose, it was usually with one party arguing for

¹⁹⁵ See, for example, quote [24.] on page 103.

a different definition and others arguing against it. The Steering Committee¹⁹⁶ also encountered ambiguity in meaning during its deliberations. However, the facilitators, and later the Steering Committee members, identified those ambiguities as they arose and carefully examined them to, first, capture some sense of how each party was defining the terms in question and, second, to forge a new definition that worked for all parties and made sense in the context of the program they were developing. So, for example, did they define water use efficiency in terms of quantifiable objectives and flow paths through watersheds. As the CALFED Program Manager described (see quote [55.] on page 167).

In some cases we literally invented new words, or new buzzwords I probably should say.

Suggested definitions were proposed by various parties (facilitators, Core Team members, work teams) and placed in draft single texts or other material forms such as graphs, spreadsheets, and PowerPoint presentations. Stakeholders would then examine the proposed definition and suggest modifications by altering the content of the single text or other medium. In this way, meaning was negotiated and represented in intermediate forms constructed by stakeholders.

Local objects

These single texts were one example of the importance of local objects in helping stakeholders cooperate in the Steering Committee. The use of draft texts is not an uncommon practice for many attempts at cooperation and, in fact, both the BDAC WUE Work Group and the Steering Committee used draft texts to try to structure their discussions. However, looking more carefully at how these draft texts were used by the two groups, we see a striking difference. In the Steering

¹⁹⁶ In this analysis I consider the Focus Group and Steering Committee the same entity and term them the Steering Committee.

Committee, the stakeholder representatives used these texts as raw material to talk about ideas, forge alternatives and to modify the program. Consider this analogy. Steering Committee members treated the draft texts, as well as the presentations, spreadsheets, and other objects they encountered, as if they were made of Lego. These texts could be taken apart, the pieces removed or reconfigured, and additional pieces added to make the next iteration of the product. As one stakeholder described it to us when talking about how the Steering Committee created the science for the Program (see quote [56.] on page 171):

[W]e literally had to invent the science behind this. ... [A]t the same time challenged the policy group to tell us, "Okay folks, you've got to keep grilling us until we're really sure we know why you don't like this." Then we would follow up with the challenge of, "Okay, now you've got to tell us the right way to present it."

On the other hand, in the Water Use Efficiency Work Group, only the CALFED Program Manager was able to play with the Lego pieces. Everyone else could only make comments upon static products that they saw irregularly. It does not seem surprising, then, that in the BDAC WUE Work Group some stakeholders felt compelled to introduce their own draft texts at some of the meetings. How else could they have some say on what the Lego pieces would be and how they fit together? As one Steering Committee member reminded us, being able to see and manipulate the architecture of the program was essential for stakeholder cooperation in the Steering Committee (see quote [54.] on page 164).

The facilitators took pains to always make sure that this brainstorming was occurring within the context of, and was captured in, a conceptual framework which made sense and which was understood and approved by the participants.

Procedures and norms

The Steering Committee also had procedures, norms, and habits for performing other necessary tasks for their deliberations. They discussed and established formal ground rules and a mission

statement. They developed ways of handling difficult moments. They created procedures for convening independent scientific panels and created work teams to tackle particularly thorny issues. They also learned ways to handle moments when one member needed to vent, as this Steering Committee describes (see quote [60.] on page 178):

Sometimes, when one person would become really strident or really appeared to be backed into a corner, you would see other people begin to do that to help them out.

On the other hand, we saw that the WUE Work Group had no agreed upon procedures or norms for dealing with hostile moments, apparent impasses, scientific disagreement, and other difficult situations that arose during their deliberations. For example, one participant in that group described how some stakeholders would pack certain meetings with additional people in order to influence the CALFED Program Manager (see quote [34.] on page 114):

...sometimes there were meetings where there were about 80 people showed up, with no distinction between who was at the table and who was sitting around the room, who got to talk, and what their responsibility was as a participant.

In looking at how the Steering Committee crafted and used words and concepts, procedures, and objects, we also observed how they carefully managed the tensions between what they believed and valued globally and what they were creating locally.

Beyond Galison's trading zones

In the case study, we also find out that something more is going on than just the creation of a trading zone as envisioned by Galison. I reduce those additional findings to four categories: willingness to cooperate, the role of third parties, the relationships that stakeholders form, and issues of representation. I explore each in turn below.

Willingness

Trading zone theory has no explanation for why stakeholders choose to start cooperating. In this case study, stakeholders were not sure if they could cooperate and whether they wanted to collaboratively construct a program. However, when Secretary of the Interior Babbitt tells them that they have to come up with the language for a Program or he will, they are faced with a hard choice, as described by the CALFED AgWUE Program Manager (see quote [43.] on page 137):

...The group said no, initially. They said, "If we do something it'll get misused. We've got to have time to go back to our broader stakeholder communities and vent these ideas." My response was, "Okay. I promised Secretary Babbitt that I would give him an answer by Tuesday. What's it going to be?"

Then they knuckled down and did something. ...That something is the foundation of the program we're implementing right now.

These stakeholder representatives were worried about the risks of agreeing to something without the permission of their communities, but they also recognized that there was a significant opportunity. Furthermore, stakeholders in the Water Use Efficiency Work Group had demanded more say into the Program development; now here was their choice.

Without this ultimatum, perhaps the group would never have actively sought consensus, choosing instead to stick to their original mission, in which they would have provided suggestions and advice to a Program developed by the Program Manager. What is important, however, for our understanding of trading zone's role in promoting cooperation among stakeholders with apparently irreconcilable differences is that there is another component to the equation. Trading zone theory speaks to stakeholders' **ability** to cooperate despite their apparently irreconcilable differences but not to their **willingness** to reach out, be creative and take risks in promoting alternative arrangements and solutions.

Instead, this is an area where consensus building theory is more informative, with its understandings of Best Alternative to a Negotiated Agreement (BATNA) and interests (Susskind and Cruikshank, 1987; Fisher and Ury, 1991). While stakeholders in this case did not always operate as depicted by rational decision-making, they did have to make very careful decisions about whether or not to continue participating. They were not always the easiest evaluations to make, but they were calculations being made throughout the process, as this environmental stakeholder reminds us (see quote [46.] on page 144):

...I am taking some information on faith, and there is such a need to come to agreement... Because it's so complicated, we can't see the end. We're trusting a process. ...Personally, I think I did it because this seemed to be the only venue in which we were making progress.

So from the experience of this case study, we start to see that the application of trading zone theory to water resource conflicts in which stakeholders have apparently irreconcilable differences needs to be supplemented by considerations of whether or not stakeholders are *willing* to cooperate. If they are not willing, then it is unlikely that they will form the necessary trading zone. Furthermore, these considerations suggest that the parties, facilitators, and conveners will have to do more than create new, local terms, procedures, and objects; they will also have to determine, and possibly generate the willingness among parties to strive together for a way to resolve the problems at hand.

Third parties

The important role of the Independent Review Panel on Agricultural Water Conservation Potential and the facilitators suggests another factor for cooperation that trading zone theory does

not account for, namely the role of third parties.¹⁹⁷ This panel suggested a new paradigm for relating water use efficiency measure and environmental goals that was instrumental in reframing the discussion among stakeholders and jumpstarting the new terms and concept that would populate the trading zone they created. What is particularly striking about the impact of the panel's suggestion is, however, that similar ideas had already been proposed during the Water Use Efficiency Work Group. So, why did the panel's ideas have such an impact?

The key seems to lie in two factors. First, even before the Focus Group began its deliberations, its members worked together to design the procedures and select the members of the Independent Review Panel. Furthermore, these same stakeholders also designed the questions to be put forward to the panel and were able to convince CALFED to hold an additional meeting, the Scoping Meeting, in which stakeholders and the panelists could talk about the questions and the panel's mission. It was in this unplanned for meeting that the panel first introduced its new ideas. So we see here that the ideas were coming from a source, the panel, that the stakeholders had a direct hand in shaping, both for its quality and impartiality.

Those characteristics of quality and impartiality continued through the auspices of Core Team, which included Jack Keller from the panel, the CALFED Program Manager, and the facilitators. As these parties, particularly Jack Keller, another expert, and the CALFED Program Manager worked on these ideas of quantifiable objectives, flow paths, and other elements of the developing Program, they were also able to earn the trust of stakeholders by their demonstrations

¹⁹⁷ See **A new scientific framework—first step to a trading zone** on page 132.

of impartiality and the quality of their work. For example, the impartiality of Jack Keller was earned by, as this stakeholder says, because (see quote [57.] on page 175):

In the meetings he wouldn't say a great deal, but when he would, there was such an acknowledgement of what the environmentalists were trying to achieve. I think he had a recognition and an appreciation and a respect for our goals and he was [also] able to speak the language of the Ag representatives. He spoke in a way that didn't go over our heads.

So we see here that Jack Keller demonstrated clearly his impartiality by his understanding of both sides' interests and values as well as by how he carefully handled the material and his input into the group. The Steering Committee's experience with this man showed us that there is something beyond the trading zones that needs to be considered when understanding what information and ideas get taken up by the group and how that information is handled. The qualities of the third-party scientists matter too, including impartiality, the ability to demonstrate respect for all parties, and the ability to take the ideas one is working on and make them accessible to people who not only differ according to expertise, but also across their apparently irreconcilable differences.

We also discover not surprisingly that facilitation plays a large role in this tale too. Sometimes, facilitation helps the parties create their trading zone through creating draft texts, presentations, meeting summaries, flow charts, and other draft objects. Facilitators also helped the Steering Committee develop their norms and habits for how they would interact with each other. They did so partly through creating formal ground rules and partly by modeling good active listening skills. Finally, Steering Committee members seem to be saying that respect matters too; for example, we recall the words of this member.¹⁹⁸

¹⁹⁸ See quote [59.] on page 177.

For me, it [has] a great deal to do with respect. The magic of how they said that, “Here’s what [John] thought, because [John] is important.”

Like Jack Keller above, the facilitators also take on a role as a loci for trying out, evaluating, and modifying ideas. As facilitators listen to the parties, they can test for understandings and reframe ideas in ways that make them more acceptable to all parties. For example, recall the words of this stakeholder:¹⁹⁹

I thought it was always so neat how they could do better in their summaries than we participants could do in our original expression. I mean, I would frequently struggle with articulating a thought only to have [Facilitator A] say it back a lot better than I had originally.

So we see here that the facilitators could take the ideas floating around and bring them back to the group in ways that enabled the members to see them as they are reflected in an intermediate source. When these facilitators summarized the ideas they had heard, Steering Committee members told me, they also had a way of putting the different ideas into a conceptual framework or architecture. In this way, the parties could see, for example, how individual ideas fit within the whole Program they were developing, or how their Program meshed with the other CALFED Programs. As one stakeholder explained earlier:²⁰⁰

...That was extremely useful because, very often, groups like these will come up with some good concepts which don’t necessarily survive as part of a coherent and congruent whole.

These different qualities of these different parties seem to encourage the development of trading zones. In part, this is through the impartiality of these players, where impartiality is not necessarily understood as neutral (e.g. not caring about the issues); instead it suggests here a

¹⁹⁹ See quote [61.] on page 179.

²⁰⁰ See quote [54.] on page 164.

partiality and commitment towards developing a good quality solution that all parties can support.

Once the stakeholders perceive them as impartial, the ideas and opinions from these players take on weight with each stakeholder community. As they act impartially, these third-parties act as loci for the modification, combination and testing of the disparate ideas that stakeholders bring to these processes. Their expertise matters in much the same way, once that expertise is approved by all the parties as legitimate. It mattered that the facilitators and Jack Keller was chosen in consultation with the stakeholders. The relationships they formed with the Steering Committee members and their respectful participation also helped to build their credibility as focal points for creating and testing ideas and solutions.

Looking at their participation from a trading zone perspective, we can see that these people become elements of trading zones in similar ways that the words, procedures, and objects do above. They become part of the trading zone landscape where terms, procedures, and objects can be created, explored, and local agreement can be explored while global differences are recognized.

Relationships

Finally, we also discovered that relationships played an important role in helping this group deal with the global tensions while crafting their agreement. As one of the facilitators summarized it for us earlier:²⁰¹

²⁰¹ See quote [53.] on page 161.

This was a group where people got along with each other and laughed a lot and joked with each other, gave each other shit. ...People were quite blunt about what their disagreements were, or their concerns, but they were not confrontational or personally directed in doing so.

In other words, as the participants developed relationships with each other, they found ways to talk about their differences in ways that were orientated towards problem solving rather than sparking confrontations. In other words, these relationships helped them seek agreement and disagree at the same time.

These relationships were improved as the Steering Committee members saw each other listen, ask questions, and show each other respect. However, the facilitators and the Steering Committee members also made deliberate efforts to improve these relationships away from the table as well. In the text above, for example, we heard one stakeholder talk about what many Steering Committee members called the infamous margarita party. When I asked him why this party was so important, he replied.²⁰²

[T]hat also made us all humans. Not just agricultural water users or water suppliers or stupid Enviros, it made us all human.

Why is that party something that people keep talking about?

I don't know. Perhaps, because at a certain level, we all became friends? It was more that we were just doing this job. I think for most of us it is more than just doing a job anyways.

So we see here how important these relationships were. This were issues that people cared about beyond just “doing a job.” Having relationships with the other parties added a local and integrative element to that passion beyond the job that served as one counterbalancing force to the passions of their differences.

²⁰² See quote [52.] on page 160.

In these and other ways, the relationships formed in the Steering Committee made the parties able to explore their differences more frankly and openly, and to be more willing to search for creative answers. It also allowed members to accept others' claims that boundaries were being crossed too, as we saw earlier in this section when I discussed how the group responded to venting.²⁰³

Looking at the impact of these relationships from the perspectives of trading zone theory, we can see that they helped the Steering Committee members create and maintain a trading zone because the parties were more willing to listen to each other, explore new ideas, tackle thorny issues. They are even willing to work with their counterparts to defend their values, at least as long as site-specific solutions can still be found. At the same time, the relationship seem to also become part of the trading zone, for in building relationships, parties seem to gain new norms and methods, through humour for example, of balancing the tensions between their problem solving at the table and their ongoing global differences.

Representation

The final thing we learn from this case about how stakeholders can cooperate and find agreements despite their apparently irreconcilable differences is that questions of how these groups manage the information flow between the negotiating table and their constituencies matter.

²⁰³ See page 197 above.

In convening the Steering Committee, CALFED made a very deliberate in change in how stakeholders were represented. The preceding BDAC WUE Work Group under the rules of the Federal Advisory Committee Act (FACA). Furthermore, the WUE Work Group did not have clear rules about the participation of non-members. Experience showed that many non-members also participated in the deliberations.

On the other hand, CALFED convened the AgWUE Steering Committee specifically so that its meetings were not open to public scrutiny. Instead, the Steering Committee established early on a ground rule that stated that its members would only share information with their immediate supervisors. The reason for this new approach was simply so that the Steering Committee members could explore some new ideas without fearing immediate retribution from their less open-minded peers.²⁰⁴

As we heard the Steering Committee members reflect about how they managed this issue of representation, we saw how mindful they were in pursuing an agreement amidst their ongoing apparently irreconcilable differences. As they sought practical solutions, Steering Committee members thought a lot about how to balance their explorations into new territories with their faithful representation of constituencies. They also talked with each other a lot about this issue in their meetings, and strategically planned how they would bring ideas out to the public. Clearly, managing these tensions of representation is a significant part of enabling problem solving in these situations.

²⁰⁴ See quotes [33.] on page 113 and [32.] on page 112 for two examples of this.

This tension is one that trading zone theory considers, but only in the abstract realm. Trading zones, as spaces of cooperation amidst diverse subcultures, allow for agreement because they attribute both site-specific and global meanings to the same words and concepts, objects, and procedures. However, trading zone theory does not tell us about the mechanics of **how** interacting representatives create and maintain those different layers of meaning in the face of their communities' differences. Put another way, trading zone theory as Galison proposed it does not consider the specific questions of how those global communities can be brought together without bringing their hostilities as well. Nor does trading zone theory consider the question of how the local ideas, solutions, and Program can be presented to communities that are not only divided by their subcultures, but also by hostility and mistrust. Finally, trading zone theory is silent about the risks these stakeholder representatives take when they make cooperative moves.

What we find in this case study is that conveners, facilitators, and stakeholders representatives need to carefully consider how they will create space for their negotiations and still ethically represent the values and beliefs of their constituencies. Only when they achieve this careful balancing, individually and as a group, can stakeholder representatives like the ones in the Steering Committee create the concepts, procedures, and objects that help them problem solving amidst for the apparently irreconcilable differences, rather than despite them.

Summary

Looking at what we have learned from this case, we discover that trading zone theory provides important explanations for why stakeholders were able to cooperate and find agreement in the Steering Committee, and why they were not able to do the same in the Water Use Efficiency

Work Group. When stakeholder representatives were able to create their own words, concepts, local objects, and procedures. Furthermore, we saw how these components were all linked together and how the trading zone created a space in which parties could agree about specifics even as they disagreed about general realities.

In addition, this case tells that Galison's trading zone theory needs to be supplemented by in several ways for it to be usefully as an explanation and guiding principle for cooperative problem solving amidst apparently irreconcilable differences. First, we saw that we need to consider questions about parties' willingness more carefully. When are they willing to negotiate despite their apparently irreconcilable differences? What can we do to encourage such collaboration? How can we increase that willingness over the course of the negotiations? What role can trading zones play in improving that willingness?

Second, we found that in this case that third parties played an important role in helping parties move forward despite their differences. Trading zone theory does not talk about what these parties can do, but we found in this case that these parties were essential for creating the trading zone in the Steering Committee. Facilitators and expert scientists became impartial sites where stakeholders could generate, consider, and modify ideas, concepts, procedures, and other elements of their trading zone and eventual solution. This case study suggests that third parties could join Galison's three elements as an essential component of trading zones when stakeholders have apparently irreconcilable differences. However, this possibility will be better explored after we have discussed the findings of the next case study in the next chapter.

Third, we saw that parties' relationships with each other also enabled problem solving despite ongoing apparently irreconcilable differences. These relationships helped the stakeholders in this case balance the tensions between their differences and their work at the table. They helped the parties be more open and frank about these differences and to more usefully probe into new ideas and the boundaries beyond which agreement was not possible. Again, trading zone theory has nothing to say about the importance of relationships, but we see in this case study that these relationships tell us more about when and how trading zones can be generated. In the next chapter, we will see if our findings support this initial claim.

Fourth, we discovered that how stakeholders represent their constituencies is crucial. The parties in the Steering Committee walked a fine line between the risks of exploring new ideas and the ethical requirements of faithfully representing their constituencies. Trading zone theory is all about creating that thin boundary between problem solving and respecting global differences, and so the findings in this case tell us that trading zone theory would have more to say about resolving disputes with apparently irreconcilable differences if it talked about the tensions in representation.

Finally, reflecting on these four findings that go beyond trading zone theory, I argue that each speaks to the question of how to create useful trading zones, rather than what are trading zones comprised of (e.g. words, concepts, procedures, local objects)? Trading zone theory does not say much about the acts, thoughts, and choices that encourage, or discourage, the creation of these fragile spaces of cooperation, and so the findings here may prove to be useful extensions of the

theory, should the usefulness of trading zones also be demonstrated in the next case,

Sustainability in the Everglades.

SUSTAINABILITY IN THE EVERGLADES

In this case study, I follow the recent history of efforts to manage the water flowing into and through the Everglades in the 1990s. The history is immediately preceded by a litigation in 1988 by the US Attorney in Miami against the Florida state government. In that litigation, which was supported by environmental groups, the US Attorney claimed that the state was not enforcing its own water quality standards and regulations. After 3 years of intense courtroom drama, the state government admitted that it was violating its own laws and asked for a stay in the proceedings so that it could settle the litigation with the federal parties. Following several months of negotiation, the state and federal parties to the suit crafted a Settlement Agreement that outlined a basic plan that the state would follow to address the problem.

That plan included plans to set aside some agricultural land belonging to the powerful Sugar industry for what were called Stormwater Treatment Areas (STAs), large artificial wetlands in which agricultural drainage water would sit so that phosphorous could be removed. The Sugar industry, which had not been included in the lawsuit and in the negotiations, soon filed a number of lawsuits and administrative challenges to block the implementation of the Settlement Agreement. Realizing that implementation of the plan would be delayed for many years without more support, the state and federal parties decided in 1993 to convene a mediation in which all stakeholders would be invited. That mediation met for a year. While it did not reach agreement, it did produce the Mediated Technical Plan and Statement of Principles. The Mediated Technical Plan was created by a technical working group comprised of representatives from all the various stakeholders; although it was not supported unanimously it did represent a significant agreement

about how to address phosphorous drainage. The Statement of Principles on the other hand was a preliminary agreement about how the costs of the project detailed in the Mediated Technical Plan would be distributed across the state, federal, and Sugar interests.

Both of these preliminary agreements would later become the foundations for a state legislative act called the Everglades Forever Act (EFA). While it was challenged in court by upset environmental and tribal groups, the EFA has been mostly been implemented successfully. Most of the STAs have been built and they are operating more efficiently than expected.

The state and federal governments realized by this time that phosphorous was not the only issue imperiling the Everglades. Water flows through the Everglades had been fundamentally altered by the Central and South Florida Project, which was constructed by the US Army Corps of Engineers in the 1950s and 1960s. These changes in flow quantity, distribution, and timing were, by all stakeholders' admissions, having a fundamental impact on the Everglades' health. Something needed to be done.

The federal agencies initiated two efforts to start looking at this problem. In 1992, the US Army Corps of Engineers began a planning process, called the Central and South Florida Project Comprehensive Review Study (Restudy), for a project that would alter the Central and South Florida Project so as to improve the water management in the Everglades. Second, the Department of Interior convened the South Florida Ecosystem Restoration Task Force (Task Force), an umbrella organization of 10 federal agencies with relevant jurisdiction related to water

management in the Everglades. The Task Force was to look at coordinating the agencies in producing the science necessary to restore the Everglades.

WHAT ARE THE EVERGLADES AND CONNECTED AREAS?

"They are, they have always been, one of the unique regions of the earth, remote, never wholly known. Nothing anywhere else is like them: their vast glittering openness, wider than the enormous visible round of the horizon, the racing free saltiness and sweetness of their massive winds, under the dazzling blue heights of space. They are unique also in the simplicity, the diversity, and the related harmony of the forms of life they enclose. The miracle of light pours over the green and brown expanse of saw grass and of water, shining and slow-moving below, the grass and water that is the central fact of the Everglades of Florida. It is a river of grass." Marjory Stoneman Douglas (1994) in the River of Grass.

The historic Everglades was a hydrologically connected, flat "river of grass." Covering 7500 square miles, the historic Everglades extended from Lake Okeechobee in the north to Florida Bay in the south. The Everglades contained a mosaic of habitats. The soils throughout much of the Everglades are peat soils resting on limestone bedrock. Water flows through the Everglades were dictated by seasonal rainfall patterns and pulses of overland flows that sweep across the extensive wetlands of the Everglades. The depth, timing and quantities of flow through the Everglades are dictated by subtle variations in the topography of the land. Overall, this hydrological system is critical to maintaining the Everglades' complex and dynamic ecosystems. The historical Everglades ecosystem also had few nutrients available for plant growth; thus, what traditionally thrived there were plants and animal species that were suited for those conditions. These species were also vulnerable to changes in nutrient conditions (Noe et al., 2001).

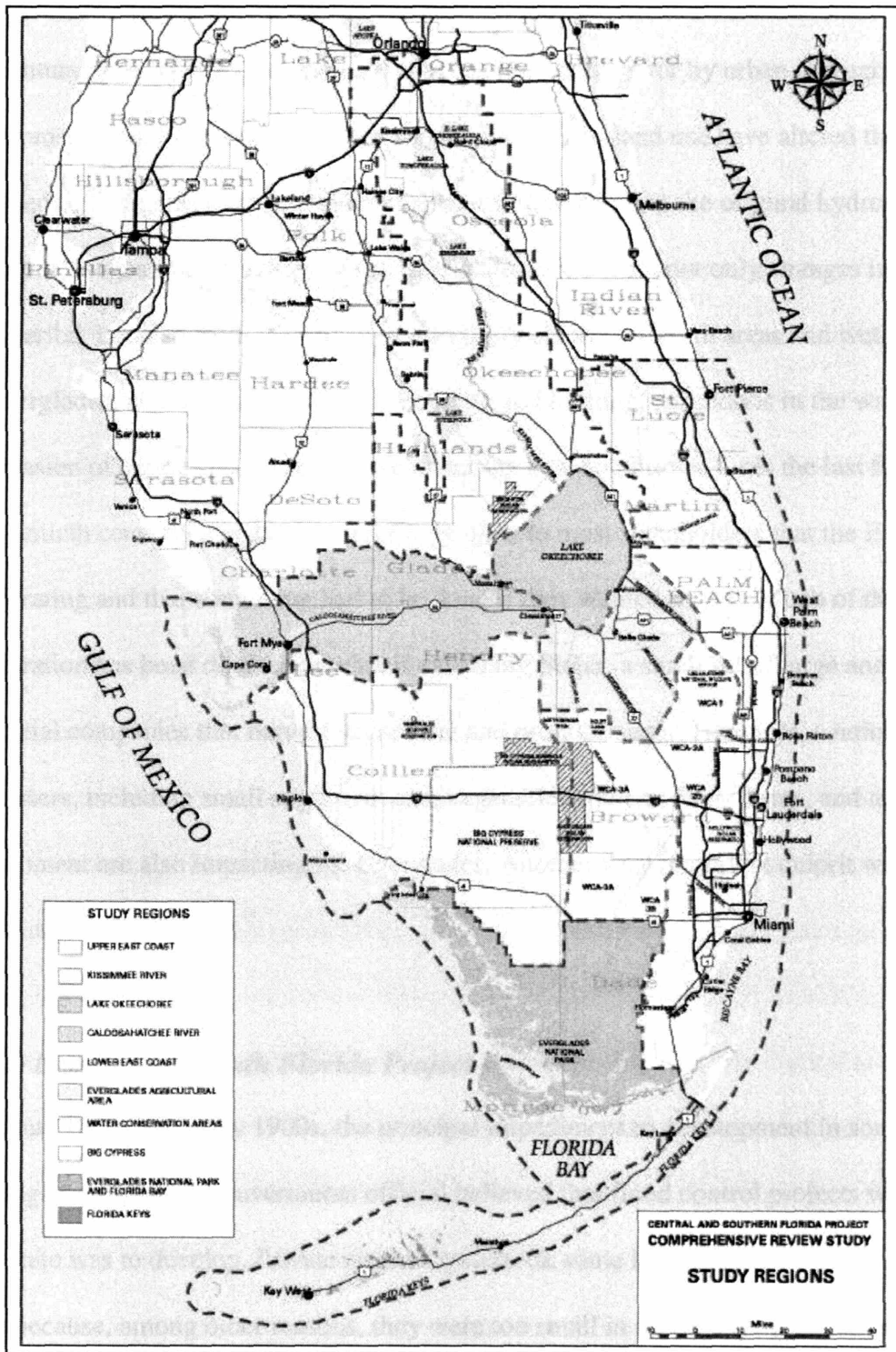


Figure 1: Regions in the Restudy Area²⁰⁵

²⁰⁵ Taken from Corps and SFWMD (1999)

Overall, of the original Everglades, about half of the area remained undeveloped over the last half-century. The other half of the land area has been taken over by urban and agricultural development. The loss of the land area and the changes in land use have altered the hydroperiod²⁰⁶ significantly and made it almost impossible that the original hydroperiod can be restored. Changes in the ecology of the Everglades come from not only changes in the hydroperiod, but also from the loss of connectivity among different areas and wetlands within the Everglades, changes in the cycle of flooding and burning, reductions in the water quality and the invasion of exotic species that thrive under the new conditions. Over the last few decades of the twentieth century, it became increasingly clear to most stakeholders that the Everglades was deteriorating and that something had to be done if they wanted save it. Much of the blame for the deterioration has been directed at what is called big Sugar, a small set of large and politically influential companies that harvest sugar cane and produce sugar. However, a number of other water users, including small sugar growers, vegetable growers, dairy farms, and urban development are also impacting the Everglades. Another very important culprit was the Central and South Florida Project.

The Central and South Florida Project

In the late 1800s and early 1900s, the principal impediment to development in south Florida was flooding. Residents and government official believed that flood control projects were necessary if the state was to develop. Private citizens undertook some initial drainage works but those failed because, among other reasons, they were too small in scope. A subsequent state project

²⁰⁶ The hydroperiod is a concept that incorporates several different hydrological factors, including the quantity of water that arrives at any point, the timing of that flow and the distribution of that flow over an area in question. Usually, the shape in the Everglades is measured by the depth of the flow at different points in selected areas at a particular point in time.

also failed due to its lack of sufficient scope. As a result, the State of Florida and the federal government, through the US Army Corps of Engineers, decided to work together to fundamentally change the hydrologic conditions of the Everglades.

This partnership worked together to design and implement the Central and South Florida Project (C&SF Project) in order to enable Florida's economic development by controlling flooding.

When they did so, they did not understand, nor truly care, what impact they would have on the Everglades ecosystem.

The changes made to the natural system were dramatic. Rivers were altered to quicken the flow through the Everglades and reduce flooding. Much of the water that used to flow south through the Everglades was diverted into the sea on both sides of the Florida peninsula. By draining the wetlands south of Lake Okeechobee, the Central and South Florida Project created a 700,000 acre agricultural region called the Everglades Agricultural Area (EAA); in other areas the C&SF Project drained wetlands for other urban and agricultural development. Central portions of the Everglades were altered to create the Water Conservation Areas, which would store water for human use and for releases to the Everglades National Park (Park). The Park was set aside for preservation and consisted of the southern third of the original Everglades. Finally, the construction of highways across the Everglades also resulted in significant changes in how water flowed through the Everglades by serving as dams that restrict and alter the characteristics of water flow through the Everglades.

These changes and their impacts rallied opposition from environmental groups who found allies in the staff of the Everglades National Park and Loxahatchee National Wildlife Refuge, two federal national parks. At first, efforts to change water flows and reduce development were unsuccessful. However, in 1970 Congress passed legislation that guaranteed a minimum flow of water into the Everglades National Park. At the same time that this was happening, environmental groups managed to stop two proposed development projects in the Everglades: the Cross-Barge Canal and the Big Cypress jetport. The combined actions of the Everglades National Park and environmentalists encouraged Congress to transfer the C&SF Project to the state of Florida in the Water Resources Act of 1972 (WRDA 1972). The state created the South Florida Water Management District (SFWMD) to manage the project. In addition to the C&SF Project's mandate to manage water flows through the C&SF Project, the SFWMD was also put in charge of guarding and promoting water quality in the region.

In 1983, Governor Bob Graham of Florida announced the "Save Our Everglades" initiative. The Save Our Everglades initiative made an explicit connection between human health and ecosystem quality. The initiative was run solely by the state and its proponents say that it recorded some early successes.²⁰⁷ The Save Our Everglades remained as Florida's guiding program for restoring the Everglades until 1999. The Save Our Everglades encouraged other

²⁰⁷ Some of those early successes include: (a) the commencement of the restoration of the Kissimmee River; (b) the increase of important park and refuge areas, including the Big Cypress National Preserve, the acquisition of the Florida Panther Wildlife Refuge, and the ENP; and (c) the implementation of hydrologic improvements of "Alligator Alley," a major highway crossing the Everglades, to increase the amount of water flow through the highway.

Highways that cut through the Everglades had a dramatic impact on Everglades' hydrology because they concentrated the Everglades' traditional sheet flow (because the flow could only pass through culverts under the highway), reduced its magnitude (because the culverts tended to be too far apart), and altered the timing of the flow.

stakeholders to get involved in Everglades restoration, including the federal government who would create their own program to address the problems caused by the C&SF Project in the early 1990's. At the same time, Governor Graham met with several national and state environmental organizations to encourage them to create some kind of coalition through which they coordinate their response to the Everglades restoration. The organizations agreed and formed what is now called the Everglades Coalition. The membership of the Everglades Coalition would quickly grow to 250,000.

US vs. South Florida Water Management District

However, not all stakeholders perceived the Save Our Everglades program as being sufficient to preserve and restore the Everglades. In 1988, with encouragement from environmentalists, acting US Attorney General Dexter Lehtinen²⁰⁸ filed a lawsuit against the South Florida Water Management District (SFWMD) alleging that the district was violating its own state water quality standards by allowing elevated amounts of phosphorous to enter the Everglades National Park. The plaintiffs further argued that the high levels of phosphorous in the water were acting as a nutrient that encouraged the growth of non-native plants that were in turn displacing native plants that would otherwise thrive in the normal low-nutrient state of the Everglades. As evidence, Dexter Lehtinen and his allies cited the rapid growth of cattails as one example of the displacement of native plants.

Stakeholders from each the environmental and sugar communities quickly sought to intervene in the lawsuit. The environmental community was able to intervene right from the beginning.

²⁰⁸ Throughout the lawsuit, Dexter Lehtinen was never confirmed by Congress as the US Attorney for Florida.

Dexter Lehtinen's other allies in the lawsuit included the superintendents of the Everglades National Park and the Loxahatchee National Wildlife Refuge and, perhaps less willingly at first, the Department of Justice staff in Washington and the US Army Corps of Engineers. Congress remained largely uninvolved until later under the Clinton Administration. The direct defendants of the lawsuit included the South Florida Water Management District and the Department of Environmental Regulation. The sugar industry was indirectly allied at the time with the state government and tried to gain intervener status. They were initially denied but were able to gain intervener rights, under the aegis of a broad agricultural coalition in an appellate court two days before the state and federal parties submitted their Settlement Agreement to the court.

Almost as soon as the lawsuit was filed, most of the state and federal parties stated publicly that they wished to avoid an expensive and lengthy trial.²⁰⁹ Several early attempts were made to initiate settlement negotiations, but none gained significant momentum. As the trial dragged out over the years, relationships among many of the state and federal parties, which had been generally good until this point, worsened significantly.²¹⁰ For example, many of the state and federal scientists came to feel that the aggressive depositions by the other side's lawyers were personal attacks.

As the litigation continued, environmentalists took advantage of the lawsuit's publicity to promote their cause. They were particularly effective at gaining public support by telling a simple causal story: there was something wrong with the Everglades, and "big Sugar" was

²⁰⁹ John (1994).

²¹⁰ This was mentioned by every state and federal stakeholder in interviews.

responsible because it was carelessly dumping phosphorous into the waters entering into the Everglades National Park. This story was compelling to the media, especially since the Sugar industry had already earned itself a reputation as a villain. Sugar was making significant profits, in part due to significant government subsidies of the industry.²¹¹ The industry had in the past also been caught exploiting many of its workers.²¹²

The sugar industry also launched an aggressive public campaign. Sugar argued for alternative explanations for the deterioration of the Everglades National Park, emphasizing natural and hydrologic reasons for the changes. When the consensus started to grow that high phosphorous levels in the water entering the Everglades were indeed causing problems, Sugar marshaled its own scientific evidence to demonstrate that it was not the primary source of the phosphorous entering the Everglades National Park.²¹³ Different sugar companies also hired experts to show that they were a relatively benign industry in terms of phosphorous pollution.²¹⁴ One low point in the dispute occurred when one of these experts was arrested for taking water samples without a federal lawyer present, a requirement that had been imposed by the courts.²¹⁵

After three years of intense legal and public relations battles, the relationships among stakeholders had become extremely polarized. Parties wanted to settle the suit, but were afraid of

²¹¹ For example, in 1991, 51 farms derived more than \$ 500,000 each in program benefits, and one Florida farm reaped more than \$ 30 million. Gifford (1994)

²¹² Wilkinson (1989) and John (1994)

²¹³ Layzer (2002).

²¹⁴ For example, the crops do not need to replanted every year and they use relatively little fertilizer when compared to other agricultural crops (John, 1994; Interviews with stakeholders).

²¹⁵ Interview with mediator, Fall 2004.

letting down their guard in case the other side took that first step as a sign of weakness or used any of the information in the court.

Laying down the sword

After several years of impasse and depositions, the litigation became an election issue in the Florida Governor's race. Lawton Chiles vowed that he would find a way to settle the lawsuit and won the election. In early 1991, Florida passed the Marjory Stoneman Douglas Act²¹⁶, which settled several of the ongoing issues in the lawsuit.²¹⁷ Shortly after the Marjory Stoneman Douglas Act was passed, Governor Chiles appeared in federal court and made what became his famous offer to "surrender his sword." He offered to stipulate that the water was indeed "dirty," a stipulation that the state had been fighting since the beginning of the lawsuit. He then asked the Judge for several months so that the state and federal parties to the lawsuit could seek a settlement. The judge agreed and the parties started the Settlement Negotiations.

As a first step, the negotiators decided that they needed to get clarity on the scientific issues so they convened a group of state and federal experts to give guidance on a technical settlement. In the litigation's discovery process, scientists on both sides were told by their lawyers not to reveal their methodology. That legal caution continued into the scientific group's work. This often made the deliberations among the scientists difficult because they could not explore each other's procedures for generating the facts and analyses behind their positions. However, after several

²¹⁶ Marjory Stoneman Douglas, Everglades Protection Act, F. S. 373-4592.

²¹⁷ For example, it set numerical water quality standards for the water being pumped from the EAA and ordered the SFWMD to bring itself into compliance with applicable water quality standards. It also ordered the SFWMD to restore the Everglades natural hydroperiod. This second part was the first move away from the litigation's focus on water quality issues, as opposed to water quality issues around the quantity, timing, and location of flows, as captured by the concept of "hydroperiod."

months of deliberations the scientific group was able to reach agreement on a technical settlement. The technical settlement included recommended numerical standards for phosphorous²¹⁸ for the Everglades National Park and the Loxahatchee National Wildlife Refuge and a proposal for the construction of a set of Stormwater Treatment Areas (STAs) covering 34,700 acres of land from the EAA. They also recommended that the Sugar growers in the EAA should be required to implement best management practices to reduce the phosphorous coming off their lands.

With a technical solution in hand and the Marjory Stoneman Douglas Act passed, the federal and state principals began their negotiations in earnest. By July 1991, the state and federal parties to the lawsuit submitted a settlement agreement to the federal district court for its approval, which approved the settlement in early 1992 after a careful review and multiple attempts at intervention by Sugar lawyers. In addition to the Stormwater Treatment Areas, the Settlement Agreement also required sugar growers in the Everglades Agricultural Area to: (a) adopt best management practices on their farms to help reduce phosphorus levels; (b) obtain permits from the state to discharge water; (c) monitor water quality, and (d) possibly incur certain costs in meeting these requirements.²¹⁹

Two days before the state and federal parties submitted the Settlement Agreement, Sugar finally gained intervener status in the litigations. Using that status, they quickly launched a series of

²¹⁸ The standards would start at 50 parts per billion (ppb) with the understanding that they would be lowered to 10 ppb in a second stage. Sugar in its public relations has argued that this is cleaner than rainwater.

²¹⁹ GAO (1996). *Restoring the Everglades: Public Participation in Federal Efforts*. Washington, DC: General Accounting Office, US Congress.

appeals against the settlement arguing that the agreement's scientific merits were faulty and that they should be allowed access to the scientific documents used in its conception.²²⁰ If allowed to present evidence, as this sugar stakeholder explains, they were convinced they could win.

*"You had this legacy of all these federal experts saying in the same areas where, for the purposes of the litigation that all the damage was from phosphorous. The preceding 30 years of testimony in these proceedings would be unequivocal: the problem was not phosphorous but the lack of water. ...Phosphorous plays a role but by far 75, 80, or 90% of these problems are hydrologic. They are not related to phosphorous at all. We knew that if it really got down to really determining the real damage caused by farm operations compared to other things, we were in good shape."*²²¹ [69.]

Ruling on these appeals, the court ruled that Settlement Agreement would have to be implemented under Florida's administrative process, which would allow stakeholders like Sugar to petition for evidentiary hearings before an impartial hearing officer to dispute scientific facts and analyses. With that verdict, the parties' dispute changed forums to the state administrative process. Once the state released its new SWIM plan to implement the Settlement Agreement,²²² the sugar industry initiated over 30 lawsuits and administrative challenges opposing the plan. The state continued in its efforts to implement the plan while these challenges were being adjudicated, but it became increasingly clear that not much progress would be made until the some kind of settlement was reached with Sugar stakeholders. With this in mind, state and federal parties agreed to convene a mediation and a mediator was hired in December 1992.²²³

²²⁰ In more detail, they contested two main points: (a) the analysis done to determine the numerical standard for phosphorous and (b) the evidence behind the claims that phosphorous in the drainage waters from the Everglades Agricultural Area was polluting the Everglades. They wanted to conduct an evidentiary hearing in which they could present evidence that they said would cast doubt on federal position and on the effectiveness of the proposed Stormwater Treatment Areas.

²²¹ Interview with Sugar stakeholder, Fall 2004.

²²² They released a Surface Water Improvement And Management (SWIM) plan as dictated by the Surface Water Improvement and Management Act (Sections 373.451 - 373.4595, Florida Statutes) and the Marjory Stoneman Douglas Act. SWIM plans.

²²³ Gerald Cormick was the mediator selected.

Ongoing and apparently irreconcilable differences

There were multiple dimensions of tough relationships among the various stakeholders in this conflict. Perhaps the most volatile relationship was among the environmental and what were known as the big Sugar (Sugar) stakeholders. Much of the sugar production in the EAA is owned by three large entities: US Sugar, Flo-Sun, and the Sugar Growers Cooperative. Since earlier in the century, Sugar has gathered significant political clout. Much of the early work done to create the EAA was geared towards supporting a Sugar industry there, as this state stakeholder describes:

*The biggest frustrating part of the history was that the Corps and Congress built the Central and South Florida Project for the express purpose of putting agriculture where the Sugar industry was. In fact, they expected it to be sugar because that was the most viable crop. ... When the [Central and South Florida Project] was built, water quality in the Everglades was identified as an issue and it was one that the federal government felt was acceptable. So the industry is portrayed as the bad guys but they were really doing what they were supposed to be doing. They got caught by [society's] changing values. People started valuing the Everglades much more than they had before and they started understanding the water quality problems and they turned out to be more serious problems than what people had identified earlier on. But there wasn't any deception or inappropriate conduct by anybody.*²²⁴ [70.]

It was very frustrating for many of the Sugar stakeholders, as the state stakeholder tells us above, because everything that they had done until recently had been supported by the federal and state governments as something desirable for the state. When stakeholders seemed to turn on them, many Sugar stakeholders felt bitter because they were now blamed, and being asked to pay for, something that had been earlier encouraged by some of the same stakeholders.

Another issue dear to Sugar's heart was the issue of land purchasing. Most of the different options for restoring the Everglades that have been contemplated and discussed include option

²²⁴ Interview with state official, Fall 2004.

for purchasing land from Sugar to support other purposes. For example, the US vs. SFWMD settlement's Stormwater Treatment Areas were to be constructed from land taken from various sugar producers. These losses of land were difficult for the Sugar industry to swallow, even when they were compensated. To understand why, consider the words of this environmental stakeholder:

[Y]ou have understood the whole way the [sugar] mill²²⁵ works. The sugar industry is not about growing sugar, it's about milling sugar. The mill is the company store. There's the Fanjuls, U.S. Sugar and the Co-Op, and that mill controls prices. That mill is what makes money. You have different land, different people, different economics, different costs—but the whole thing is not about that. The whole thing is about keeping that mill running 24 hours per day for 6 months out of a year. The mill is the controlling economic factor.²²⁶ [71.]

So what this environmental stakeholder is telling us is that the profitability and viability of the Sugar industry is directly proportional to the productivity of their sugar mills. So, if land is taken away, then that sugar mill will not be operating at full capacity, which means not only reduced profits but also lost jobs and other impacts that hit the entire community.

Another aspect of Sugar's resistance to giving up land comes from the history of some of the growers. One of the big companies, Flo-Sun was founded by a family of Sugar growers who had to flee Cuba when Castro took over, as this state stakeholder tells us:

As [one of the spokesman for Flo-Sun] said, they had already had their land appropriated by Castro and they didn't want to go through that again. So that's their visceral reaction.²²⁷ [72.]

Beyond the specter of losing land to the restoration of the Everglades, the Sugar industry was also facing serious financial threats from attacks by the environmentalists. During the 1990's, the

²²⁵ A sugar mill takes raw sugar and transforms it into the sugar we commonly use and eat in our homes.

²²⁶ Interview with environmental stakeholder, Fall 2003.

²²⁷ Gifford (1994).

environmentalists launched two initiatives in which they tried to get a tax imposed upon the Sugar industry to pay for the Everglades' restoration. These initiatives are generally referred to as the "penny-per-pound" initiatives. Essentially, the environmentalists tried to get the state to impose a tax of one cent per pound of Sugar produced, with the funds to be set aside to pay for restoration. Part of the problem that Sugar had with this tax, beyond the hefty reductions in their profits, was that the environmentalists' efforts seemed to be aimed at pushing Sugar out of the Everglades altogether. That feeling was reinforced by the environmentalists insistence that Sugar should have to give up more of its land for Everglades restoration projects as well as pay more money.

On the other side, environmental stakeholders were very concerned about the state of the Everglades. It was clear that the ecosystem as a whole was degrading. Cattails were replacing the natural vegetation in much of the areas. Wading bird and other animal populations were declining rapidly. To understand why there were so opposed to Sugar however, it is useful to look at the words in this following excerpt from the Washington Post.

*"Cane itself is not the worst thing that could happen there, as far as choosing among crops," concedes Jim Webb, regional director of the Wilderness Society. "But it is what happens there." The problem is not the sugar itself, but the fact that it occupies 435,000 acres between the lake and the swamp, a horizon-to-horizon monoculture replacing a diverse community of life. The fields, and the network of dikes and pumps that protect them, have completely disrupted the normal flow of water through the Everglades. The natural, if inconvenient, cycles of flood and drought have been replaced by regular irrigation. A water table that once fluctuated with rainfall is now managed to suit the growers' needs, a task that demands ever greater expense and effort by the South Florida Water Management District, the agency in charge of the Corps-built waterworks.*²²⁸ [73.]

In other words, many environmentalists recognized that sugar as a crop was relatively benign, especially when compared to vegetable, dairy, and urban uses. Instead, what we see here is that

²²⁸ Interview with state stakeholder, Fall 2003.

the environmentalists prime concern was the changes made to the natural system of flooding and seasonal flows by the need to manage water for the Sugar industry. Ironically, while the litigation was driven by stakeholders' concerns about the impact of phosphorous on the downstream ecosystems, in fact most people agreed that it was the disruption to the hydroperiod that was the prime source of ecosystem degradation. The fuss over phosphorous was, then a way to start opening up the entire system of water management to scrutiny.

Another issue that angered many environmentalists, and other water using stakeholders for that matter, was the subsidization of the Sugar industry. In 1991, for example, the General Accounting Office of Congress estimated that 51 farms received over \$500,000 in subsidies each, with one farm receiving over \$30 million dollars.²²⁹ Environmental and urban stakeholders did not want to see Sugar subsidized again when it came to pay for restoring the Everglades; they wanted Sugar to pick up the full tab. Failing that, they wanted to set the price tag as high as possible. If Sugar could not pay and had to leave, many environmentalists would have been pleased.

Finally, many environmentalists were also concerned with the types of solutions that were often being proposed to fix the Everglades. They felt that most of these solutions continued to rely on an "engineering paradigm" that would only reinforce the status quo of human needs over environmental ones; as well, they argued that such methods required ongoing management which more "natural" methods would not. Besides, if the purpose was to restore the Everglades, shouldn't it that new Everglades be more like it was before humans intervened?

²²⁹ Gifford (1994).

If the relationships between the Sugar and environmental communities was always difficult, the litigation soured many of the relationships among the state and federal agencies. For example, consider the following words from the following facilitator who participated in several stages of this case study.

*[I]n the '92-'93 phase, ...all of the [South Florida Water Management District] scientists were being deposed virtually every day. They weren't even close to a trial date being set. They probably had another couple of years of discovery before they'd come to that point. Every day this discovery process was going, it was a battering ram for the people involved. They were just getting hammered on this. So there was a real tension; a lot of people felt often personally attacked by others on the other side. The drama was being played out on the stage, at such a profile that everything required a reaction or response that ratcheted up one more notch. There was a sense that this thing was spinning out of control.*²³⁰ [74.]

As the litigation continued beyond the original Settlement Negotiations, federal and state scientists, who had been friendly before, were regularly and aggressively deposed by lawyers from the other side. Many of the scientists walked away from those experiences feeling like they had been personally attacked, a phenomena that is not uncommon in these settings (Jasanoff 1990, 1995). Also, during the Settlement Negotiations the scientists were never allowed to divulge information about their methodologies and assumptions. Instead, the state and federal experts could only state their positions when talking with each other about what the appropriate phosphorous loading should be.

Finally, many in the state government were angry over the federal lawsuit. Until that lawsuit, the federal government had not played much of a role in thinking or implementing programs to restore the Everglades. To have them come in and attack the state efforts without contributing

²³⁰ Interview with facilitator, Fall 2003.

any resources to the problem solving seemed unfair to the state stakeholders, as one describes here.

*The first phase before the mediation was very difficult for the state. The federal government really didn't show much attention to the Everglades because it was always a state initiative to restore the Everglades. To have a federal lawsuit challenging the state's commitment to the Everglades was a very bitter experience.*²³¹ [75.]

EVERGLADES MEDIATION

The mediator started the process by meeting all the stakeholders—including not only the state and federal agencies but also environmental, tribal, and sugar and other agricultural interests. From those interviews, he identified several important areas of agreement and disagreement among stakeholders about the issues and determined that parties were generally positive, although cautious, about participating in a more inclusive process.

The various stakeholders seem to agree that the settlement was not sufficient to save the Everglades; something needed to be done about water flows as well as water quality. Most parties also agreed that they would rather not continue their battles in court. Even a “victory,” many realized, might be detrimental because of the time and effort it would take away from dealing with the problems of the whole system. For example, would it benefit sugar to win a victory that reduced their financial obligations with regards to phosphorous if at the same time they lost access to water supply as disgruntled urban water users gained political power?²³² In

²³¹ Interview with state official, Fall 2004.

²³² In fact, this concern was raised by some of the Sugar stakeholders I talked to in interviews. This fear was also a major reason why Sugar participated in the subsequent Governor's Commission for a Sustainable South Florida.

addition, there was considerable uncertainty about who might win the litigation and how long it would take. From these interviews, the mediator convinced the settlement parties to open the mediation to all interested parties.²³³

An initial vision—Saving the Everglades

The mediation started with meetings among the principals to define a general scope for the issues that the mediation would tackle. The parties agreed here to include a broader array of issues that were appropriate to a discussion about the preservation and restoration of the Everglades' health. With regards to expanding the set of substantive issues, all the parties seemed to agree that removing phosphorous from the water entering the Everglades National Park would not be sufficient to save the Park nor the Everglades system as a whole. Problems in these areas were also being caused by changes to hydroperiod—the timing, quantity, and “shape”²³⁴ of the water flow through the Everglades—imposed by water control projects such as the Central and South Florida Project.

The parties also agreed that the geographical area covered by the Settlement Agreement did not include all of the relevant areas—neither all the areas contributing to the problem nor all the areas being impacted—that should be addressed if the health of the Everglades was going to be addressed effectively. So, for example, the parties recognized that the Everglades National Park (Park) and the Loxahatchee National Wildlife Refuge (Refuge) were only a small part of the

²³³ Other small agricultural producers were also invited to the mediation, but chose not to participate.

²³⁴ The shape of the flow relates to how much of the flow is “sheet” flow—flowing overland as a flood—versus channeled flow—concentrated flows through rivers, canals, and pipes. In other words, not only is it important to achieve certain quantities of flows at different points of the watershed at certain points in time, but it is also simultaneously important how that flow is distributed across the landscape of the Everglades and how deep it is.

important ecosystems under threat. There was also significant land in between the Park and Refuge areas that also was part of the overall ecosystem that supported much of the biological function of the Everglades and which was being impacted by man made water management. In addition, there were multiple areas upstream that were not only introducing phosphorous to the watershed but also altering the hydroperiod. For example, there is a significant dairy farm industry north of Lake Okeechobee that contributes phosphorous to the watershed. Similarly, by damming Lake Okeechobee, the Corps through the C&SF Project had fundamentally altered the hydroperiod of the water flowing through the Everglades to the south.

So the mediation took two important initial steps. First, they moved the question they were addressing from the legal one, namely about phosphorous and the health of the Everglades National Park and Loxahatchee National Wildlife Refuge, to a broader policy question about how the Everglades might be best “restored”. This allowed the parties to consider questions and areas outside the scope of the litigation to see if there might be solutions that made sense to all parties that addressed the overall health of the Everglades and the bays into which its water drained. It also allowed for the inclusion of at least some consideration of hydroperiod concerns in addition to the current questions over phosphorous. So in this way, it provided a framework for future discussions and negotiations with which all parties felt at least somewhat comfortable.

Second, parties in these initial discussions spelled out what procedure would follow next as they worked towards a solution, the convening of a technical group that would hammer out some kind of agreement, if possible a consensus, about the scientific and technical elements of a plan to

“save the Everglades.” After that, the principals would reconvene to discuss how that plan would be implemented, including the financial arrangements and a schedule.

Choosing to adopt this new framing of the problem as one of “saving the Everglades” had the potential to open up the dialogue significantly. Each side had already acknowledged that the hydroperiod changes caused by the C&SF Project was a problem and probably causing significant damage to the Everglades. Framing the mediation this way took the focus away from the litigation and issues of who would pay and how strict would the standards be—both issues being largely zero-sum. Saving the Everglades itself was a goal that all parties could agree upon. Even if stakeholders varied in their reasons for supporting the goal varied, there was still power to the rhetoric, especially when much of Florida public now favoured the restoration of the Everglades.

Talking about saving the Everglades also opened up new potential avenues for cooperation that raised some hopes that agreement could be found. Sugar and other parties saw the potential to spread the “blame” and reduce the zero-sum nature of phosphorous. By broadening the scope of issues, sugar hoped that the parties could consider additional opportunities and benefits could be added to each party’s calculations, making the negotiations easier (more benefits for everyone) and lessening the link between the deterioration of the Everglades and Sugar’s farming practices (additional sources of harm). Similarly, the expansion of the area could bring in areas and issues that were having an impact on the Everglades that had not been considered in the litigation. In fact, Sugar was purportedly one of the most proactive stakeholders in trying to introduce both possible hydroperiod improvements and additional areas of concern, as this stakeholder explains.

“The Sugar industry actually recommended some of the best enhancements to the plan. They wanted to make it more inclusive. So the solution got much bigger—and getting much bigger it brought in more people than just Sugar and so there was a need to address the funding. They wanted to address the water quantity issues and tie this plan with getting more water to the Everglades. ...They pushed hard to bring in what became STA 1-East, which was a component of a federal project that had been authorized and designed, but had never been built. This was a way to get that built and get federal civil works monies to do it. ...If you go on the other side, there was the C-139 basin which is west of the Hendry County which is west of the main Sugar area. It also flows to the Everglades, it flows right by a couple of the Indian reservation so it was an area that was very important to get solved. It was not in the lawsuit at all. So they basically expanded the watershed east and west to bring in more water and more property and treat more phosphorous.”²³⁵ [76.]

As we see by this stakeholder’s comments, Sugar took proactive steps to bring in other areas because they saw different opportunities. First, Sugar believed that hydroperiod modifications were having more significant impacts on the environment than phosphorous was. By bringing in that issue, they could see if those problems could be addressed by methods that other parties could pay for—including STA 1-East. If so, then they could reduce the risk that other stakeholders would come after them for more money at some later date. Furthermore, the issue of who pays for what became more uncertain as the number of problem sources and their links to impacts was expanded. So the expansion not only included hydroperiod modifications as a problem source, but also other geographical areas as phosphorous sources.

These modifications were generally in the interests of other parties as well. Congress had already approved the proposed federal component (STA 1-East) and the Corps had completed the necessary design work. Environmentalists wanted to see the Everglades saved. State stakeholders wanted to find some way to meet their obligations under the Settlement Agreement and had been concerned about the problems of water quantity management for some time. The Miccosukee tribe was also concerned with phosphorous levels and water quantity management in their lands

²³⁵ Interview with district stakeholder, Fall 2004.

as well. In these ways, the broadening of the scope to “saving the Everglades” offered real possibilities for cooperation.

Using the principled negotiation perspective, we can understand each of these moves represented opportunities to “expand the pie,” a classic negotiation concept that refers to moves in which stakeholders can imagine and talk about tradeoffs and solutions that yield more for each stakeholder individually and the group as a whole.²³⁶ The importance of these moves to make the upcoming negotiations more palatable speaks directly to findings we saw in the previous chapter, namely that trading zone theory does not speak directly to the cooperating parties’ willingness to cooperate.

Instead, Galison’s trading zone theory is focused mostly on how parties can cooperate despite their apparently irreconcilable differences when they already believe that such cooperation appears desirable. So we learn here, as we did in the previous chapter, that interveners using trading zone theory to analyze and intervene in these conflicts need to also consider questions of about the desirability of the proposed cooperative venture to each of the parties, and what they may need to do to increase its attractiveness.

Finally, having an expanded vision of the goals for cooperation shapes the specific terms and concepts to be developed if a trading zone is created. For example, once the parties agree that they will try to restore the Everglades, then the different problem definitions (what do we want to solve here today?), arguments (what I think we should do), ideas (what if we do this?), and

²³⁶ See for example, Fisher and Ury (1991) and Susskind and Cruikshank (1987).

solutions (how about this package of options?) need to fit within and respond to the broader goal of saving the Everglades; otherwise, the speaking person can lose credibility or the negotiations fall apart.

“Saving the Everglades” was a first step on which a trading zone could have been built. It provided a goal that all parties could agree was worth seeking even if they disagreed about what a “saved Everglades” looked like, what needs should be filled first, how costs should be distributed, and so on. The next step, the technical deliberations, provided an opportunity to explore possible ideas and solutions that might flesh out an agreeable Program.

*Mediated Technical Plan*²³⁷

Beyond expanding the scope, the parties agreed in the initial meetings to the general procedures of the mediation at the beginning. All parties would be included and accorded a seat at the table. The scientific disputes would be handled by a group of experts from all sides. This technical group was designed with several considerations in mind. First, it was decided that the scientific group would seek consensus. In part, this was due to the recognition that there was a great deal of scientific controversy and uncertainty surrounding the science of the Settlement Agreement and the whole phosphorous issue. Second, there was a real recognition that this group would have to do more than develop a technical plan for saving the Everglades. They would also have to sway constituencies divided by animosity to support the eventual plan. To increase the likelihood that the technical group would have influence on decision-makers, all the stakeholder groups participating in the mediation were invited to send their experts to join the group. The

²³⁷ Sometimes stakeholders refer to this as the Technical Plan.

selection of the technical group's members was vetted through the policy-making group using criteria of expertise and ability to sway others in and outside their communities. The technical group was given the task to not only to resolve the disagreements about standards and solutions for phosphorous, but also to propose some changes to the water management that might improve the hydroperiod of the Everglades. Furthermore, they had a broader geographical area to address, both in terms of problem sources and solutions.

With help from the mediator, the technical group reached agreement on both the range of acceptable phosphorous levels and a "Mediated Technical Plan." This plan included the group's agreement on (a) possible rates of decrease in pollutants that the group felt could be achieved, (b) suggested sites for the treatment areas that would remove phosphorous from the EAA drainage flows; and (c) some measures to improve the hydroperiod—for example by including Stormwater Treatment Area (STA 1-East) into the program.²³⁸ The Mediated Technical Plan also outlined possible secondary benefits that the Mediated Technical Plan would have, including the reduction of salinity in downstream estuaries and potential improvements for Lake Okeechobee.

Most of the technical participants in the technical committee supported the Mediated Technical Plan; however some parts of the plan were not supported unanimously. For example, the Mediated Technical Plan set a standard of 50 ppb for phosphorous to be reached over the next decade. This deadline represented a delay in phosphorous reductions as compared to the original Settlement Agreement; furthermore, the Mediated Technical Plan had no provisions stating when and if phosphorous would be reduced to the lower levels (~10 parts per billion or 10ppb) that

²³⁸ This additional area was the site of an approved but delayed project to improve flow to the Everglades.

many scientists had already said would be required to end phosphorous' impact on the Everglades. Thus, environmental support for the Mediated Technical Plan was partially contingent upon the parties' reaching agreement on other policy-level issues such as cost-sharing, land acquisition, and meeting appropriate standards for phosphorous removal. Similarly, Sugar stakeholders also wanted to see how much they would be expected to pay before they gave their full support for the proposed numerical standards. Many Sugar stakeholders were dubious about the science behind the proposed numerical standards and so they were waiting to see whether or not the other elements of the deal were worth putting those concerns aside.

Procedures for science contested

The Settlement Negotiations' technical group had put together the rudiments of a technical solution, including a numerical standard (~10 parts per billion or 10ppb)²³⁹ and the use of STAs and best management practices (BMPs). In the mediation's technical group, many of the basic concepts and components found in the Settlement Agreement remained the same but the details were modified and expanded. For example, the Mediated Technical Plan agreed on an interim target of 50ppb for phosphorous, but did not include any discussion of how they might lower the phosphorous concentrations to 10ppb, which most scientists from the Settlement Negotiations agreed was appropriate for waters entering the Everglades. That they did not do so was one contention that environmentalists had with the plan.

Similarly, the idea of using STAs to clean water of phosphorous remained largely the same but the mediation's technical committee hired a consultant to help them create a more detailed plan

²³⁹ The number varied according to the region under consideration.

that included engineering drawings.²⁴⁰ In fact, throughout the mediation, the assumption by most parties was that STAs would be used to treat phosphorous. The main remaining questions were (a) how many acres would be set aside for STAs; and (b) who would pay for them? In the original Settlement Negotiations' technical plan was a repository of knowledge and ideas that influenced and constrained the options of the parties in the Settlement Negotiations and now in the mediation. For example, consider this next stakeholders' description of the issues around numerical phosphorous standards.

*The sugar companies were obviously very concerned about setting numerical standards. Number one, because it would be easily enforced and they felt that once the number was set, you can never go back. It only gets stricter over time. I've never heard of a water quality standard being loosened [laughs]. [Second,] without the science, they felt it was unsupportable to go ahead with a number. On the other hand, I think the agencies and a lot of other group felt very strongly that there should be a numerical standard, not a narrative standard. Otherwise, they would be perceived as having being sold a bill of goods.*²⁴¹ [77.]

Despite Sugar's challenges of the science behind the setting of numerical phosphorous standards, many of the agencies were unwilling to move away from the idea. They had made public commitments to numerical standards in previous products and it was something they could not change their minds about them without fueling fears of cooptation. Furthermore, state and federal agencies had put significant efforts into creating and agreeing upon those standards, so they had much invested in them. In the end, Sugar agreed to the numerical standards when the other parties agreed that (a) phosphorous levels would be measured more broadly throughout the Everglades (rather than just at convenient locations), and (b) the standard would be interim, contingent on the outcomes of further research into appropriate levels.

²⁴⁰ Several stakeholders were quite impressed with the fact that the Mediated Technical Plan had included these detailed drawings.

²⁴¹ Interview with state stakeholder, Fall 2004.

Many in the Sugar industry remained unconvinced by the science premises underlying the importance of phosphorous as compared to hydroperiod modifications, but they saw the plan as a way to move forward to an agreement that would promise some stability to the industry. In other words, their willingness to go along with the Mediated Technical Plan rested more on reducing costs and public image problems than a strong agreement about the validity of the plan's underpinnings. That is another reason why they were willing to accept the numerical standards.

Back to policy-makers

Once the Mediated Technical Plan was presented to policy-makers, the remaining negotiations among the parties were largely constrained by its framework of projects and activities. An important question here for the mediation participants was what form their agreement would take. The parties worked under the assumption that they would craft an amendment to the Settlement Agreement so as to resolve the ongoing litigations and administrative challenges. Perhaps in hindsight this was a mistake.

The group did not meet many of its deadlines in trying to reach this settlement. Each time, they arranged for a postponement in the litigations to allow them to continue discussions. As the discussions progressed, the environmental and tribal representatives found themselves excluded from the negotiations. The negotiations were even moved to Washington, which made it more difficult for some of the state environmental and tribal organizations to participate, or to hinder the negotiations.

Being excluded was a particularly bitter pill for the environmental community to swallow. They had placed high hopes in the Clinton Administration and its seemingly environmentally friendly²⁴² appointees. They were distraught when the administration seemed more interested in meeting with Sugar executives than their representatives. In fact, the decision to exclude parties included not only environmental groups but also Miccosukee representatives and even Department of Justice representatives at times. The latter was surprising, as one environmental activist described in the media:

*"In the world of politics and government, that's quite a signal. That was demoralizing to the people in the Justice Department and a very strange thing to do. It was the first overt signal things were not going right for the Everglades. ... It was clear Babbitt was pulling the plug on support of the lawsuit. The climate created was such that the Justice Department had to settle, and that meant coming up with something acceptable to the sugar industry."*²⁴³ [78.]

In July 1993, the remaining parties reached an agreement on a "Statement of Principles" that would guide their continuing negotiations. The parties that signed the Statement of Principles included: the federal Department of Interior, Florida's Department of Environmental Protection and South Florida Water Management District, and two Sugar companies: US Sugar and Flo-Sun.

Secretary Babbitt announced the deal to the public on July 13, 1993 with executives from the Sugar industry by his side. In the Statement of Principles, the parties agreed to two sets of principles, Management Principles and Financial Principles. In the Management Principles, the

²⁴² Those appointees included George Frampton at the Department of Interior and Carol Browner at the Environmental Protection Agency.

²⁴³ Weimer, De'Ann (1993). "Sugar's Sweet Deal on Everglades Cleanup; Agreement struck after environmentalists get shut out of meeting between Babbitt and Democratic sugar daddy." *The Recorder*, September 7, 1993, page 6.

parties agreed that they would file joint motions to stay almost all litigations²⁴⁴ for 90 days in order to focus on resolving the mediation as quickly as possible.²⁴⁵ They also made a commitment to increase the quality of the water to the Everglades through both the implementation of the Mediated Technical Plan (following a specific Construction Schedule) and best management practices to be implemented on the sugar growing operations. The implementation of the BMPs described in the Mediated Technical Plan would be backed by incentives. The more successful the BMPs were in removing phosphorous from the drainage waters, the less the Sugar signatories would have to pay towards the construction of the Stormwater Treatment Areas. The parties in the Statement of Principles also agreed to a set of draft targets for the reduction of phosphorous over twenty years. In the Financial Principles, the parties outlined an approximate amount of funds to come from each party, including 322 million dollars to come from Sugar. It also proposed a draft payment schedule for Sugar's payments over the same twenty year period as the phosphorous reduction targets.

At the press conference announcing the Statement of Principles, Secretary Babbitt of the Department of Interior stated that he was very happy with the agreement, saying that:

"The River of Gras has been given a new lease on life. This is a tremendous step toward the restoration of a unique and beautiful ecosystem. We have chosen to spend money where it is needed

²⁴⁴ *In light of our commitment to implement these Principles, the parties to this Statement agree to join in motions to stay all Everglades litigation and administrative proceedings, including pending 298 District Administrative Litigation regarding Lake Okeechobee, for a period of 90 days, except for entry and access and the appeals pending before the Eleventh Circuit Court of Appeals.*" Statement of Principles, July 13, 1993.

²⁴⁵ In more detail, the parties agreed that they would strive to "reach a detailed settlement agreement resolving disputes that would otherwise continue for many years at enormous cost not just to the parties, but to the Everglades as well—postponing the initiation of action to address critical threats to the system." *Statement of Principles*, July 13, 1993.

most, in the Everglades, not in the courtroom. With this action we expect to head off what could have been another decade of litigation.”²⁴⁶ [79.]

After Bruce Babbitt’s announcement, the two Sugar executives on the podium thanked the Secretary and said that Sugar was:

...making common cause with the administration and environmentalists to achieve a common purpose—to save jobs and protect the environment.²⁴⁷ [80.]

Environmentalists, however, were adamant that they had not signed onto this “common purpose.” None of their representatives had negotiated or signed the Statement of Principles nor had they participated in the discussions leading up to it. One environmentalist, Jim Browder, was blunt in his response, stating that the Statement of Principles,

...is an absolute betrayal of the Everglades, and it will not stand.²⁴⁸ [81.]

Also at the press conference, Jim Webb of the Wilderness Society spelled out a number of concerns that the environmentalists had with the Statement of Principles. For example, he asked, how would the Statement of Principles fit with the 1991 Settlement Agreement? Would environmentalists have the right to intervene and take the case back to court if the implementation of the Statement of Principles was too slow? If the wetlands cost more than expected, who would pay the extra costs? Perhaps most importantly, the Statement of Principles was designed to reduce the concentration of phosphorous to 50 parts per billion. The original Settlement Agreement had included a second phase in which a much lower target (~10ppb)

²⁴⁶ US Department of Interior (1993). “Historic Everglades Agreement is Announced: Federal, State, and Industry Partnership to Begin Massive Effort to Restore and Protect the Everglades Ecosystem.” Press release, July 13, 1993

²⁴⁷ Statement by Flo-Sun, Inc.

²⁴⁸ Quoted from John (1994)

would be sought. Finally, Webb stated that environmentalists must be included in the upcoming 90-day negotiations that were scheduled to translate the Statement of Principles into a legal settlement so that all parties could work out these and other questions.²⁴⁹ After the Statement of Principles were released, nineteen national and Florida organizations wrote a letter to Secretary Babbitt denouncing the Statement of Principles and proposing that somewhere between 70,000 and 120,000 acres of the Everglades Agricultural Area be set aside for wetlands. They did not endorse the use of BMPs by the Sugar industry as a viable approach to reducing phosphorous and stated that wetlands were the only acceptable solution.²⁵⁰

Opposition to the Statement of Principles also came from other sources. The Sugar Grower's Cooperative, which represents small sugar growers in the EAA, did not want to pay for the wetlands until there was more proof that they would be effective. Local urban governments expressed concern and skepticism because the plan required that they contribute, through South Florida Water Management District taxes, to clean up pollution from sugar growers and other upstream water users. Downstream water users equated the deal as "taxation without representation" and threatened to sue.²⁵¹

Exclusion and trading zones

By excluding the environmentalists from the negotiations, the DOI, state, and Sugar parties were hoping that they could find a deal with enough other support that it would be implementable. In

²⁴⁹ John (1994)

²⁵⁰ John (1994)

²⁵¹ Keating, Dan (1993). "Keys Protest Tax for Glades Cleanup." *Miami Herald*, July 18, 1993 and Ross, Emma (1993). "Lawsuits Loom: Panel Initially OKs Glades-Plan Hike." *Naples Daily News*, July 16, 1993.

other words, they were hoping to avoid the problems of apparently irreconcilable differences by making them irrelevant.

Unfortunately, that decision to exclude parties from the ongoing negotiations also stopped the development of the terms and concepts that had started with the initial negotiations and the Mediated Technical Plan. If the group had continued pursuing a trading zone, we might imagine that they would have continued developing terms and concepts, procedures, and objects to represent the Everglades they wanted to restore and imagine possible solutions. Instead, by separating the policy and financial sections of the negotiation, and then excluding the environmentalists, the remaining parties left those groups with no other option but to continue protesting and fighting the negotiations using their old language and old frames of harm (phosphorous is hurting the Everglades) and blame (Sugar is causing that harm and should pay for it).

In other words, the previous work done to create a trading zone was undone. So why did they do it? We examine some of their reasoning in the next section, and see what impact this decision to exclude some of the parties had.

Negotiations proceed with limited set of players

Several factors here impeded cooperation through this phase of the mediation. First of all, by trying to create an amendment to the Settlement Agreement, the parties moved the negotiations back to the narrower framing of the original litigation—phosphorous and cost distribution. In so doing, they found themselves once again over the near zero-sum questions of who should pay for

what. There were other important questions as well, including what regulatory hurdles the plan would need to clear and who would administer it, but the financial one loomed largest.

As the negotiations focused on how much Sugar should pay, the stark divisions between Sugar and the environmentalists reemerged with a vengeance. Environmentalists once again invoked the principle of “polluter pays”. Many agency participants soon came to the conclusion that it would not be possible to reach an agreement with all the parties. At the same time, they felt it was crucial to get some kind of deal that they could move use to move the restoration forward. Finally, some felt that there was a narrow window of opportunity to get Sugar on board, as this next state stakeholder explains.

The time was as good as it ever would be to bring Sugar to the table. There was a constitutional amendment that was floating, a “penny-for-a-pound” tax that the Enviro’s were trying to put on the ballot. That would have imposed a penny tax on each pound of sugar [in order] to pay for the Everglades cleanup. It would have raised a huge amount of money unless it killed the goose that laid the golden egg by driving them out of business. It was never enacted, but we didn’t know that then. I saw the industry more willing than they ever had been to come to the table and put up specific dollars and agree to a clean up plan.

There was [the Settlement Agreement] and the prior piece of legislation called the Marjory Stoneman Douglas Act, both of which had very lofty goals but no money, no personnel, no way to implement them. Here’s the opportunity to get things started to pay for the STAs, to get the process going and we can fight about how good it is later on.”²⁵² [82.]

So we see here a number of factors that seem to contribute to the state’s perception of a window of opportunity. The sugar industry, he says, is more willing to negotiate than ever before. There are several reasons for that willingness. In part, Sugar was worried that the environmentalists might succeed in their drive to get Florida to enact the penny-for-a-pound tax on sugar production. At the time, many Florida taxpayers were highly resistant to any new taxes, so might favour the penny-for-a-pound tax to pay for restoration in place of a tax on themselves. Second,

²⁵² Interview with state stakeholder, Fall 2004.

it was becoming clear that the state government was committed to doing something to restore the Everglades. State representatives knew that if they wanted to implement this project, they would have to find funds for it. And that would not happen until they could move the process forward. As the stakeholder continued his story, he touched more directly on the financial issue and how it impacted his thinking during the negotiations.

“So would you rather have the blank check of the Settlement Agreement or would you rather have a check with dollar amounts on it, which is what the Statement of Principles offered. The Enviro’s were saying, ‘no we want a blank check because we then want the court then to be able to require as much money as possible to get it done. The sky’s the limit.’ From my perspective—I mean I appreciate that strategy—but from my perspective what that invites is a whole lot of litigation and gridlock as opposed to ‘here’s the money and here’s when we can begin.’ ...[T]he reason why they were ultimately cut out of the end product is because there never would have been a deal with them.”²⁵³ [83.]

So we see here an interesting paradox. As the environmentalists are more effective outside the negotiations in pushing Sugar to pay more for the Everglades clean up, they were opening up a window of opportunity in which the big Sugar companies became more willing to make some kind of financial contribution. At the same time, those same hardball tactics mean that the other stakeholders find it difficult to negotiate with the environmentalists at the table. If the environmentalists had stopped pushing so hard, would that have changed how much Sugar was willing to pay?

When talking with environmental stakeholders, however, the push for a greater financial contribution from Sugar was not framed as a strategic negotiating ploy but instead the defense of a principle. For example, consider the words of this environmental stakeholder as he reflects on the Mediated Technical Plan and Statement of Principles.

²⁵³ Interview with state representative, Fall 2004.

The theme of hydroperiod restoration was just a veneer to justify the use of public party funds to pay for a private party litigation. The Mediated Technical Plan kept many of the original design concepts of the Settlement Agreement, so it was not like there were that many changes. We just did not think that taxpayers who were not contributing to the pollution—especially the poor one who is struggling to make ends meet—should have to pay for it. It was a simple matter of polluter pays.

...In the end, the Sugar industry was too powerful. Other stakeholders might have been forced to go down to a lower water quality standard. It was an obligation. Sugar managed to negotiate a cap to how much they would have to pay. They put two-thirds of the cost on to local property owners. If the environmental community had been involved, Sugar would have had to pay more money.²⁵⁴ [84.]

In the minds of this and other environmental stakeholders, the matter of how much Sugar should pay really came down to the principle of “polluter pays.” In their minds, sugar operations in the EAA were the major source of phosphorous pollution in the Everglades so they should pay for cleaning it up. This was the principle that had been applied in other cases and they felt that the only reason why Sugar was not being forced to pay more was because of their political power. Despite the protests of environmental stakeholders, state stakeholders and the key federal stakeholders were committed to finding some kind of settlement with Sugar and so continued negotiations without the environmentalists. Environmentalists were especially frustrated with the Department of Interior in this case, as they had initially felt that the DOI would be a likely ally. Instead, they not only were excluded from the negotiations that Secretary Babbitt was hosting, they were also unable to get a private meeting with him even as he was hosting executives from the major Sugar companies.

By excluding the environmentalists, the other parties hoped that they would be able to negotiate a deal for distributing the cost of the project. However, it turned out that a resolution remained elusive.

²⁵⁴ Interview with environmental stakeholder, Fall 2004.

Next steps

After reaching agreement on the Statement of Principles, the state, federal, and Sugar principals returned to their negotiations on the details of the deal. They still needed to craft language that would not only allow for the implementation of the Statement of Principles but also to resolve the 30 plus litigations currently in court. As they continued their negotiations, the federal government launched its own collaborative effort to address the restoration of the Everglades.

The Task Force and the Restudy

Just after the Statement of Principles was signed, the federal administration starting taking its own unilateral steps towards restoring the Everglades. In September 1993, Secretary Bruce Babbitt convened the South Florida Ecosystem Restoration Task Force (Task Force) to examine possibilities for restoring the Everglades—including not only the Everglades National Park and Loxahatchee National Wildlife Refuge, but also the other parts of the original Everglades²⁵⁵ that were not part of the park system, but not claimed by development either. The Task Force established as one of its objectives the creation of an ecosystem-based science program and created the South Florida Management and Coordination Working Group (Working Group), a committee under the Task Force initially comprised of the managers below the administrators in the Task Force.²⁵⁶ The Working Group then developed three subgroups to coordinate the research agenda for South Florida, including the Science Subgroup, which reached out to agency and university experts from around the state in order to develop a scientific consensus on the scientific foundations for restoration.

²⁵⁵ The extent of the original Everglades is an area of debate.

²⁵⁶ The Working Group was first headed by Everglades National Park superintendent Dick Ring.

Also starting up in 1993 was the US Army Corps of Engineers' Central and South Florida Project Comprehensive Review Study (Restudy). The Restudy had been authorized by Congress in the Water Resources Development Act of 1992. Congress had urged the Corps to adopt a multi-agency and collaborative approach to the Restudy as an attempt garner wide support for an eventual "replumbing" of the C&SF Project.

Both of these efforts would play a much more important role in the Governor's Commission for a Sustainable South Florida that followed this mediation; however, as we see below, the Task Force also played an important role in the mediation as well.

Reaching an impasse

Unfortunately, these negotiations continued to remain as difficult as before. Much of the negotiations were relegated to the lawyers of each party as they sought to find some kind of language that (a) would resolve the various litigations and (b) could be amended to the 1991 Settlement Agreement. Over the fall and early winter, the fifteen pages of preliminary text that had comprised the Statement of Principles grew into over 700 pages of detailed, legal language that failed to resolve the specific issues in dispute.

Finally, the release of a draft report by a federal scientific committee, the Science Subgroup of the South Florida Ecosystem Restoration Task Force (Task Force), proved to be the catalyst for the ending of the mediation. The Task Force had been convened by the Department of Interior to start work on restoring the Everglades, including studying what changes could be made to the

Central and South Florida Project. The Science Subgroup was a subcommittee of the Task Force charged with developing initial scientific recommendations for restoring the Everglades.

In the draft report, called the *Federal Objectives for the South Florida Restoration*,²⁵⁷ a group of federal scientists put forward recommendations for what they believed should be the basic building blocks of any restoration effort in the Everglades.²⁵⁸ The reports' overall conclusion that "hydrologic restoration is a necessary starting point for ecological restoration"²⁵⁹ was not problematic; all the stakeholders had already stated this was the case.²⁶⁰ However, the report's suggestion the eventual restoration project should permanently flood 43 percent of the land in the entire Everglades Agricultural Area (195,000 of a total of 450,000 acres) and periodically flood the rest of the area was a call to arms for many in the Sugar industry. In response to the report's release, Robert H. Buker Jr., a senior vice president of United States Sugar Corps, called the report "a blueprint for annihilation of farming in our region."²⁶¹ Going further, Buker said

*The fact they would do it simultaneously with the negotiations, in secret from us was terrible bad faith. [85.]*²⁶²

Secretary Babbitt told Sugar executives that the DOI stood by the use of the Mediated Technical Plan for the negotiations; however DOI would not denounce the Science Subgroup's report.

²⁵⁷ The Science Subgroup of the South Florida Management and Coordination Working Group (1993), *Federal Objectives for the South Florida Restoration*.

²⁵⁸ For example, see Kenworthy (1993) and Layzer (2002).

²⁵⁹ Science Subgroup (1993:1 c.f. Layzer, 2002).

²⁶⁰ For example, the Sugar industry stated in its public protests against the original statement that phosphorous was a minor issue compared to the altered hydrology. The addition to the original settlement technical plan in the mediation's Technical Plan also reflect this understanding by including some additional projects to restore the hydroperiod.

²⁶¹ Kenworthy (1993b).

²⁶² Gifford (1993).

Shortly thereafter, the mediation broke down and federal government terminated the mediator's contract.

Questions about good faith

Many of the parties to these negotiations came away from with the feeling that some of the other parties had acted in bad faith. Environmentalists and some federal parties felt that Sugar had been playing games throughout the negotiations. For example, one environmental stakeholder, when asked about the mediation, erupted in anger saying:

*"They were never there in good faith. They were smirking the whole time and playing games!"*²⁶³
[86.]

Similarly, one federal stakeholder also noted that

*The truth of the matter is that Sugar never took any of this seriously. Every single step in the process they threw up obstacles, believing that they could get their way politically, and to some degree they did, right? ...You got to figure out that if you just bide your time, you create obstacles, you slow down the process, and nothing happens.*²⁶⁴ [87.]

So we get the sense from these two quotes that several stakeholders did not feel that the Sugar parties were committed to the process. They had put up legal and political obstacles to block the original Settlement Agreement. They had intensively lobbied the state and federal governments during the mediation. The Statement of Principles itself had been based on a draft document presented to Secretary Babbitt by Sugar executives during a March 1993 meeting.

On the other hand, Sugar representatives stated that they found it very difficult to negotiate with the federal representatives. As described earlier, they were very concerned by the fact that one

²⁶³ Interview with environmental stakeholder, Fall 2004.

²⁶⁴ Interview with federal stakeholder, Fall 2004.

group of federal scientists was creating a radically different technical plan for Everglades restoration at the same time that Sugar was engaged with other elements of the same government using an entirely different technical plan. Sugar representatives also complained that the federal agencies could not find a consolidated position among themselves, as this Sugar stakeholder explains.

*We would go there and we would show up in the meeting room and we would be told that the federal team is not ready yet. We spent whole weeks sitting in Washington while the federal team would dither around and couldn't agree among themselves. And I'll bet that we didn't have 30 days of effective negotiations because they could never agree among themselves.*²⁶⁵ [88.]

Other stakeholders sometimes felt the same way about the federal stakeholders. For example, one state stakeholder described

*[W]idening the tent to bring in more parties ...ultimately leads to more turf wars and battles. The highlight to me of that was when ...a deputy assistant administrator for water of the EPA walked in and says, "Oh by the way you need a NPDES permit." EPA hadn't even been involved in the negotiation. I had asked [EPA decision-makers John and Jane], "Do we need a NPDES permit for the construction of these STAs?" And originally I was kind of assured that they would not be and I had made representations to everyone to that effect so that we didn't have to have EPA as part of the team. Then they just kind of show up and say they want a part of the action too. This is after sitting and not even participating in any of this stuff for five or six years, they come in and say, "Well you need to get a permit from us if you are going to do anything."*²⁶⁶ [89.]

So we see here that, at times, there was great uncertainty about which of the federal parties were involved, what their role would be, and what that meant for the necessary components of the final agreement.

Whether or not any party was acting in bad faith, it is clear that many of the parties did not feel comfortable with the ongoing process. Environmentalists did not agree that they should have

²⁶⁵ Interview with Sugar representative, Fall 2004. Some, although not all, state representatives also observed that there seemed to be significant internal divisions within the federal ranks.

²⁶⁶ Interview with state stakeholder, Fall 2004.

been excluded from the financial negotiations and many pushed the different departments in the federal government to resume the litigation should Sugar refuse to pay more for the restoration work. Tribal interests, who had largely been excluded from the financial negotiations as well, also leaned towards resuming the litigation. Sugar, facing significant burdens in terms of standards and payments, was looking for the best possible outcome for them. The current framing of the issues meant that they had very little to gain and much to lose. On the other hand, state stakeholders were very keen to reach an agreement because they wanted to be able to meet their obligations under the Settlement Agreement and they had an enduring interest in seeing the Everglades' condition improved.

Summary

In the first stages of the mediation, the parties began to craft a Program for “saving the Everglades.” As a starting premise or frame, saving the Everglades was a broad goal that every party felt it could support. In promoting that goal, Sugar and other parties brought in other issues that seemed to offer hope by expanding the scope of benefits to include more areas and more parties. Stakeholders were able to cooperate in those instances in which they had some kind of vision of what they wanted to achieve, some way of representing and talking about that vision in more detailed and concrete terms, and some agreed upon procedures to engage in problem solving and knowledge production. So, for example, stakeholders in the mediation found it easier to cooperate when they were talking about “saving the Everglades” and putting together the Mediated Technical Plan to do so. When they agreed upon the procedures for crafting science (convening a technical working group, establishing a research program for a final phosphorous standard) and deliberating (for example, putting off litigation, allowing a third party to set the

agenda and ground rules), they were more effective at problem solving. When they had something in front of them that they could use, shape, and manipulate—such as the Mediated Technical Plan—they could work on that product to try to make it better even as they fought it and each other.

However, soon after the release of the Mediated Technical Plan cracks started to appear in the nascent trading zone. Although two environmental experts had participated in the development of the Mediated Technical Plan, they had not completely supported the plan. Furthermore, the environmental leaders also had some fundamental questions about the content of the Mediated Technical Plan. One of their main objections was that it was not comprehensive enough. Instead, it looked to them like a plan to remove phosphorous with a few cosmetic additions to justify the use of taxpayers' money to subsidize the Program. Unconvinced about the overall benefits of the proposed modification, environmentalists could not support this apparent subsidization. There was no “reality,” represented by a trading zone's terms, concepts, procedures, and objects that stakeholders could use to shape a local solution that met global needs and honoured global disagreements.

Instead of trying to address environmentalists' concerns, the Statement of Principles parties decided to maintain the Mediated Technical Plan as it was and concentrate their efforts on how much Sugar, Florida, and the federal government should pay. By not addressing the environmental concerns, by focusing on how costs should be distributed, and by excluding the environmentalists and certain federal agencies, the Statement of Principles parties left no room for a trading zone. The locality of words, concepts, and objects could not be maintained without

active cooperation that included the environmentalists, and so parties inevitably drifted towards the old, global ways of understanding and talking.

Finally, the implementation of the Everglades Forever Act has been plagued by numerous lawsuits by environmental and tribal groups since its inception. While these have not stopped the implementation of the Everglades Construction Project, they have resulted in continuing legal expenses for all parties involved.

Outcomes: pushing forward

While the mediation collapsed, it was not the end of the negotiations among the state, federal, and Sugar parties. In January 2004, the federal government and Florida-Sun, one of the two big Sugar companies that had participated in the mediation announced that they had come to an agreement in which the company agreed to contribute to the implementation of the Mediated Technical Plan.²⁶⁷ The federal government stated that this deal should put pressure on the other major Sugar companies²⁶⁸ to participate in upcoming negotiations occurring in the state Legislature.

These negotiations, which I will call the Everglades Forever Act (EFA) Negotiations, in the state Legislature, became the next forum for negotiations among a select group of representatives from the various stakeholders. Part of the reason for the move to the Legislature was simply the determination of the state parties to find some resolution to the dispute. The mediation's attempt

²⁶⁷ Kenworthy (1994).

²⁶⁸ Note that Florida's Sugar Growers Cooperative is a cooperative of small sugar growers.

to craft an amendment to the Settlement Agreement had not succeeded; now they would try to craft state legislation to implement the Settlement Agreement. Furthermore, the original Settlement Agreement had stipulated that the settlement must be implemented under state law, so for some it was natural to try to resolve the dispute by changing state law. For example, if the SFWMD was going to levy taxes to pay for part of the proposed construction, they would need to levy ad valorem taxes. At that time, they could not do constitutionally.²⁶⁹

The state agencies started testing the waters as the mediation ground to a halt. State representatives discussed the idea with Sugar and federal stakeholders and both agreed to participate in the crafting of the legislation. Environmental and tribal representatives were reluctant to participate and officially resisted the effort during the entire legislative session. They wanted the matter to go back to the courts. Sugar stakeholders were unsure at first, but soon came around to the idea.

After a month of negotiations during Florida's legislative session, the state legislature passed the Everglades Forever Act. This act put into law the principles of the Statement of Principles and set aside funds for the implementation of the Mediated Technical Plan in what was termed the Everglades Construction Project. The Act created the means by which the SFWMD could levy a

²⁶⁹ Some stakeholders I interviewed argued that this move was the next logical step because some of the elements required to implement the Mediated Technical Plan would require changes in state laws anyway. In fact, one stakeholder claimed that the mediation essentially did reach an agreement, as he says here: *"The mediation did reach an agreement. It looked like it didn't but it did. What we had to admit by the end of the...policy mediation was that you had to write a new law to make this happen. You couldn't sign an agreement to enforce the Technical Plan because you had to have a new ad valorem tax that the South Florida Water Management can not do constitutionally. The mediation at the policy level fell apart just before Christmas in 1993 but everyone left knowing that they were going to Tallahassee to write what became the Everglades Forever Act. ...Everything in the Everglades Forever Act was mediated before we left Washington."* Interview with state representative to mediation, Fall 2004.

tax on agricultural lands in the EAA to contribute to the project; the amount of that tax followed the guidelines of the Statement of Principles. Environmentalists bitterly opposed the legislation's passing and other parties expressed concerns with the product as well.

The legislation produced at the end was not endorsed by many of the parties; yet the EFA is generally acknowledged as an effective legislation. Much of the construction has already been completed and the reduction of phosphorous has exceeded expectations. Currently, changes are being made that will improve their effectiveness even more, so that the ultimate goal of 10ppb of phosphorous seems more achievable. At the same time, this program had to weather a series of legal challenges from Indian and environmental stakeholders. Furthermore, the decision by the state parties to go ahead on this without environmental support deepened the bitterness that environmental stakeholders felt and soured their relationships with other parties significantly.

Luckily, at the same time that the EFA was being created, the Governor also convened the Governor's Commission for a Sustainable South Florida, a multi-stakeholder state Commission that would seek explore whether or not south Florida was sustainable and provide recommendations to improve it.

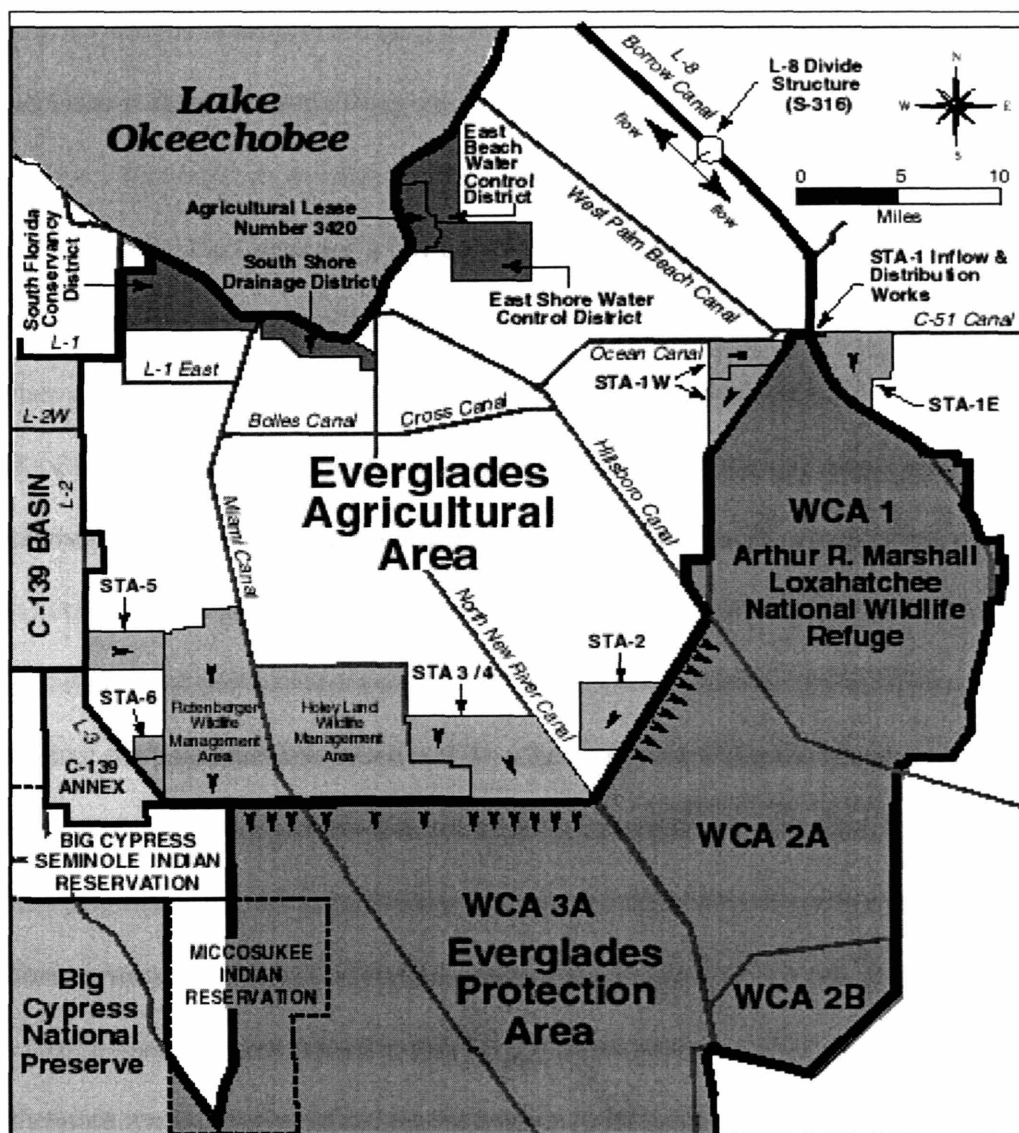


Figure 2: Map showing the STAs, EAA, and WCAs

THE GOVERNOR'S COMMISSION FOR A SUSTAINABLE SOUTH FLORIDA

Stakeholders knew that the Everglades' problems were due to more than phosphorous. The hydroperiod also needed to be changed if the Everglades was to return to a healthy state. The EFA had included a few measures that ostensibly improved some aspects of water quantity, but

these changes were just a drop in the bucket compared to the work that needed to be done. It was clear to decision-makers that something more comprehensive was required.

During the mediation, the Governor's Office started exploring the idea of convening a Governor's Commission that would address the problems around the Everglades. As the staff of various state agencies discussed the idea among themselves, they decided to expand the scope to look at all of south Florida because they believed that one could not talk about the Everglades without talking about the dramatic impacts that south Florida's rapid urbanization was having on it.

The creation of the Everglades Agricultural Area had replaced a significant amount of the original Everglades with the growth of sugar crops. Urban growth, however, had also displaced much of the original Everglades, especially along the eastern coast of south Florida and drained some of their sewage into it.

Finally, the state wanted to have a strong state voice to influence the recently commenced federal efforts to restore the Everglades, including the South Florida Ecosystem Restoration Task Force (Task Force) and the Central and South Florida Project Comprehensive Review Study (Restudy).²⁷⁰ In 1994, the Task Force was not permitted to include state, tribal, or private sector representatives on its committee because of federal laws. As the Governor's Office was exploring the possibility of doing a consensus building committee for the Everglades, it went to George Frampton, Assistant Secretary of the Interior, to explore how such a Commission might

²⁷⁰ For more information on these processes, see the Aside The Task Force and the Restudy on page 248.

be able to inform the Restudy and Task Force's efforts. After those conversations, they decided that it would be good a state Commission could play a useful advisory role to the federal Task Force's efforts. With that additional incentive, the Governor's Office decided to convene the Commission.

Convening the Governor's Commission for a Sustainable South Florida

The first order of business in convening the Commission was the selection of participants. Over the next six months, a planning committee comprised of representatives from the Governor's Office, the Department of Community Affairs, and the Department of Environmental Protection—and, later the Chair they selected for the Commission—worked on selecting potential participants for the Commission. They started by identifying the key stakeholder constituencies; then they deliberated over who would be the most effective representatives from those constituencies. In choosing possible participants, the planning committee tried to ensure that the Commissioners represented the diversity of south Florida. They also worked to keep the numbers balanced, not only among the interests groups but across political parties (Democrats and Republicans) as well. In January 1994, the Governor's Office asked Dick Pettigrew, a former state Speaker of the House, to see if he would be willing to take on the position of Chair of the upcoming Commission. After he agreed, Dick Pettigrew also played a role in screening potential Commissioners.

The Governor announced the official Executive Order convening the Commission at the next session of the Florida State Legislature, at the same time that the Everglades Forever Act was being negotiated. However, there was little direct interaction between the EFA and Commission

processes, other than the Everglades Forever Act provided a baseline for how water quality issues were being handled.

The Governor framed the Executive Order quite broadly in order to move the stakeholders beyond their seemingly intractable dispute around phosphorous. The Governor's Office hoped that a more comprehensive scope of issues would help stakeholders find more room for agreement. Besides, the larger scope was needed from a scientific basis. For example, changes in the management of phosphorous might be useless if invasive species continued to overtake the Everglades. Similarly, with urban population growth expected to continue at a rapid rate, questions of urban water supply and land use loomed large and needed to be included in the deliberations.

In the Executive Order, Governor Chiles set a broad mandate for the Commission, namely to:

...recommend actions for the restoration, management, preservation and protection of the Everglades ecosystem and to recommend strategies for ensuring the South Florida economy is based on sustainable economic activities that can coexist with a healthy Everglades ecosystem." As discussed above, the Governor's Office also envisioned that the Commission would provide a state voice that could influence the deliberations of the South Florida Ecosystem Restoration Task Force (Task Force).²⁷¹[90.]

The Commission that the Governor appointed included over 40 Commissioners from South Florida's business and economic community; public interest and environmental organizations; county and city officials; the South Florida Water Management District (SFWMD); the regional planning councils; the Secretaries of the Florida Department of Environmental Protection (FDEP), the Florida Game and Fresh Water Fish Commission, the Florida Department of

²⁷¹ Executive Order

Commerce, the Florida Department of Transportation (FDOT), and the Florida Department of Community Affairs (DCA); representatives of the Seminole Tribe and Miccosukee Tribe of Indians; and a member of the Florida House of Representatives and a member of the Florida Senate. Five non-voting members were also invited to represent federal interests, including representatives of the U.S. Army Corps of Engineers, the Department of the Interior, the National Oceanic and Atmospheric Administration, the Environmental Protection Agency, and the South Florida Ecosystem Restoration Task Force.

Membership in the Commission did vary over the five years of its deliberations, although the core group remained largely intact throughout. No official training was given to new Commissioners; however experienced Commissioners would often help them out with some advice.

Process management

Around the same time as they hired Dick Pettigrew, the Governor's Office also hired the Conflict Resolution Consortium to provide facilitation assistance. The Governor's Office and Chair knew that the 40 plus member Commission could be unwieldy to manage and that they would probably need help. During the Commission, the Chair made the final decisions about how the process would be run. In practice, however, the Chair, the facilitators, and later a select group of leaders from among the Commissioners would meet in between meetings to set the agenda and develop strategies about how to move the group forward.

As the Commission was convened under state regulations, it was subject to Florida's Government-in-the-Sunshine Law²⁷², which required that all of its deliberations be open to the public. Each facet of the Commission's work was open to the public scrutiny. Members of the public attended each meeting and could give comments to the Commission during regular public comment periods. When the Chair convened ad hoc sub-groups to tackle particularly difficult issues, interested members of the public could follow the ad hoc group to a different room where they could track, and sometimes participate, in the meeting. Finally, the Commission convened a number of subcommittees in which members of the public also observed and participated. The membership of those subcommittees also included various interested parties who were not members of the Commission.

Many of the logistics were handled by Commission staff, many of whom were seconded from various state agencies for the duration of the Commission. The staff was managed by the Commission's Executive Director, who was hired by the Chair at the beginning of the process. Commission staff prepared meeting summaries, including both the Commission and its various subcommittees. They also prepared the meeting preparation materials before each meeting to be delivered to the Commissioners. On occasion, they also prepared draft single texts at the requests of the Commission or its subcommittees that sought to capture emerging areas of agreement. Draft documents were also prepared as required by the facilitators and the Commission's technical and issue-based subcommittees.

²⁷² Florida's Government-in-the-Sunshine Law was enacted in 1967 and can be found in Chapter 286 of the Florida Statutes. The Sunshine Law establishes a basic right of access to most meetings of boards, commissions and other governing bodies of state and local governmental agencies or authorities.

Procedures: mechanisms of Cooperation between the Task Force and the Commission

Until 1996, the Task Force was not officially allowed to include non-federal stakeholders in its meetings. To enable their cooperation, the Task Force and Commission got around this regulatory hurdle in several ways. From the beginning, the Task Force and Commission made a deliberate effort to schedule meetings on the same weekend and at the same place, with the meeting of group on the days directly after the other group. In this way, the stakeholders could meet together and see what each other were doing without officially participating. In addition, several federal stakeholders were invited to participate in the Commission's deliberations as ex-officio members. While federal members could not vote on the final products, they participated on an equal basis in the actual deliberations and their concerns would be addressed in the same way as the Commission addressed the concerns of every other stakeholder. When the vote was done, the federal parties would often show their support directly afterwards.

Several changes would be made to these cooperative arrangements over the duration of the Commission. The first change occurred in 1995 when Congress passed the Unfunded Mandates Reform Act²⁷³, which contained provisions that allowed state, local, and tribal governments as well as private sector interests to submit their inputs into any federal program that might have a significant impact on them. At this point, the Task Force invited select members of the state and tribal governments to participate and they appointed members to join the South Florida

²⁷³ Public Law 104-4, March 22, 1995. Congress. Essentially was to remove the possibility of the Federal Government giving work to state governments without the funding to do it. *“Requires any congressional committee that anticipates considering any legislative proposal establishing, amending, or reauthorizing any Federal program likely to have a significant impact on any State, local, or tribal government or on the private sector to include its views and estimates on that proposal to the applicable budget committee.”*

Management and Coordination Working Group (Working Group).²⁷⁴ At this point, the Commission did not have members on the Work Group or Task Force, but their input reached these committees indirectly through Florida's Lieutenant Governor, Buddy McKay. He would ask the Commission for feedback on certain issues and then bring that feedback to the Working Group. The Water Resources Development Act of 1996 allowed for the expansion of the Task Force to include the Commission. The Task Force immediately appointed the Task Force as an advisory body to give input to the Restudy.

Object: conflict assessment

Before the first meeting, the facilitators sent out a survey questionnaire requesting Commissioners' written response to a series of questions about issues facing the Commission. When Commissioners did not respond, the facilitators followed up by telephone to encourage a response or, in some cases, to walk the stakeholder through the questionnaire. The questionnaire was designed by the planning committee that was set up the Commission. These questions were based on the planning committee's own internal questions and deliberations about how comprehensive versus focused the Commission would be, what issues it should cover and how those issues should be framed.

The facilitators and Chair used the conflict assessment mainly to set up an initial draft agenda of issues for the Commission's consideration to propose to the group and to organize some of the initial education lectures on sustainability during the initial meetings.

²⁷⁴ Headed initially by Everglades National Park superintendent Dick Ring. Ring in turn developed three subgroups to coordinate the research agenda for South Florida, including the Science Subgroup, which reached out to state and university scientists and facilitated scientific cooperation and consensus.

Initial meetings: defining sustainability

Defining their mission was not easy for the Commissioners. Many of the key environmental, agricultural and governmental participants felt “bruised” by their previous battles in the mediation, state and federal legislatures, courtrooms and the media. One stakeholder described the initial meetings of the Governor’s Commission for a Sustainable South Florida as follows.

When we first came together, it was like scorpions in a jar—there were tensions, factions. It even got to the point was, well, there was one defining moment where one fellow was out of line and I had to take him out of the room and tell him what he said was inappropriate and I didn’t want that to happen again. It had to do with [my group], and I’m not going to sit there silently and be categorized in the means by which he was describing me. It was tense.²⁷⁵ [91.]

So we see here that stakeholders were wary and mistrustful of each other. They were prone to opening dialogues with positions and personal attacks, like the one the stakeholder above describes. The facilitator had this to say about the opening weeks of the process.

People didn’t just say, “We’ll come to the table and we’ll drop all our guns, we’ll stop doing all this and work at this table.” They said, “We’re going to continue to do this.” At least they started in that vein, because they didn’t have any faith that this was going to produce anything of value. Most came in pretty skeptical that you could get anybody together and do anything useful on these issues because there was so much bitterness over the course of the negotiations and litigation over the previous 4 years. People just didn’t think that this was going to amount to much.²⁷⁶ [92.]

So, we see beyond the hostility to something else. Many stakeholders did not believe that it would be possible to hold a productive dialogue with members of their “opponents.” They found it difficult to imagine, in other words, that the Commission could come produce anything useful. Many of them came initially simply because the Governor had invited them personally.

²⁷⁵ Interview with Commissioner, Summer 2003.

²⁷⁶ Interview with facilitator, Fall 2003.

At the same time, however, some of the Commissioners said that they thought the Commission offered some possibilities for cooperation that their previous encounters had not. Negotiators in the mediation had largely stuck to the issues of phosphorous and financial contributions. Here, not only was the mission of the group defined much more broadly in both issue and geographic scope, but the Commissioners would have a large role in converting the broad task mandated by the Governor's Executive Order into a practical and achievable mission. I start here with some reflections by the head facilitator as he describes how the participants struggled to figure out how they will cooperate and on what task.

[W]hat the Governor did—and this was one of his really wise choices—is that the scope of the issues was not the scope of the litigation issues. It was framed, and this was making its way through the policy world at the time, in the context of sustainability. Who the heck knew what that thing was?

The Executive Order was framed very broadly—saying not only do you need to worry about the phosphorous loading in the Everglades system and the Everglades National Park, but you have to worry about how we bring this region of Florida, the southeast region, forward in terms of economic issues and economic development that is in harmony with environmental protection and preservation. ...That is not a legal concept. That is not a concept that you could go to a book and find—not at that time, in 1994.

...All that meant was you could go to the table and negotiate in good faith because the scope was so huge. You didn't have to go to the table and say, "We are going to take on how many ppm [parts per million] phosphorous—right now, right here." ...They had the puzzle as to what the heck were the scope of issues. [93.]²⁷⁷

So the first thing that we see is that the Governor's mandate of "sustainability" was in fact providing a much more extensive, ambiguous, and uncertain space within which the Commissioners would seek to find agreement.²⁷⁸ With regards to the extensiveness of the mandate, many of the Commissioners commented on how the scope of possible issues was much more extensive, both geographically and by the number of issues that could be included. Instead

²⁷⁷ Interview with Head Facilitator, June 2003.

²⁷⁸ I differentiate between uncertainty and ambiguity as follows. Ambiguity refers to the inability to define and assign meaning to a certain concept or phenomenon. On the other hand, uncertainty is more about the degree to which one is or is not able to identify or predict the outcomes of actions or the causes of problems.

of just talking about the Everglades National Park, all of south Florida would be considered. Besides the undeveloped and agricultural areas extending from Lake Okeechobee to the Everglades National Park, the Commission would also consider urbanized regions, other agricultural areas, and the bays into which the Everglades drained. Similarly, the possible set of issues was more extensive, including transportation and highway design, urban and smart growth issues, land use, mining, land purchases, fisheries, an array of water quality issues, water supply to diverse range of water users, energy use, and more.

The ambiguity of the original mandate was another important factor that Commissioners mentioned. For example, the Commissioners had to deliberate extensively to come to some kind of agreement on what the “Everglades” meant. What were the boundaries of the Everglades? How did one represent its health and its function with regards to providing water to water supply, cleaning drainage water, providing habitat for various species, and so on? Many stakeholders commented that this aspect of the Governor’s mandate made it more palatable for stakeholders to participate, but that it also made them nervous and wary. The playing field was uncharted and that made it more difficult for them to know what they would have to respond to and what positions they might take.

To fulfill their duty, as the head facilitator relates, the Commission and Commissioners needed to define what “sustainability” meant and to frame the task before them. What would the Commission try to accomplish? What issues would be on the table, and how would they be divided and organized under the roof of sustainability? Another challenge they faced was learning and determining how they would deliberate together as a group. What kind of processes

would they use to identify options? How would they prioritize them? How would they make decisions and what would be the decision rule?

In its first six months, the Governor's Commission for a Sustainable South Florida (Commission) met monthly in two-day meetings. They deliberated about what sustainability meant and were educated in a large range of related issues, including the regional economy, water demand, natural systems management, public awareness, health care, and education. The purpose was to get a better idea of how these issues were linked under the rubric of sustainability so that the Commission could then define what sustainability they wanted for south Florida.

The facilitation team and Chair knew that they wanted to divide the large group into smaller units so that they could deliberate about the issues in more depth. They started the first few meetings by working with parties to establish what the issues were and how they could be divided. They used the results of their conflict assessment to propose a tentative division of the issues, from which they expected the Commissioners to organize their own categories. However, they discovered that the Commissioners were not yet ready to be divided into subcommittees, as the head facilitator describes here:

*We did a pre-meeting survey, we did get a bunch of issues identified and we did get it back to them. But they were [laughs] **not** going to be broken down into a committee structure quite yet, because they didn't have any faith or trust in what would happen. The people they knew would be up to devious things, what they would do when they were out of sight? There was a lot of that. That was basically coming from the litigation process that they'd all participated in some fashion or another.*
²⁷⁹[94.]

²⁷⁹ Interview with head facilitator, Summer 2003.

Norms of deliberation

If the Commission was to become an effective forum for deliberation, the Chair and facilitators figured that the Commissioners would need to learn how to deliberate together as a group. Even as stakeholders were deliberating together to define their mission, they were also learning about and getting comfortable with the norms and procedures they would use in their day-to-day discussions, for handling apparent impasses, for how they would create a jointly acceptable science, and for other matters pertaining to how the group would operate would conduct its activities.

Beyond the substantive work in the first few meetings, there was also a lot of work done towards preparing the Commissioners to be better deliberators, as the facilitator describes in this next passage.

*I don't think any of them really had any strong experience where you sat them at a table with people that you had been suing and you tried to conduct a deliberative and rational conversation, focusing on your interests. [I]nstead of taking on particular issues, we [had to] do some education first on this framework that the governor had asked them to think through, which was sustainability. We would just be having them work through some stuff, talk with each other, get to know each other a little bit. We were producing some of these early products that would be kind of compilations of key issues. We were trying to get some early agreements in the process, but the products were almost... well they were not **irrelevant** but they were the means to the end of these guys getting to work together. The structure of the small group discussions were carefully organized so that they gave them a sense of how you do effective brainstorming; how you begin to synthesize and draw themes out from brainstorming.²⁸⁰ [95.] [Emphasis in original]*

What the facilitator is telling us is that the Chair and facilitators also used the first meetings to educate the Commissioners in the possible ways that they might function as a group. For example, the group was learning to brainstorm together in smaller groups and in those sessions they saw that other stakeholders were not trying them to damage them at every opportunity.

²⁸⁰ Interview with head facilitator, June 2003.

Commissioners were also learning how they might break up issues, deliberate about them in smaller groups, and then how they compile what they learned and decided in those small groups to present to the other Commissioners when they met in plenary. They were learning how to use interim products—documents, flip charts, and other material means—to put together their thoughts, organize them, and find agreement.

Also interesting is the facilitator's comments about the role of the group's early products. Charts, lists, and other such products appear commonly in facilitated group deliberations; their role is usually understood as historical records. Yet the facilitator also makes another interesting observation about the role of these early texts, namely "*but the products are almost, well they're not irrelevant but that they were the means to the end of these guys getting to work together.*" He did not say how these objects serve as a means for joint problem solving, but we will find some answers shortly in the section on local objects.

Furthermore, they were discovering that such relationships are built on trusting a set of processes (single text technique, brainstorming, etc) that belong to the group, and no one individual. In other words, those relationships are being constructed in part through the creation of procedures for deliberating. These procedures, constructed and used at the place of interaction, provided a means for talking and getting to know each other that did not require them to "get along" outside the room. Local relationships could be built that still respected and allowed the continuing global conflict.

Finally, we also see that not only are these small groups developing skills and habits for deliberating, they are also building working relationships. They are learning that they can deliberate effectively with the “others.” They are learning that those others will not backstab them at the first opportunity. In other words, they are discovering that they can work with these other people—who outside the room they had, and often still did, count as enemies—to develop real and tangible products that move them from impasse to problem solving. This techniques also helped the group learn, as this next stakeholder tell us, even if it is not always “fun.”

You can't ramble off and tell long stories. You can't have any fun when you have to get 10 points that you all agree on that have to do with whatever your topic is. You have to—if you want to be a player in it—pay absolute attention to everything that's happening. [Then there are those] bland neutral [facilitators] who want you to play a game when you'd rather just be talking and you have to come out of it with some kind of result.

All that being said, it used to be tiring and irritating when we did it—but it was effective in making people deal with the consequences of their own opinions. I think one of the reasons it's so painful is because most of us enjoy the luxury of having five opinions before breakfast that are inconsistent with each other. It's much more comfortable. That process makes you deal with inconsistencies.²⁸¹ [96.]

Several of the Commissioners complained about the dullness or simplicity of the facilitation techniques, but in the same breath they credited them for pushing the parties to put together products rather than stick to positions draw from their outside and previous interactions. This stakeholder shows us how the facilitators were able to use their techniques to help stakeholders look at the issues and ideas by bringing them to the middle of the table, and then exploring them together as a group to see what, if anything, they could contribute to a solution. Such examination was not always as comfortable, for it took parties into new territories and had them think more carefully about what they said and how those ideas and concerns contributed to a solution rather than a debate. Put another way, ideas became like random pieces of hardware that

²⁸¹ Interview with environmental Commissioner, Summer 2004.

an inventor spreads on a table. They could be taken apart, combined, or otherwise configured as long as they produce the product that will answer the inventor's puzzle.

At the same time, the design of the process was organic in that the Commissioners had a role in structuring the process.²⁸² The Commissioners played an important role in was in structuring the agenda and in choosing when and how they would be broken into subcommittees. Later on, several selected Commissioners also worked with the Chair on an Executive Committee to prepare the agenda for meetings, to organize the deliberations of the various subcommittees and technical committees, and to vet possible draft documents for presentation to the whole Commission.

After six meetings, the Commissioners were getting increasingly frustrated by their inability to agree on an agenda of issues and set of subcommittees. However, over the next few meetings, the Commissioners were able to come together as a group in two additional important ways. First, they were able to design their first representations of what they wanted to achieve as a group. Second, the group as a whole began to develop a group identity.

Objects: Developing a first representation of a sustainable south Florida

Around the sixth meeting, the facilitators and Chair decided to do a visioning process to see if that could help the Commissioners feel more comfortable the purpose of the Commission.

Despite some initial misgivings on the part of the Commissioners and Chair that a visioning

²⁸² For example, one Commissioner said, "*I'd go back to the consortium and the way they managed the process. I think it was in Bob Jones' mind to have it go out one way but in fact because of the strong will of the people, we changed the process and simplified it. It was better as a result.*" Interview with Commissioner, June 2003.

process would be too “soft,” this process helped the Commissioners articulate a vision of the future south Florida in 2050 that they all agreed would be desirable. They then backtracked from that imagined future to consider what kinds changes would have to be made in order to achieve it. That allowed the Commission to organize the issues into categories they felt comfortable with. With that vision and agenda, they knew better what the process would try to achieve, the facilitator said, and so they could better evaluate the possibilities and risks of cooperating with the other parties. This was a significant step in the framing of the task before the Commissioners, built upon a common vision of sustainability that they had crafted themselves. Through the visioning process, stakeholders now knew what sustainability meant in terms of the Everglades and thus what they would try to achieve as a group. Interestingly enough, the vision they created revolved around a story of

...somebody and their kid fishing in a boat in Biscayne Bay in 2025 enjoying the newly restored Everglades and looking back, thinking about all the things that were done to get to that good place”
²⁸³ [97.]

The story captured a conception of the relationship between man and nature in the far future and outlined a ‘history of activities’ which south Florida had followed to achieve that state. While fairly broad, it presented a first broadly shared representation of what the Commissioners hoped south Florida would achieve. It also demonstrated to the Commissioners that they could agree on something.

²⁸³ Interviews with Commission Staff member, Fall 2003.

Many Commissioners observed that the consensus that south Florida was not sustainable was a pivotal understanding that the group came to share in moving forward. For example, one federal participant observed that:

[T]he Governor's Commission came up with goals and those kinds of a things as well, but I would say the defining sort of deeply held ...on the heading of a "shared value" (if I could use that word. A deeply held kind of a statement. In the case of the Commission it was, "We're not sustainable." ²⁸⁴ [98.]

Defining their vision and mission was important, but so was identifying a joint threat. As they deliberated about the different issues facing south Florida in the present and the challenges that the future held—for example, the need to provide services for a population expected to triple by the year 2050—the Commissioners came to a shared understanding that if changes were not made, it was likely that the degradation of the Everglades would have serious impacts on region's communities, economy, and quality of life. The group also came to agreement that the primary cause for south Florida's unsustainability was the current water management regime. In this way, they also knew that for south Florida to be sustainable, water management in the Everglades needed to be changed.

This understanding that the current status quo would not produce desirable outcomes was instrumental in building a group sense of what they came to call "shared adversity."

Commissioners used the term "shared adversity" frequently to describe the idea that the problem of sustainability and its solution was much bigger than any one group's victory. Many Commissioners referred to the term "shared adversity" when they sought to describe what they

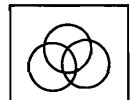
²⁸⁴ Interview with federal participant, Fall 2003.

felt was unique about the Commission when compared with other groups in which they had participated—including the Everglades Mediation.

In this and other incidences that we will see in this history, we learn that the Commissioners came to share a sense of purpose for what they would do as a group. This purpose was motivated not only by a goal, the improvement of water management in the Everglades but also a fear of what might happen if the status quo would be allowed to continue. While they shared this fear, the particulars of what “not sustainable” meant to each group varied considerably. For example, while Sugar stakeholders worried about maintaining their allocations of water in the face of increasing competition from and the power of urban stakeholders. They also worried about the continuing attempts by some in the environmental community to shrink or end the industry’s presence in the EAA, through taxes, litigation, and land grabs. Environmental and Indian groups worried about the deterioration of the local environment, although the Indian tribes were also very concerned about matters of control and sovereignty. In these and other ways, we see that the sense of threat is locally defined and shared even as it links to very different global understandings, values, and concerns.

Another key part of the Commission’s emerging sense of vision and purpose came during this next moment as described by the same federal participant.

One of the “defining moments” that Roy Rogers²⁸⁵ talks about is when [a stakeholder] put this little icon on the board [here the interviewee draws the classic sustainability diagram of three overlapping circles representing economy, environment,



²⁸⁵ Roy Rogers was one of the Commissioners. He was known for using the term “defining moments,” which became a term that many other Commissioners ended up using both in the Commission and in their interviews with me. These defining moments are epiphanies where the Commission found a way past an impasse or came to a new of thinking about a difficult problem.

and community] and said, “Aren’t we talking about the environment, the economy and social issues? And realizing there is an overlap on these issues, aren’t we trying to increase the overlap?”

... The going from having them apart to together. ...So, here’s where we are and where we want to go is to [the drawing of three circles with significant overlap]. That’s the area where we’re working things out in a compatible way of expanding the overlap. That was the image of what we’re about. But the point that I mean is until we got some consensus of everybody nodding up and down on stuff like that we couldn’t even break into groups.²⁸⁶[99.]

This Commissioner is describing how another Commissioner used the three-circle diagram, now so common to discussions about sustainability, to get his peers nodding their heads together. The idea of the three circles coming together provided a simple but powerful image that all the Commissioners agreed represented what they would try to do. It was also an enduring object throughout the process, one to which any Commissioner could point to and say, “aren’t we trying to increase the overlap?” In this way, it served as a boundary object, a tangible representation of what they were trying to achieve that structured the deliberation—for example by requiring that all arguments make sense not only to the individual interests around the table, but also to the joint project of increasing sustainability.

What we learn here is that as this group developed its sense of shared threat and purpose, the willingness of its members to seek a cooperative solution changes, moving from skepticism and mistrust to tentative searches for possible consensus to, later, a full embracing of the group’s identity as finding consensus to meet the needs of all stakeholders. Galison’s trading zone theory offers no insight into this need to develop and hone the willingness of the group’s members to cooperate, nor into the possible moves that stakeholders or interveners can make to increase it. Yet, we see here that directly addressing that problem of willingness is often essential when stakeholders have apparently irreconcilable differences.

²⁸⁶ Interview with federal participant, Fall 2003.

Furthermore, we discover here that interveners can help multi-stakeholder consensus building processes uncover possible areas for cooperation and negotiation by helping them talk about and jointly imagine a vision of the future that all parties find desirable. In developing such a vision, the group can then work out what steps are necessary—e.g. by moving from the vision backwards in time to the present—to achieve that future. Visioning is a common technique in facilitation and consensus building, but we discover here that visioning serves an additional purpose, creating not only a desirable endpoint but also the beginnings of a local space for cooperation that allows for simultaneous global differences in not only interests and values, but also of meaning and interpretation.

This dual character of the vision and threat was essential in helping justify why the Commission could cooperate together even as their communities were fighting outside the room about these and other issues. They could agree that something needed to be done, about what they might like to ultimately achieve, without “compromising” what they really believed and treasured. In other words, cooperation here could in fact reinforce individual identities and values rather than changing or merging them.

Finally, we also discern that as the Commissioners developed this sense of common threat and purpose, and understanding of how they deliberate and operate as a group, they were starting to develop a group identity, “namely who are we, what are we here for, what kinds of solutions do we seek, and how do we do things?”

Developing a group identity

There was one other moment that several Commissioners thought was key in helping the group cooperate and develop an identity. The event that is described below occurred during a public comment period. Just before the meeting described below, the Chair had successfully lobbied the Governor to invite one of the Miccosukee Tribe's to join the Commission. After this public comment period, the Chair planned to give the Miccosukee representative an invitation from the Governor to join the Commission. At the time, neither the tribal representative nor the other Commissioners knew that this representative was going to be invited to the Commission.

The head facilitator's account starts as the tribal representative was making his public comment. The representative launched into an attack on the Chair of the Commission, saying that he had kept the Miccosukee off the Commission. Note that the Commissioners also did not know that the Chair would be inviting the Miccosukee representative to the Commission.

*The entire Commission rallied around their Chair. They felt like the way in which this comment was offered was so over the top, so inappropriate to the way in which they had been starting to conduct their deliberation, that they collectively said, "That is **totally unacceptable.**" These guys were going to defend their Chairman. It was a very emotional moment. It was the first time they functioned almost in a kind of gut-instinct way—"by God, this is our Chairman and we're going to protect him!" [T]hey were going to be supportive of the Chairman even though, fifteen minutes before that, they wouldn't have imagined that they'd make such a statement. It was just the moment and the emotion of this event. [100.]²⁸⁷*

Other Commissioners also mentioned this particular event as a moment when the Commissioners first started to think of the group and its members as something to protect or value. As an

²⁸⁷ Interview with head facilitator, Spring 2003. Another Commissioner had this to say about this moment. "The defining moment, in addition to the invitation of sugar to go out to the EAA, was a direct assault by someone who had not participated previously. That gentlemen, he said our chair was not being truthful. And here's this group that, you know, they're like separate elements not coming together—and then suddenly in this magic moment when our chair was being assaulted, we all came together. That marked the beginning of our—our curve continued to be refined—but that's when it all came together." Interview with Commissioner, June 2003.

outsider challenges the validity of not only the Chair but also the group as a whole, the group responded by asserting the legitimacy and validity of their group and Chair.

This defense and support of the Chair expanded over the years so that Commissioners would look out for each other when they were criticized by outsiders or new Commissioners.

Commissioners from various groups mentioned how important these different moments were when they would be defended by someone from the opposing community. Sugar representatives noted instances where some environmental representatives would remind their environmental peers about the overall mission of sustainability and who took a stand that a viable agricultural industry was probably the best land use they could get for the Everglades Agricultural Area.

One environmental representative (Commissioner A) related an incident where a new environmental participant on the Commission was objecting to the Commission's position on a certain issue. When the environmentalist relating the story summarized the reasoning and history behind the decision, the new environmental participant objected, saying that that was not the position of the rest of the environmental community. At which, as the Commissioner A relates, a Commissioner from the agricultural (but not sugar) defended him. Reflecting on that instance, the environmental Commissioner said,

It was a defining moment for me to have somebody point out how together we were on that. ...You can imagine—it's hard to describe—but it's kind of like the way a well-orchestrated army, the Spartans, would beat most of their allies. They're unblockable. They're all together. Their shields are locked and they're not going to waver. If the guy next to them—even if they may hate him personally—they're going to fill the gap and help that person back up. ...Our business is not to decide whether we can restore the Everglades because we've already determined that, a, we're unsustainable in South Florida so we have to restore the Everglades and, b, we've been given the mandate to restore the Everglades. So, here we go.²⁸⁸ [101.]

²⁸⁸ Interview with Commissioner, Summer 2003.

So we see here how the group identity that started with a vision and a sense of shared adversity grew to much more. In these two examples, we witness how the group came to value its members and how opponents in one forum could defend each other in another, locally defined space of cooperation.

Students of conflict, groups, and identities have shown how conflict with an external party can bind groups together (Ross, 1993; Northrup; Coser, 1956); students of group dynamics have also shown that groups come together better when they develop a joint sense of purpose and methodologies for problem solving (Ancona et a.

Breaking into subcommittees

Having identified the two ends of the puzzle (problem and goals) and having gotten more familiar with their own process for dialogue, the Commissioners finally agreed to divide themselves into subcommittees. The four subcommittees that the Commission created were:

- ❑ Ecosystem Planning and Management
- ❑ Water Treatment, Storage, Retrieval, and Equitable Distribution
- ❑ Quality Community/People;
- ❑ Urban Form/Governance/Intergovernmental Coordination.

The Ecosystem Planning and Management committee investigated ways they might map or otherwise portray in a coherent way the “inherent values” of the natural systems. They also looked for ways to define, monitor, and evaluate the health of the natural systems in the Everglades and south Florida. The Water Treatment, Storage, Retrieval, and Equitable Distribution committee looked at how to better coordinate water resource planning and water allocation among the different human and nonhuman users. Issues covered in this subcommittee

included the use of buffer strips to reduce pollution flows into water bodies, aquifer and storage recovery, water storage, water conveyance and other questions largely revolving around water quality, distribution, and allocation.

The Quality Community/People committee examined issues of rural and urban economic development, education, healthcare, and crime. The Urban Form/Governance/Intergovernmental Coordination committee looked at issues about the coordination of planning processes occurring at different levels of governance. It also looked at issues of mass transit, urban densification, quality of life, defining urban boundaries, and increasing efficiency of natural resource use.

To manage the different subcommittees, the Chair and facilitators needed Commissioners who were willing and able to Chair the various subcommittees. The Chair anticipated this need from the beginning and used the first meetings to identify potential leaders and role models. In fact, many of the Commission I interviewed pointed to the leadership within the Commission as one reason why the group was able to cooperate. Both needs were anticipated by the Chair and facilitators, who used the first several meetings to both identify potential leaders and to give the Commissioners examples of and experience in different ways of deliberating as a group.

Roles and Leaders

Every Commissioner interviewed mentioned the obvious impartiality of the Chair's conduct during the meeting. They knew that he had environmental leanings but they found that he conducted the meetings so that each person had a voice. His set of leaders was filled with a broad spectrum of stakeholders and he listened to each person with the same attention. Every Commissioner felt that he had enormous faith in the group's ability to find consensus.

Equally important was his commitment to making the Commission work. He had and expressed a firm belief in the worth of the Commission's enterprise and the need to come up with a solution that could make south Florida sustainable. This commitment to reaching a consensus on each decision was catching, Commissioners told me. Several mentioned the feeling that, when it seemed that there seemed to be an impasse, people would rally because,

*...there was no way they were going to let the Chair down.*²⁸⁹ [102.]

During the initial meetings, the Chair was identifying a potential cadre of leaders who could help him run the large group. In the first few meetings, the facilitators helped give the identified leaders opportunities to lead ad hoc working groups so that they could develop their deliberation and process management skills. These groups discussed issues brought up from the educational sessions, identified issues, and deliberated on what issues were key and how they might be categorized.

At the beginning, the Chair and facilitators gave each potential leader a set of prescribed activities to carry out in managing their subgroup as they brainstormed issues and brought back products to plenary meetings. Beyond these prescribed activities, the facilitators worked with these people informally to help them model "good" solving behaviour to their peers during these initial break out sessions. So instead of providing explicit training for the Commissioners, which would have apparently been impossible given the nature of the participants, the Chair and facilitators chose a set of potential role models from within the group

²⁸⁹ Interview with Commissioner, July 2003.

These leaders from the Commissioners played several important roles during the deliberations of the Commission by: (a) chairing subcommittees; (b) leading ad hoc working groups in plenary meetings; (c) setting an example of how the others might choose to deliberate and enforcing the group's norms; (d) serving as members of the Commission's executive committee. Some of these leaders would also serving as members of the Commission's Executive Committee that did much of the strategic planning in between meetings and who also examined draft documents to see if they were ready for examination and deliberation by the full Commission.

Besides the identified leaders and the Chair, there were other key roles that stakeholders played. For example, some became key dispute resolvers, people whom the Chair would send off into another room when it became apparent that the Commission had reached an impasse on a particular issue. Other members took on the role of enforcing group norms.

Procedures for scientific knowledge production

During its duration, the Commission convened several technical advisory bodies, including the Technical Advisory Committee (TAC), the Science Research Advisory Committee (SRAC), and the Conceptual Plan Support Group (CPSG). Membership in these committees was open to anyone who wanted to attend. Each of these groups included experts from the different stakeholding communities. A Chair for each group was selected from among its participants.

Commissioners largely agreed that the composition of these committees was balanced across stakeholders groups and was well-informed by technical experts. In general, these committees did not use or require facilitation assistance, although advice was available when it was required.

Commission staff also provided some process management assistance by taking notes and by preparing agendas and sometimes draft texts. Each committee produced one or more consensus reports that provided the Commission with additional information on some of the most pressing scientific issues around south Florida's sustainability and the ongoing work of the Restudy team.

One group, the TAC was placed in charge of formulating a water budget²⁹⁰ that would capture what the Everglades had looked like before human intervention. The purpose of this effort was to give Commissioners an idea of what the original starting point was and what they might aim for in their efforts to improve the management of the Everglades ecosystems. The TAC presented their final report, **Water Budget Report**, to the Commission in July 1995 and it was unanimously adopted.

Similarly the SRAC examined the feasibility of an innovative technology called aquifer and storage recovery (ASR) that some felt had great promise for improving water management in the Everglades. Aquifer and storage recovery is a technique for modifying water flows by storing excess water temporarily in underground wells. When water is required, the water is pumped from the wells so that it can enter the watershed again. At the time of the Commission's deliberations, ASR was relatively unknown and had only been tested at a small scale. The SRAC was to look into whether or not the technology might be feasible for managing the large scale flows through the Everglades. The technology was attractive because it provided an alternative means to surface storage for holding water, although some stakeholders were concerned about

²⁹⁰ A water budget accounts for the inflows and outflows from different areas in a watershed.

the possibility of impacts of storing dirty water underground.²⁹¹ The effects of storing dirty water in surface areas is better known. This Science Research Advisory Committee continued its work past the end of the first phase of the Commission and into the second phase of the Commission during which it delivered its report, *Aquifer and Storage Recovery Report*.²⁹²

Procedures for managing uncertainty

As the Commissioners started to formulate possible solutions, they had to confront important questions about the uncertainties underlying ASR technology and other aspects of the underlying scientific framework for their deliberations. To get an idea of that uncertainty and what the Commission did, consider the words of this following Commissioner:

*[Aquifer and storage recovery is] proven science but we've never done it on the scale that this envisions. A lot of the projections factored in ASR wells. If that didn't happen, what would the fall-back be? What's plan B if plan A didn't work out? How do you build flexibility into this process? So here now I come to what I think is the magic point. We couldn't start this huge undertaking with everything we needed to know and the degree of surety that indicated we could just go from where we were and fast-forward decades to the endpoint and say we knew everything we needed to and got it right from the start. So what we had to do was realize that this was an adaptive process—that we'll use the best science. You could study the subject to death and in the meantime the Florida Bay was crashing and the Everglades was in mortal threat. So we had come to a means by which not everybody had all the assurances that they needed, but they were willing to begin the process.*²⁹³ [103.]

The Restudy team and Commission were proposing to implement ASR technology at a much larger scale than had ever been done before. So, given the uncertainty of the science what could they do? We see several elements here in this Commissioners explanation. First, the

²⁹¹ On the other hand, surface storage requires land, which must either be set aside from the ecosystems or purchased from agricultural areas. Where it would be purchased from agricultural operations like sugar, stakeholders expected that the price would be high. Furthermore, much water stored on the surface is likely to evaporate each year.

²⁹² In the second phase of the Commission's deliberations, this group was known as the Conceptual Plan Support Group.

²⁹³ Interview with Commissioner, Summer 2003.

Commissioners had to realize and accept the need to move ahead with their “best guesses” and manage the resultant uncertainty as best they could through adaptive management. Adaptive management is an increasingly popular method of designing and implementing projects on systems that are incompletely understood and have significant uncertainty (Holling, 1978; Lee, 1993). Adaptive management recognizes scientific uncertainty and ignorance as well as the specificity of place; under these conditions, it says, project design should include learning mechanisms in which projects are monitored, the results evaluated, and plans adapted. As implementers monitor the system being managed, they learn more about what impacts different options are having. Those results would then be evaluated to determine what impacts the project is having on the ground. From those lessons, the project implementers can formulate changes to the project’s design or operation so as to improve its performance. The process of monitoring, evaluation, and adjustment is meant to be ongoing.

So we see from the Commissioner’s quote that the Commissioners had to come to a mutual understanding about what kind of uncertainties were acceptable and how they would manage that uncertainty; these can both be understood as locally negotiated procedures as are found in Galison’s trading zone theory. In making scientific experiments, the collaborating scientists need to coordinate theoretical assumption with experimental design and the limits of the experimental machine. As well, the scientific groups have to take a careful look at what kinds of uncertainties and limitations exist within the measurement devices that they have, and then make difficult choices about what configurations or designs will be suitable for making an experiment implementable and also producing the desired results.

Similarly, here the group needs to make choices about what kinds of uncertainties they are willing to live with as a group. In this situation, we see that the Commission took risks in moving forward despite great uncertainty, and that they managed that risk by establishing a monitoring program and looking at contingency plans. These choices the Commissioners made about uncertainties depended on the trust they had developed in each other and their nascent desire to construct a suitable and jointly beneficial water management project. These choices also built upon created understandings about the limitations of what they could measure, what they knew, and what they could predict.

These understandings are local because they depend on the analysis this group has taken to understand the particularities of the Central and South Florida Project following procedures the group agreed upon. Such understandings did not translate into a consensus among the global communities. These groups still fight over many issues relating to the Everglades and its restoration and management.

Producing The Initial Report

Over the next nine months, these Commissioners met intensively in their subcommittees. Each committee was chaired by two Commissioners selected by the Chair. Each group examined their subset of issues with the expectation that they would produce at the end of nine months a draft document that highlighted some of their suggestions and areas of ongoing disagreement as a group. In group plenary, they would bring back some draft documents to the group plenary. Early drafts were brought to the whole Commission for review and feedback as part of helping the different subcommittees focus their products and stay on track.

By the end of nine months, the four committees were supposed to bring their final reports back to the full Commission so that they could be reviewed and integrated into what would become the *Initial Report*. Some of the committees struggled to meet this deadline however, largely because they sought to reach a full agreement within the committee so as to avoid re-opening the issues when they reported back to the whole group. In the end, the Chair and facilitators had to convince them that their goal was unreachable, because the Commission would not be able to know how it felt about any one committee's report until it was seen in context of all four reports.²⁹⁴

Once the committees did bring back their draft documents in June 1995, the Commission spent the next 4 months using single text techniques to negotiate the final document for this phase of their deliberations, namely *The Initial Report*. The Initial Report was unanimously adopted by the Commission and supported by the federal members as well. It covered a vast array of issues and included 110 recommendations for how to make south Florida more sustainable. The *Initial Report* contained recommendations for (a) improving water management and ecosystems, (b) promoting sustainable communities and redirecting urban growth towards decaying urban inner city areas under the Eastward Ho! Initiative.²⁹⁵

²⁹⁴ For example, the head facilitator said, "*The products they were producing in their committee structures, we couldn't get them back. We tried to say, 'Stop your committee work. It's time to put a single text together and do a plenary process.' ... We had to take the products of the three, weave them into a single text and then work a single-text process going forward. It took us about three months. They [had] started to negotiate issues out. They wanted to defend everything they did as opposed to contribute it into a single-text and use that to negotiate the [whole] piece going forward.*" Interview with head facilitator, September 2003.

²⁹⁵ Many of the recommendations included in the urban portion of the *Initial Report* later were incorporated into a state statute, the 1996 Sustainable Communities program. Similarly the Eastward Ho! Initiative was supported by the South Florida Regional Planning Council—a body that coordinates local planning councils

At this point, the Commission could have been disbanded, but the Governor and Task Force still wanted the Commission to work more directly with the Task Force and the Restudy team to improve the timeliness and political legitimacy of the Restudy. This fit was natural in several ways. First, the Commission had already established a framework, sustainability, which had proved viable for enabling their cooperation around issues like those being covered by the Restudy. Second, the Commission had already identified water management as the key factor for south Florida's sustainability. Third, the Commission had already recommended that they or some other similar entity be used to provide guidance to the Restudy.

Single Text and Prioritization techniques

In talking about the facilitation techniques of the facilitators, one Commissioner had this to say:

When I first started out with facilitated discussions, I wanted to walk out. I hated it! We went through things that were very tedious. We had the strike-out, underlined stuff that we went on and on about. Having these posters up there, you write things down. You can throw up any idea you want. Then you have all these things pasted on the wall and you put these dots up. I thought, "Man, this is Mickey Mouse stuff!" But it worked.

Instead of arguing over these things, you had the opportunity to vote with the dots. They kept saying, "Say anything you want. Go ahead and say it, put it out there, and everybody else can look at it. If this is a idea that gets only two yellow dots then, okay, it's out." You go for the things that have the dots.

It diffuses the competition, hostility. You've just got your dots. And then you know, this idea has 20 dots and this one has none so that idea's out of here. When there were choices to be made, the Chair pretty much handed it over to [the facilitator] and we went through that process. I was impressed. I started out thinking it was silly but it works.²⁹⁶ [104.]

around south Florida and the brown fields recommendations were codified into the 1997 Brownfield Redevelopment Act of the Florida Legislature. In March 1998, Vice-President Gore Core announced that the Eastward Ho! Brownfield Partnership, a regional collaborative effort to implement the recommendations of the *Initial Report*, was to designated as a National Brownfield Showcase Community.

²⁹⁶ Interview with Commissioner, Fall 2003.

In developing the Initial Report, and its later products, the Commissioners relied heavily on the single text techniques and prioritization processes that were introduced and managed by the facilitators. Single text techniques are relatively well-known in facilitation circles. Essentially, negotiators are presented with a draft text of some sort (a table of contents, a draft agreement, and so on) that they use in their deliberations. Typically, the parties will go over each element of the single text to either approve it, modify it (e.g. underline), or delete it (e.g. strike-out).

One typical single text technique that the Commission used went as follows. The facilitators or someone else would prepare a draft text for the audience's consideration. Then they would go over each section with the participants and ask them to give a number for each section. If that number was 4 or 5, that person was in favour of that section. On the other hand, one or more votes that were a one or two would flag a particular section for further deliberation. In this way, the facilitators were quickly able to separate those sections that were uncontroversial from those that were.

Then the Commission would go back to the problematic sections and ask the people who voted a one or a two to explain what their problems were with the section in question. From there, the group would start exploring different options to see if they could address the concerns of the disagreeing stakeholders. Sometimes the Chair would send a few people outside of the room to tackle the apparent impasse in a small group discussion.

The facilitator also used flip charts, overheads, and other means as a way of capturing and organizing ideas and options during a discussion among participants. The facilitators also has a

number of techniques that help parties begin to prioritize between different ideas and options. The Commissioner above talks about one method, in which the different options are put on a wall and then the participants are given a number of dots or other means by which to indicate their votes. These techniques can be implemented in several different ways. In the Commissioner's description above, they can put more than one dot for a preferred option; in other cases, participants might be restricted to one vote per option. At the end, the group could clearly see what options were not going to be supported by the group and which ones needed more focused attention.

These different techniques allowed the Commission to construct products without having to debate every nuance of the underlying theories and beliefs. In other words, these techniques allowed stakeholders to develop Sunstein's "incompletely theorized agreements."

In some ways, this activity represents the classical negotiation perspective of mutual gains tradeoffs (Fisher and Ury, 1991; Susskind 1996). Parties agree to what is on the paper because it allows each to achieve more than they would away from the table. However, something more than this seems to be happening. These and other single text techniques provide stakeholders to agree on the composition of an outside product while concurrently holding to and evaluating decisions and outcomes from totally different beliefs, values, and epistemologies. Agreement and disagreement can co-exist in these local objects and border languages. So one party might agree to Passage A in a draft agreement because, according to their beliefs, it will make agriculture more sustainable; another party might agree because they believe that it will lead to the eventual ending of agriculture.

This dynamic underlies the Commissioner's method of discussing and packaging different options, in which one participant might say, "Would it be better if we changed this passage (or this option) as follows?" In this way, participants can go back and forth testing options until they find one that seems better than the others even when they do not have a single theory or equation to measure the worth of the different options that were being evaluated.

The above may sound like legislative deal making with assistance from facilitators, but a closer look reveals more. It's not just the text that matters. The Commissioners had to agree on the procedures that were used to create, modify, and, eventually finalize the text. They also had to talk about the meaning of the terms and concepts in that text—for example, Aquifer and storage recovery, flow paths, and so on. What mattered were the choices that the group made (use a facilitator, use single texts, use dots, eliminate those options with too few votes, decide what counts as "too few," and so on) and the character of these choices, namely that stakeholders agree to use them locally without expectation that any party will be bound to those procedures in other forums.

Furthermore, there is another characteristic to this kind of single text crafting. In their discussions about the text, the Commissioners did need to know something about what the others cared about; otherwise they would not be able to make suggestions that are attractive to the other side. At the same time, however, there was no need to agree on why an option is right or wrong, good or bad. Instead, there is a trial-and-error back-and-forth optimization process in which each party is responsible for one dimension of a complex multi-dimensional calculation against which

the solution was being optimized. This is important because it emphasizes that parties with apparently irreconcilable differences can proceed without fully understanding each other or agreeing on how the worth of the developing product should be measured. Instead, they can proceed by agreeing on how they will measure the worth despite the lack of a common measure. Instead of agreeing on one ruler, they agree on how to (a) produce and present options so that each party can measure their worth and (b) how to move from one option towards a more desirable one, and (c) how to know when an option is good enough.

Finally, there is something fundamentally pragmatic about what these parties are doing here. Having agreed that something needed to be done and having crafted a general vision of what they wanted to achieve, now these stakeholders are moving forward the best way while accepting that their differences will not be resolved and that they all need to be respected. The Commission's respect for each other's differences did not come automatically, as we have seen. The parties had to learn how they might cooperate effectively despite those differences. They had to demonstrate to themselves their ability as a group to develop worthwhile products, starting with the simplest of flip charts and other products in the first meetings. Knowing that cooperation was possible on this problem of restoring Everglades through changing the Central and South Florida Project made accepting those differences and pragmatic problem solving much more palatable.

Second Phase—a sustainable Restudy

The fact that the Commission would go into a second phase, and in fact that it had lasted more than one year, was unusual for a Florida state Commission. Entering the second phase of their

work, the Commission retained its membership and deliberative practices. The Commission was asked to, informally at first, to provide advice to the Task Force about how the ongoing Restudy could be designed. Commissioners agreed to do that, as long as their role was to provide recommendations about how to make the Restudy more sustainable; they did not want to focus just on environmental goals and indicators.

The Commissioners started right away to work with the Restudy team—the group of experts from the US Army Corps of Engineers, the South Florida Water Management District, and other state and federal agencies who were doing the technical work for the Restudy. Over the first few months of this second phase, the Restudy team worked with the Commissioners to develop an initial list of priority activities for the preferred alternative of the Restudy.

This was the beginning of intense interactions over four years between the Commission and the Restudy team. These meetings started with the Corps educating the Commissioners on what the official process was for selecting preferred alternatives. Then the Corps staff and Commissioners started looking at a list of possible projects and goals for replumbing the Central and South Florida Project. Once they had a list, they started prioritizing among the different options using their established prioritization techniques.

Norms

Most Commissioners also believe that the code of conduct followed by the group was essential for productive deliberations. Commissioners were able to develop predictable ways that they would behave with each other as they sought solutions for some very difficult problems. These norms were not written down or encoded formally. Instead, stakeholders talked about how some

parties set the tone by modeling active listening, creativity, and other elements for easier problem solving.

The Chair and the facilitators were some of the first parties to demonstrate what would become good dialogue behaviour in the Commission. However, this next account shows that some of the Commissioners also played a role in directly promoting and enforcing group norms. The incident that this Commissioner is describing took place after the Commission has been meeting for approximately two years. The interviewee had just joined the group, and the story he relates revolves around a particular moment when he discovers that he has accidentally acted outside the norms of the group. This moment is what this Commissioner called his “real initiation” as a Commissioner. It starts when the narrating Commissioner makes a statement in which he stating a position on a certain issue. And he is shocked when another Commissioner, whom he understood as being fairly mild-mannered, interrupted him and delivered a short but passionate speech directed at how he was acting as a new Commissioner.

This guy stood up and he said [here the interviewee is imitating a passionate speech], “Mr. Chairman, I must object to the position that [this Commissioner] has taken on this which is contrary to what we have all discussed.” He went on for some time and he was visibly upset, tight lipped. I got up and I was really kind of thinking to myself, “That is odd that he is that vehement—that I evoked that kind of response from him.” I went over and sat next to him and said, “Can you tell me what’s going on? What did I do? Why are you this upset?” And he could hardly look at me and he just said, “You’ve got a lot to learn.” I said, “Give me some guidance as to why I got your blood-pressure up.” And it came down to, you know, if you are going to be part of this Commission you need to work towards solutions—not just complain about something that’s wrong.

*[B]efore the next meeting, I went over and had breakfast with him. I said, “I want to talk to you about some stuff.” And we came to complete agreement. That, for me, was a “defining moment.” That was my official entrance into being a Commission member. Instead of saying, “This is a real problem,” you say, “I think this is sort of a problem but I think we might be able to get around it by doing this.” The solution-oriented thing. That to me was **the** example of what made that Commission different from everything that’s come before and that’s come after.²⁹⁷ [105.]*

²⁹⁷ Interview with Commissioner, Summer 2003.

So here we see this fascinating moment in which one Commissioner has apparently acted outside the norms of the group and that the deviance is not directed at what he was saying but how he was saying it. In other words, as the narrator recounts, “*an objection to an issue rather than trying to phrase it as a solution.*” And so we see how important the procedures and the ways of deliberating are to the group. A Commissioner can object, she can point out faults, but she needs to do so in a way that always keeps in mind how the group was going to find solutions that made south Florida sustainable.

Furthermore, we see that the narrating Commissioner makes a brave move to approach this person, whom he did not know well, to discover the reasons for the reaction and to see what might be done better. And there is in this moment a kind of revelation to the narrating Commissioner in which two parts are combined. One that there are norms for deliberating but two that he could sit down with this Commissioner, who was development-orientated, and reach consensus on a number of issues of concern. He discovers that there are solutions that can be found by talking in the right way, by asking questions and probing rather than objecting.

From this account, we learn a lot about how the Commission has shaped its own task and procedures over the years. This story gives us insights into both the norms of the Commission and how those norms were propagated and enforced. Mediation and consensus building theory argue for the importance of ground rules and tend to look to the mediator to enforce those rules. Yet in this case, the Commission never established formal ground rules. Most people I interviewed pointed to the examples set by others as the primary method of establishing and enforcing the group’s norms. Some Commissioners did credit the facilitators for their role in

modeling good deliberative norms, but the majority tended to credit each other more. In fact, while the Chair was universally credited for the example he set, I was struck by how many different people on the Commission got mentioned by another Commissioner as someone they saw as a leader or as someone who set an example to follow.

Furthermore, we see the importance of focusing on something in between the parties. Here, the parties focus not on their differences but on what solutions their differences allow. This is the pragmatic approach favoured by consensus building theorists such as Forester (1999a) and Susskind (1999), but with something additional added. In this case, we have seen how important it is that the process of talking be locally created and globally acceptable. The process of creating a trading zone is as important as the process of creating a solution. As we have seen in the previous sections, trading zones are created by developing new, local ways of representing, defining, and talking about the problem. Trading zones are also created, as we see in the example above, as the parties come to agree on how they will talk together and perform other deliberative functions. To be able to name the approach (e.g. “working for solutions” above) is a crucial step towards naming the solution.

Locality, relationships, and maintaining boundaries

In this dissertation, I have emphasized on several occasions the importance of “locality,” in which the products and parts of a trading zone—including terms, concepts, objects, and procedures—both (a) make sense to the participants at the table and with regards to the situation (e.g. crafting policy for water resource management) and (b) separately acknowledge and respond to the different values and beliefs of the global communities.

The following example is one way to understand the importance of locality to this process. The next stakeholder is talking about one very difficult period during the Commission's tenure in which a group of environmental organizations, including some of those represented at the Commission, were seeking to impose a "penny-per-pound" tax on sugar production to pay for restoration. This Commissioner is describing the tactics Sugar used when it thought it might lose the referendum.

At the very last of it, [Sugar] figured the only way they would survive is to attack the water management district. ...[W]hen Sugar spent 2 weeks before the election running ads on the ineptitude [of the SFWMD]—"Do you want these people to manage a billion dollars in the water management district?"—[a member of SFWMD's Board of Governors, Greg] was furious. ...[T]hey were taking [the district] apart publicly, unfairly, viciously... [A Sugar representative] said, "[Greg], we wouldn't have done it if we didn't have to. We polled [the populace] and we were about to lose. That's the only way we could win. It's a survival-instinct."

That gives you an idea of the people who thought they had achieved friendship, consensus and whatnot—and the other guys turned into man-eating tigers. Then, you don't really want to go sit next to a man-eating tiger.

Yet, you guys got through it, so how did you?

We went and talked about urban sprawl or something for a couple of times [laughs]. We bored everybody back into friendship.²⁹⁸ [106.]

So we see here how difficult this time was for the Commissioners. Sugar and many environmentalists were locked in a very bitter and public battle, into which other stakeholders were dragged unwillingly. Each of these groups had representatives on the Commission who were also acting as the lead parties in the fight. So we see here a situation where the Commission could have fallen apart. What is striking about this episode is that even the stakeholders described in the quote continued to sit together around the table and deliberate about what the Commission would recommend for making water management in the C&SF Project more sustainable. Why were they able to do that?

²⁹⁸ Interview with environmental stakeholder, Fall 2003.

According to the Commissioner above, told half in joke, there were two reasons. First, they continued to focus on their products vis-à-vis sustainability. Second, as she says, they worked to reinforce the relationships that they had been developing over the first part of their deliberations. To get a better sense of how the Commission avoided a disaster, and managed to continue cooperating locally while fighting globally, I turn to the words of the Commission's Chair.

*As soon as I heard that that was going I was so invested in this Commission and I said we're not touching that, that's not our business. I regarded this as the extremes and they are going out and doing their thing. We were trying to plow forward with the solution-orientated, results-orientated effort. I told the Commission, we're not involved in this, we are just going to continue to do our thing. So we were never tainted in any way, there was no publicity associating the Commission with any of this.*²⁹⁹ [107.]

So the Chair is telling us that as soon as he heard about the issue, he decided not to discuss it in the group, despite the requests of some stakeholders. He decides to avoid it because he is worried about two aspects of the issue. First, it is a very divisive issue and he does not believe that the group can do anything about it. Second, he is worried about maintaining the credibility of the group as a impartial body trying to find solutions to a problem (sustainability) that all the stakeholders care about. He doesn't want the stakeholders outside the room to think that the Commission taking a "side" in this dispute. To do so, he believed could lead to the Commission being "tainted."

As the Chair continued discussing the event, he also provided his insights into why the group was able to continue moving forward even as its members were locked in this acrimonious dispute outside the room.

By that time we had developed enough internal [relationships]...Part of our strategy was to get everyone to know one another and trust one another again as human beings. So we had social

²⁹⁹ Interview with Commission Chair Dick Pettigrew, Fall 2004.

activities [that the Executive Director of the Commission and I] planned for every meeting. We had a deliberate strategy of making everybody that we could get to know one another, socialize. So we would have drinks afterwards, sometimes we would have a program but a lot of times we would just have an informal get-together at the bar and everybody was invited.

*But over time, as we worked through all these problems, understanding the system, the interconnectedness of the system, what had happened to it, what needed to be done to address the problems...at the same we were getting to know one another and learning that you could trust one's word and all that kind of stuff ...and overcoming this scorpion-like attitude.*³⁰⁰ [108.]

What we discover from the Chair is that the Commissioners were able to continue progressing in part due to the relationships they had formed during their deliberations, tentative friendships that the Chair had been encouraging from the beginning. These relationships were founded on being able to trust each other's words even as the groups these stakeholders represented continued fighting away from the table. This trust was not made on false promises to end the conflict, but instead about honest disclosures about what each party valued, what they wanted from the process, what they could and could not do as representatives of constituencies.

However, there is another aspect here too. Stakeholders were also getting to know each other as people, and developing common stories about fun and interesting experiences together. Several Commissioners, for example, told me gleefully about one of the Commissioner's table dance during a late night get-together. I gave an example about how a developer and environmental stakeholder got together over breakfast to talk about issues and a disagreement they had had the day before.³⁰¹

Finally, when I asked the other Commissioners why they agreed to the Chair's decision to avoid this issue, many of them pointed to their trust in the Chair as an important reason. He had, they

³⁰⁰ Interview with Commission Chair Dick Pettigrew, Fall 2004.

³⁰¹ See quote [105.] on page 296.

said, demonstrated a commitment to achieving a consensus that met everyone's interests and so when he made his decision about this issue, they felt comfortable that he was acting in their best interests.

So we see that stakeholders with apparently irreconcilable differences require something more than trading zone theory tells us to make progress when there is active conflict outside the room. Relationships play a key role here, both among the disputing parties and between the group and its Chair. The relationships the Commissioners developed meant that stakeholders can talk about issues even as they fight outside. They could focus on finding solutions for "boring" topics like urban development because they knew that was something that the group had to work on and, as they did so, they could see that the way their opponents were operating at the table still followed the group's norms and expectations. In other words, the Commissioners could see that their counterparts could still be trusted at the table even when they might have been acting untrustworthily away from it.

While trading zone theory does not talk about the importance of these relationships, it does give us a new perspective on them. Relationships, like the words, concepts, procedures, and objects of trading zones, can function locally and yet remain globally separated. In this incident, the stakeholders found that their relationships at the table had some independence from their interactions outside the room. One of the key characteristics of trading zone theory is the semi-permeable nature of the boundary surrounding the trading zone. Cooperation occurs within a bubble that stakeholders create. What stakeholders create and do in that bubble continues to pay homage to their differences. However, by paying attention to, and seeking to manipulate the

particulars of a concrete situation, stakeholders can find new ways to talk about, envision, and manipulate reality that goes beyond what their more abstract conflict normally allows. This dynamic is what Forester calls the “fallacy of misplaced abstraction”³⁰² and what trading zone theory calls locality. Trading zones are created when stakeholders mix talking with doing, and we see here that trading zone theory needs to include relationship building as part of its generative genius.

Conceptual Plan

The next key milestone was the adoption by the Commission of *A Conceptual Plan* for the Restudy. The Conceptual Plan was based on the top 40 list of preferred projects that had been identified by the Commissioners earlier. After further deliberation, the Corps and Commission agreed that the Commission could better guide the Restudy effort if they could help the Corps organize the list of projects into a series of 13 thematic categories, which later became known as Concepts. The 13 Concepts covered 4 broad themes in the effort, namely: (1) regional water storage for natural systems and water supplies; (2) natural areas enhancement and restoration; (3) improved water quality, and (4) improved operation, management, and implementation practices (see Table 7 below). Each concept would include projects that shared some similar characteristics. For example, Concept 3 - Everglades Agricultural Area included three possible options, each of which involved the creation of surface storage. These three options were:

- ❑ Everglades Construction Project – STAs (the projects from the Mediation and EFA)
- ❑ Bolles And Cross Canal Project
- ❑ EAA Water Storage Areas

³⁰² Personal communication. See also Forester (1999a).

Table 7: 13 Concepts in A Conceptual Plan

A Conceptual Plan listed thirteen concepts that would organize the Restudy. These concepts captured similarities between the 40 preferred projects.

Concept 1: Regional Storage Within the Everglades Headwaters and Adjacent Areas

Concept 2: Lake Okeechobee Operational Plan

Concept 3: Everglades Agricultural Area Storage

Concept 4: Water Preserve Areas

Concept 5: Natural Areas Continuity

Concept 6: Water Supply and Flood Protection for Urban and Agricultural Areas

Concept 7: Adequate Water Quality for Natural System Functioning

Concept 8: Increased Spatial Extent and Quality of Wetlands Beyond the Everglades

Concept 9: Invasive Plant Control

Concept 10: Aquifer Storage and Recovery

Concept 11: Protection and Restoration of Coastal, Estuarine, and Marine Ecosystems

Concept 12: Conservation of Soil

Concept 13: Operation, Management, and Implementation of the C&SF Project Modifications and Related Lands

In creating these Concepts, the Commission and Corps recognized that a project from a particular concept might have multiple impacts. For example, a surface storage project could alter the hydroperiod, provide water for urban and agricultural needs, and improve water quality. As the Commissioners and the Restudy team were developing and integrating the Concepts, they used illustrative maps to keep track of how each concept and project fit with each other and the whole program.

Objects: Maps

Maps played an important role throughout the Commission's cooperation with the Restudy team. To get a better idea of how maps enabled the expert Restudy team and the lay Commissioners to work together effectively, consider the words of this next Commissioner.

Maps were important. We got an update as the [Restudy team] would refine their map as to how things would progress with ...the master plan ...for the Everglades. At one time, a large portion of the people felt that what we were trying to do was restore the historic pattern to the Everglades. It was the map that showed that this was not the end-place. That given the conditions that exist today, the most you could do was this, this, this and this—but your end-point isn't going to restore what was the ancient Everglades. ...The reality was we've altered it so much that that isn't going to work and

*so it shouldn't be your goal. The goal should be to do the best you can with what you have and make sure you have the right allocation and water quality. And all of those questions were the central charge—so that was a map that went through a remarkable scrutiny over a period of months and years. It was part of each of the agendas.*³⁰³ [109.]

As the Commissioner above tells us, maps played a key role in the deliberations. The example this stakeholder gives revolves around the Commission's understanding of where it wanted the restoration project to go. The original idea in many of the Commissioner's minds was that the Restudy would find a way to return the Everglades back to its original state; however by working with maps the Commission came to understand that it would not be possible to do so—for example because significant portions of the original Everglades had already been lost to urban growth. Once the Commissioners agreed that returning to the original state was not possible, they had to find another way to represent the Everglades that they wanted to create, which they did through maps again. Using those maps, they could envision where they wanted the water to go, how it might be steered there, and how the 40 plus projects that would be considered as the Corps developed its preferred alternative would fit within a comprehensive master plan.

Furthermore, as the Corps modeled the impacts of different solution scenarios, it would present the results to the Commissioners using other maps. As this Commissioner explains.

*Our map, and our goals, and all of that were based on preliminary review or presentations that got into The Initial Report and then the Conceptual Plan.*³⁰⁴ *At every step of the way as they were*

³⁰³ Interview with Commissioner, Summer 2003.

³⁰⁴ The Conceptual Plan is one noteworthy example of a boundary object crucial to the Commission's efforts. The Conceptual Plan included a map, tables, and text. It was created by the Commission to facilitate their coordination with the Army Corps of Engineers' (Corps) team of scientists in developing the Restudy. Before the Conceptual Plan was created, the Commission and Restudy team had created a "top 40" list of projects for the restoration. What the Conceptual Plan did was to place those 40 projects into themes and then illustrate via maps and other devices how those components fit in relation with each other and the overall objectives in restoring the Everglades. It was developed in a joint effort between Restudy team scientists and the Commissioners. After it was completed, the Restudy team scientists would use it in organizing their plans and

*designing [the Restudy], we were following that roadmap and giving comments back. ... Everyone had their little part of the puzzle they were focused on. Not as many people focused on the whole system. But a map, our guideline, or program, or anything else, was the actual living document of the Restudy.*³⁰⁵ [110.]

For example, the Restudy team often presented the results of computer simulation runs by using maps that showed the differences between the depth of water calculated by their model and the target depths established earlier by the Commission for each region. With the degree of depth differences represented by colors on the maps, the Commission could quickly pinpoint the areas where the options were not meeting expectations and then ask questions to the Restudy team about those areas and discuss what changes the Restudy team should make to try to address the shortcomings. Later on, when it became apparent that not all goals could be met, the maps also made it easier for the Commissioners to identify and make difficult decisions about which different region would have its targets met more fully. In other words, the maps and initial documents helped the Commissioners evaluate the products coming from the Restudy team to see how they fit within the vision and goals identified by the Commissioners.

In this and other ways, maps helped the Commissioners develop a way of representing and manipulating "the Everglades" so that they could construct a plan that they could all agree upon. Like the single texts, these maps could be used and improved without requiring a shared and completely understood theory. Even when there were disagreements, the Commissioners could examine tradeoffs by using the maps and results to imagine different scenarios and evaluate the mutual attractiveness of each to see which one made the better solution.

presentations to the Commission. The Commissioners used it to place the different projects and proposals coming out of the Restudy team.

³⁰⁵ Interview with Commissioner, Fall 2004.

Procedures: challenging assumptions

I have mentioned already how the Commission examined the science and made decisions about how they would produce the knowledge they needed and what kinds of uncertainty they were willing to accept. However, the Commission also helped the Restudy team take a look a second look at the assumptions and methodologies that they were using in doing the Restudy, as this next federal participant tells us. The instance that he is describing occurred when some of the Commissioners asked the Restudy team to try a different approach in their problem solving. The Restudy team was using the current infrastructure as a starting point for making modifications to achieve its goals. The Commissioners in the instance described below have just challenged the Restudy team to model what would happen if they took out all of the structures in one area and just let the water flow naturally (“let it rip”).

The Corps and District kept saying, ‘You can’t do that.’ Everybody else was saying, ‘You may be right but we want you to try.’ They said, “We don’t have the time or resources—it won’t work. Trust us.” We said...everybody said, “Maybe we should just try it.” I said, “Why can’t you guys just stop and do what they’re asking?” ...The engineers sometimes put cultural constraints on the way they think about a problem that this group didn’t have. This group [the Commission] could redefine the cultural values, the public values, in terms of sometimes challenging the assumptions of the agencies. It turned out, they let it rip and it wasn’t so bad. It turned out it was not as bad as they feared, nor as simple as we talked. ³⁰⁶ [111.]

While most of this account of the Commission has focused on how the development of a trading zone helped the Commissioners cooperate despite the ongoing conflict among their constituencies, this story shows us that the trading zone also had to encompass the collaboration between the Corps and the Commission. In this situation, the Corps team struggled with the request from the Commission, because it went against the core methodology and assumptions

³⁰⁶ Interview with federal participant, Fall 2003.

they were using in the Restudy. The Corps team, as the stakeholder describes, tended to think in terms of the infrastructure already in place, and what could be added and subtracted from that infrastructure. What the Commission was pushing was for them to consider the system starting from the premise of no infrastructure, and then to think what needed to be added to make that work. The Corps only came to understand the merits of this alternative approach when they were forced to examine the Commission's request by political pressure. But they did learn just as the Commission learned to ask questions, such as the one above, from their interactions with the Corps.

Water Resources Development Act of 1996 and Farm Bill 1996

After it was approved by the Commission, and then the South Florida Water Management District and the Governor, the Conceptual Plan was incorporated into the federal Water Resources Development Act (WRDA) of 1996. The Water Resources Development Act acted on the recommendations of the Commission and established a formal partnership between the federal government and the state of Florida, with the two parties to share the costs of the Restudy equally. WRDA 1996 also established an accelerated deadline for the Restudy, by requiring it to be completed and delivered to Congress by July 1, 1999.

WRDA 1996 also provided the means by which the Commission could now become an official advisory body to the Task Force, which it did shortly after. With this appointment, the Task Force officially asked the Commission for its input in how to spend \$75million dollars allocated by WRDA 1996 for what it called Critical Restoration Projects (contingent on matching funds from the state) and \$200 million from the federal Farm Bill. For the Critical Restoration Projects,

the Commission reviewed the initial list of projects, listened to extensive public comment and advocacy for each of them, and then deliberated upon and ranked the list of projects to come up with a final list of projects. This final list was adopted unanimously by the Commission on June, 1997. Similarly, the Commission reached a consensus that the farm bill money should be spent on land acquisition for water storage in the EAA and another area called the East Coast Water Preserve Area.

Terms and concepts

As I have described the Commission's work so far, we have seen a hint of the rich language that this group developed to enable cooperation. Shared adversity, defining moments, aquifer and storage recovery, hydroperiod, and many other terms and concepts became part of the Commission's discourse. The development of this language helped the Commissioners in three ways. First, it gave them the words to talk about the phenomena under consideration. For example, what was the Everglades that stakeholders were talking about? Where would the boundaries be drawn for what was included geographically? What processes and species would be included in its ecological definition to represent how the Everglades would be impacted by the current and proposed water management schemes and to envision what the desirable state of the Everglades and south Florida would be? What was the new technology of "aquifer and storage recovery" and how would that be defined and modified for its use in the Everglades? What did the group mean by "hydroperiod?" Each of these words had a host of conceptual and scientific underpinnings which were examined by the Commissioners and then deliberately defined for their deliberations, even if that term had been in use before.

So, for example, the definition for the Everglades grew to include a set of boundaries that were negotiated by the Commissioners. It also included a set of indicators by which the Commissioners and the federal agencies would measure its health. One of the first technical advisory committee reports also established a baseline set of water balances that represented the original state of the Everglades before development.

Finally, the definition of the Everglades was ever changing as the Commissioners came to recognize as a group that they could never return the Everglades to its original state; instead they had to negotiate what the “new” and sustainable Everglades would look like. Part of this was defined by their vision of a sustainable south Florida as illustrated in the Initial Report. Another part of this definition was organized by the Conceptual Plan with its themes and map.

In fact, as the years went on, the depth of the interlanguage of the Commission, and later the Commission and Corps, grew quite substantial. One federal participant late in the process noted that that learning the language was,

...A daunting class. You have to cut your teeth on it the hard way. I spent any number of hours trying to come up to speed, even being a [technical expert and Florida native]. It's a daunting task for anybody. ³⁰⁷ [112.]

However, the language grew to include more than these definitions; it also contained group understandings about their experience in the group and about how they did things. For example, consider this next quote.

There was this little saying the people had: “Keep your pet pigs at home.” If you are going to have your pet pig, we'll have a pet pig festival. So for a couple of hours everybody will get out their

³⁰⁷ Interview with US Army Corps of Engineers staff, Fall 2004.

*pet pigs and parade them around—then we'll put them away and get back to the job of restoring the Everglades.*³⁰⁸ [113.]

The expression “Keep your pet pigs at home” was one of several expressions that the Commissioners used to talk about and record their shared experiences, ideas, and norms. Pet pigs refers to the specific projects that Commissioners and other participants would promote in the Commission’s deliberations.³⁰⁹ Another common expression used by the group was “shared adversity,” which represented to the Commissioners that they were all in this together and that no one was going to walk away with everything they wanted. As one Commissioner stated,

*The other key phrase that came out that I think was a marvelous moment was “shared adversity.” Nobody comes out a clear winner and just stands here with arms folded across their chest and says, “I won!” while everybody else lost. That’s not the deal. The deal is to be able to strike a balance so that, on the one hand, you can say everybody’s a winner—sort of—but maybe not to the definition that they might see it. The idea that we’re going to share adversity. I think it became part of our culture.*³¹⁰ [114.]

As Commissioners talk about “shared adversity” and “pet pigs,” we see that the language they developed went beyond describing the substance of their work to encompass certain understandings and sentiments among the Commissioners about who they are as a group and how they operate. Another interesting expression that appeared in some of the early quotes in this paper is “defining moments.” This was an expression used commonly by Commissioners to describe breakthrough events, such as the group making a significant step forward or a change in trust or relationships or any other event that was noteworthy as a historical moment in the

³⁰⁸ Interview with Commissioner, Fall 2003.

³⁰⁹ So, for example, one stakeholder might want a new canal to be built to bring more water to a certain area in the Everglades, or to take it away. Another might want some land purchased to stop development in a certain area, to provide for water storage, or some recreational opportunity.

³¹⁰ Interview with Commissioner, Fall 2003.

Commission. These expressions became part of a new interlanguage the Commission developed to capture ideas and concepts specific to their cooperation.

Completing the Restudy

After prioritizing projects for the two funds, the Commission convened a series of three panels in early 1998 in which representatives from the environmental, agricultural, limestone mining, recreational, Native American tribes, and utility interests were invited to give their input into the Restudy and what they thought the role of the Commission should be in that process.

Commissioners said that this process gave them a better idea of what issues they should focus their attention on in examining and commenting on the Restudy team's draft products. After four additional meetings in which they debated the effectiveness and appropriateness of the Restudy's effort to date, the Commission unanimously adopted the ***Interim Report on the C&SF Project Restudy*** in July 1998. In this report, the Commission stated that the key components of the Restudy were consistent with the ***Conceptual Plan***. They also provided 35 recommendations addressing eight major issue areas, namely:

1. increasing water storage
2. land procurement and connectivity
3. improving water quality
4. assurance to water users
5. water supply level of service
6. southwest Florida issues
7. modified water deliveries
8. coordination of activities.

At this juncture of the Commission's deliberations, the topics that were most controversial centred around allocation of water and issues of how to insure—through assurances, flexibility, and contingency plans—that the quantities promised in the Restudy to each area and stakeholder would be delivered reliably. Over the next few months, the Commission crafted recommendations on (1) how to deal with unexpected water shortages or excesses; (2) how to protect current levels of service during the transition period as the new management and infrastructure arrangements were put into place; (3) how to maintain a reliable water supply service overall; and (4) how to balance the benefits among all users as the comprehensive plan was implemented.

Based on the Commission's recommendations, the Restudy team released a draft comprehensive plan in October 1998. In the next few months, the Commission focused its deliberations on the draft comprehensive plan. They started once again by holding public hearings with a wide range of stakeholders groups. Taking this input, the Commission met and reached consensus on a set of recommendations for the draft plan in its report the *Restudy Plan Report*. In this report, the Commission once again pushed the Restudy team to (a) look at providing additional water storage, (b) to expand the scope of the Restudy and to improve its coordination with other ongoing or proposed projects for restoring the Everglades; (c) to focus more attention on improving water quality; and (d) to look at providing assurances to current water users that they would not suffer losses of existing water during the implementation of the Restudy's plan. Furthermore, the Commission recommended that the water allocation made for natural systems in the eventual comprehensive plan should be permanent.

Commissioners and staff noted that this stage of the Commission was one of the toughest because of the increasing level of detail. As the numbers become more apparent, stakeholders had to consider real questions of how the benefits would be allocated among the users. Since the plan also called for certain land purchases, land owners like the sugar industry also had to consider what they would be willing to give up in terms of land, if not in money (see Aside). As such, assurances was a hot and difficult topic. In the end, the Commission delivered to the Corps 22 specific recommendations about assurances in the *Restudy Plan Report*.

At the same time that the Commission was working on the *Restudy Plan Report*, the Restudy team had prepared its draft Implementation Plan, which they released in January, 1999. This plan outlined a more specific set of projects and schedule for authorizing and implementing them. This document was also reviewed by the Commission with a specific focus on funding issues for the plan. In the Commission's last meeting in March 1999, the Commission released two documents based on their consensus related to the draft Implementation Plan, namely the *Report on the January 25, 1999 Draft Implementation Plan of the C&SF Project Restudy* and the *Funding the Restudy of the Central and South Florida Project*. In the latter funding report, the Commission made several recommendations about how land acquisition should be funded and about how the SFWMD's permitting fees might be recouped so that funds could be made available for the Restudy. Some subjects were not addressed in these two reports because the Commissioners were not able to reach agreement on them, including (a) funding for construction, operation, and maintenance and (b) water quality.

LESSONS LEARNED

This case study contains interesting lessons for how stakeholders with apparently irreconcilable differences can cooperate and solve practical problems. To start, we have discovered that trading zone theory has much to tell us about how stakeholders in these difficult situations can create intermediate spaces where they can cooperate and develop local agreements while still remaining deeply divided globally. However, we have also discovered that trading zone theory as Galison conceived of it does not by itself explain why the Commissioners were able to reach agreement. Some of what we have learned suggests that trading zone theory can be expanded. Others lessons tell us that we need to consider more than trading zones, we also need to pay additional attention to (a) what makes stakeholders willing to try to find consensus and (b) what roles third parties can play in helping stakeholders develop the trading zones they need to solve the practical problems before them.

With regards to the development and usefulness of trading zones, we discovered that the Governor's Commission for a Sustainable South Florida created and relied upon a set of boundary terms and concepts, procedures, and objects. These essential elements of Galison's trading zones enabled stakeholders to talk about and make programs for sustainable water management in the Everglades.

As the Commissioners talked and imagined solutions to the problems of water management, they created and used single texts, computer model outputs, maps, and other local objects. Each of these objects was created and used following procedures that the Commissioners agreed to and followed.

These material objects provided the Commission with tangible representations of reality that they could then discuss and mold until they found ones they agreed were appropriate to (a) understand the situation on the ground and (b) imagine solutions for altering that situation to a more favourable state.

These objects also played an integral role in the development of the intermediate terms and concepts of the group by serving as a medium upon which definitions could be tested, manipulated, and recorded. Those terms and concepts in turn helped stakeholders develop and make sense of the material objects. These terms, concepts, and objects were all created and used following procedures that the group agreed upon. The meaning of these same representations of reality also depended upon procedures for their meaning. For example, aquifer and storage recovery had no meaning to stakeholders they agreed upon the procedures (e.g. calculations) linking it to water management.

Procedures also played an important role in how the Commissioners managed their discussions within their large group, for handling apparent impasses when they arise, for prioritizing among many options, for creating and using knowledge, and for managing uncertainty and making assumptions. We discovered that talking about and deciding upon these procedures, objects, and terms and concepts was as important, and hard to separate from, the substantive problem solving discussions. Finally, each of these elements served to help the stakeholders create a negotiating space where stakeholders agreed upon what needed to be done and what they meant for their joint project even as they disagreed about the meaning and implications of those same actions and decisions at the level of their apparently irreconcilable differences.

Terms and Concepts

The Commission's ability to develop terms, concepts, and local objects that represented their goal as a group was a crucial early step towards the Commission's cooperation. As they began their deliberations, they had to take great care to define what "sustainability" meant to them as a group. They took that one step farther when they agreed as a group that south Florida was not sustainable, which many Commissioners agreed was a "defining moment" for them as a group.³¹¹ These accomplishments were important because they provided a starting foundation that all the Commissioners agreed was valid. These and other terms gave them the means to talk about and define the problems at hand using means that were locally agreed upon and yet interpreted globally in very different ways. That is, the Commissioners knew what aquifer and storage recovery meant for this Central and South Florida Project, even if they disagreed about what it achieved, how it fit in with dearly held beliefs about how water ought to be managed (e.g. biological versus engineering approach) and so on. Put another way, the Commissioners agreed upon the meaning of these terms and concepts in their application to particular problem while simultaneously disagreeing about what they meant abstractly (e.g. philosophically, spiritually, etc.).

We also see that there are new terms that the Commissioners create to capture shared experiences as a group. For example, Commissioners use the expression "keep your pet pigs at home" to capture the understanding that the group has a shared purpose of making south Florida

³¹¹ For example, see quote [98.] on page 275.

sustainable.³¹² Not that individual the Commissioners stopped seeking their own interests, but that they did so within the framework that the group had agreed upon. Another such expression was “shared adversity,” through which the group expressed its understanding that they all faced the same problem that they needed to solve.³¹³

On the other hand, the Everglades mediation seems to suffer from a disconnect between the language participants were using and the goals they sought. All the participants seemed to agree at the beginning of the mediation that they wanted to do “save the Everglades.” The initial meetings offered some hope that the parties could find an integrative solution that looked at restoring the Everglades more holistically. However, the litigations and the Settlement Agreement loomed large in everyone’s mind; furthermore, the parties never extended the initial ideas of a more holistic approach into the second part of the mediation, which dealt with implementing the Mediated Technical Plan. In other words, there was no opportunity to talk about the financing of a holistic plan at the same time as talking about the content and outcomes of such a plan. Furthermore, the decision to exclude the environmental parties from the financial negotiations ended any hope of developing the boundary terms, concepts, objects, and procedures that benefited the Commission so much. There was no other terms and concepts that the environmentalists could use to talk about the issues, because the mediation did not ultimately maintain, expand, and integrate the initial language of hydroperiod restoration and restoring the Everglades into the latter negotiations about cost distribution. There was no conception that

³¹² For example, see quote [113.] on page 311.

³¹³ For example, see quote [114.] on page 311.

might have supported, for example, the exploration of possible different ways to integrate a variety of technical solutions with different cost sharing scenarios.

Local objects

In the Commission, local objects played a key role in facilitating cooperation among the different stakeholders on the Commission. In some cases, local objects helped stakeholders imagine what they were trying to achieve as a group—for example, consider the example of the three-circle diagram given by several Commissioners.³¹⁴ Maps played an integral role in the Commission’s deliberations. Some stakeholders talked about the importance of maps in helping stakeholders realize that they could not return back to the “original” Everglades, as one stakeholder recounted in this case study.³¹⁵

At one time, a large portion of the people felt that what we were trying to do was restore the historic pattern to the Everglades. It was the map that showed that this was not the end-place. The goal should be to do the best you can with what you have and make sure you have the right allocation and water quality. ...[S]o that was a map that went through a remarkable scrutiny over a period of months and years.

Another example was the short story that the Commission created that captured a joint vision of what they hoped to accomplish as a group.³¹⁶ Colour coded maps that showed how well different technical options would meet the goals that the Commissioners had set also served as focal points for conversations and deliberation between the Restudy team representatives and the Commission. The Commission also made extensive use of lists and dots to prioritize among the multiple choices and to identify what needed more extensive discussions. Describing the dot

³¹⁴ For example, see quote [99.] on page 277.

³¹⁵ See quote [109.] on page 305.

³¹⁶ For example, see quote [97.] on page 274.

exercises, one Commissioner gave an essential insight into why local objects were so important.³¹⁷

Instead of arguing over these things, you had the opportunity to vote with the dots. You got it all out there and it sort of diffuses the conflict I think. They kept saying, "Say anything you want. Go ahead and say it, put it out there, and everybody else can look at it. If this is a idea that gets only two yellow dots then, okay, it's out." You go for the things that have the dots.

Local objects served as an impartial, jointly constructed medium upon which ideas could be placed for examination and deliberation. They are "out there," in the space between the Commissioners, providing each of them an opportunity to look at ideas in an impartial architecture (a list, a table, etc) that was perceived as impartial by all the parties.

And it was not just the object that counts, the Commissioner tells us, but also the procedures around the use of the object. In the example she gives, it matters that the group as a whole agreed that the ideas with few dots will be discarded. Ideas are accepted, modified, and rejected via a process transparent to, and created by, the representatives at the table.

In all these ways, local objects created by the Commission and Restudy team provided the "roadmaps"³¹⁸ for plotting their way to a solution. As local objects, each provided both a structure for deliberations and the canvas upon which stakeholders would craft solutions to their problems.

³¹⁷ See quote [104.] on page 290.

³¹⁸ See quote [110.] on page 306.

The Everglades mediation used some objects as well. Draft texts were circulated among the negotiating parties for their consideration and modification. The Mediated Technical Plan had a powerful influence on the latter negotiations because once it was created, the rest of the negotiations were largely structured by the plan contained within in. However, it did not play the rich role that we saw for the texts, maps, and other objects in the Commission. These were the centre of active and ongoing deliberation as well as the stuff upon which solutions and ideas were tested, modified, and recorded.

What the Everglades mediation lacked was some map or other representation that they could use to construct and portray what they wanted to achieve as a group. There were some details in the Mediated Technical Plan, including some engineering drawings; however, what was the purpose of those suggested alterations? How did they fit within a vision or picture or set of goals for a restored Everglades that all stakeholders agreed they would try to achieve? Without some agreed upon model of talking about and measuring impacts and goals, the parties were stuck with the old and familiar indicators—money and phosphorous levels. Without a representation of something desirable, there was few ways to talk about possible trades across interests because the technologies being considered were not connected to the environmental restoration goals that some of the parties cared for deeply.

Procedures and norms

The Governor's Commission for a Sustainable South Florida had a rich array of procedures and norms that they used to handle different situations. There was an implicit code of conduct. While

there were no formal ground rules, the code of conduct was propagated by example³¹⁹ and enforced by the Commissioners themselves.³²⁰ These procedures covered more than a code of conduct, however. When Commissioners reached an apparent impasse, the Chair commonly selected a few Commissioners who were either passionate about the issue or were known for their creativity to go to another room to craft a solution to the problem that they could bring back to the group.³²¹ When particular scientific issues were controversial or laden with uncertainty, the Commission convened scientific advisory subcommittees with balanced representation from the various sides. Those subcommittees deliberated about the issues in question and prepared reports for the Commission's use.

Similarly, the Commission developed reliable mechanisms for coordinating their efforts with the Restudy team. They used local objects, such as the colour-coded maps, to talk about, alter, and choose among possible solutions. Commissioners were regularly briefed by the Restudy representative as to the progress of the team's efforts. The Commissioners and Restudy team also discussed the assumptions and uncertainties underlying the models and approach that the Restudy team was using in its work. In one instance, the Commission successfully challenged some of those core assumptions.³²²

Looking at the mediation, there was significant controversy about how the process should be run and who should be included. The environmentalists and tribal interests were not happy with their

³¹⁹ For example, see section **Roles and Leaders**)

³²⁰ For example, see quote [105.] on page 296.

³²¹ For example, see section **Roles and Leaders**)

³²² For example, see quote [111.] on page 307.

reduced role in the negotiations. Sugar stakeholders were never convinced with the procedures and assumptions used in generating the science to justify numerical standards. Many parties accused others of not acting in good faith. While all parties spoke favourably of the efforts of the mediator, each party also seemed to have one other party whose behaviour they felt was questionable or at least hindering productive negotiations.³²³

Beyond Galison's trading zones

This case study shows that trading zone theory has much to say about when and how stakeholders are able to cooperate despite their apparently irreconcilable differences. However, we have also learned that there are other factors at play here that need to be considered. The first set of these relate to whether or not parties are willing to cooperate. The second set relate to the important role that third parties can play in helping stakeholders create trading zones. The third has to do with the relationships that the Commissioners formed. The fourth has to do with issues of representation.

Willingness

At the beginning of the Commission, the Commissioners were unsure of whether or not it would be possible for them to effectively solve this problem together. One Commissioner described the first few meetings as “scorpions in a jar” while the facilitator described the initial attitude of the Commissioners as follows:³²⁴

Most came in pretty skeptical that you could get anybody together and do anything useful on these issues because there was so much bitterness over the course of the negotiations and litigation over the previous 4 years.

³²³ See section **Questions about good faith** on page 251

³²⁴ See quote [92.] on page 266.

However, this started to change as the stakeholders began unpacking the term sustainability and applying it to the context of south Florida and the Everglades. In what many Commissioners described as a “defining moment,” the Commissioners realized early in their deliberations that they all agreed that south Florida on its current course was “not sustainable.” As part of that realization, the Commissioners realized that they were in a situation of “shared adversity,” in which all parties could not afford to let the status quo remain; something needed to be done. In this realization, they discovered a shared interest in finding a solution that all parties could support because something needed to be done.

This discovery is also fascinating because it reveals to us an intricate relationship between interests and trading zones. As the Commissioners developed the trading zone, they found the means to talk about and justify their interests with their counterparts that did not exist before. For example, sugar producers could talk about sustaining rural communities as one reason for advocating for their business interests; environmentalists and other stakeholders found this easier to hear as they accepted the overarching premise of sustainability.

In addition, the Commissioners became more willing to cooperate and problem solve together as they discovered in the initial meetings that they could deliberate and produce products as a group, even if, as the facilitator said:

*...the products were almost... well they were not **irrelevant** but they were the means to the end of these guys getting to work together.*

In other words, even if the initial products were only simple lists and charts of very preliminary ideas, those products still mattered because they showed the Commissioners that they could talk

civilly to one another, agree about how they would go about answering a problem put before them, and then come to an agreement about that answer.

The Commissioners' growing willingness to seek a joint solution to the sustainability of the Everglades, and south Florida as a whole, was especially important during the "penny per pound" fight. This acrimonious and vicious fight put to the test the Commissioners' faith in their process, and that faith remained true. They could keep going because they focused on the specific problems before them, or as one stakeholder put it:³²⁵

We went and talked about urban sprawl or something for a couple of times [laughs]. We bored everybody back into friendship.

Finally, the Everglades mediation provides a striking contrast to the Commission. The stakeholders in this process were willing to talk with one another and explore possible solutions as long as the dialogue was framed around "saving the Everglades." However, when the negotiations focused specifically on how much each party should pay, that willingness evaporated, in large part because the group had not articulated a clear vision of where it was going. Lacking that vision, there was no joint overarching goal that each stakeholder could point to and say, "Are we making progress as a group to achieve this?"

This case, then, tells us that we need to carefully consider stakeholders' willingness to cooperate. We can not count on them wanting to cooperate, as assumption which trading zone theory makes. We have also learned, though, that having a trading zone can improve stakeholders' willingness over time. As procedures get set in place that seem productive, as stakeholder see

³²⁵ See quote [106.] on page 299.

their group produce agreement and tangible products, as meaning is made that makes sense for their specific problem and for their global values and beliefs, stakeholders can start to imagine and hope for better outcomes.

Finally, in looking at the Commissioners' experiences in this case, we heard how important the facilitators and Chair were in encouraging stakeholders to be more willing, through their commitment to problem solving and consensus, through their effective process management techniques, and through their ability to model and propagate examples of how to deliberate effectively.

Third parties

Third parties played a crucial role in improving stakeholders' willingness and ability to cooperate. The facilitators modeled good deliberative behaviour that included active listening, brainstorming, summarizing, and a commitment to helping Commissioners combine the different ideas around the table into possible solutions. By carefully designing the process and producing the early products, they also provided Commissioners with early experiences of effective problem solving that gave them hope that the Commissioners could be effective together.

Just above, we also saw how important some of the facilitation techniques were for presenting, examining, and prioritizing ideas—for example, the use of the dots to choose among options. The facilitators had a number of other techniques for handling ideas and draft materials that the Commission came to rely upon in their deliberations. The mechanics of each technique was important, but equally important to the Commissioners was that the facilitators suggesting and

implementing these techniques were impartial and committed to helping the group find a solution. As one stakeholder described the facilitator's efforts earlier,³²⁶

[B]land neutral people who want you to play a game when you'd rather just be talking and you have to come out of it with some kind of result.

The Commissioners also lauded the Chair for the impartiality he demonstrated in how he ran the group. That impartiality of his conduct was particularly striking to many because they knew that he personally had environmental leanings. Furthermore, he inspired the Commissioners because he was clearly devoted to ensuring that all parties would sign on to each product. His example encouraged the Commissioners to make the same commitment, which led to what some stakeholders described as a "mandate for consensus." Talking about this feeling, one Commissioner said the following,³²⁷

...there was no way [the Commissioners] were going to let the Chair down.

Finally, we heard some interesting things from the Commissioners' about the role of the Restudy team representatives who came to their meetings. While these representatives were in some ways stakeholders, as they came from federal and state government agencies, they also played a third party role in that they helped the Commission and Restudy team maintain the divisions of roles: the Commission as the group responsible for the public values and the Restudy team as the group responsible for coming up with the technical solution that would meet those values.

The Restudy liaisons helped the two groups manage their cooperation at the boundary. They were key in managing the flow of information between the Commission and the team of experts

³²⁶ See quote [96.] on page 272. Also, see quote [104.] on page 290.

³²⁷ See quote [102.] on page 283.

doing the technical work. In their interactions with the Commission, the Commissioners found them effective and honest in explaining the basic assumptions, uncertainties, and premises behind the technical work. The work that the Restudy liaisons did was instrumental in helping the Commissioners and Restudy team to problem solve effectively together, despite their very different concerns, beliefs, and levels of expertise.

To summarize, third parties played an important role in helping stakeholders in the Commission problem solving effectively despite their apparently irreconcilable differences; furthermore, some also assisted the effective collaboration between the more policy-orientated Commission and the technically focused Restudy team. In their capacities, we see that these third parties are crucial in helping stakeholders develop trading zones, increase their willingness to participate, and improve their ability to problem solve.

Relationships

The relationships that the Commissioners formed were an important factor in the ability of the Commission to problem solve. One clear example of this was during the “penny per pound” fight. In this period of the Commission’s deliberations, we discovered how those relationships helped the stakeholders maintain the uneasy boundaries between their collaborative efforts at the table and their fights beyond it. Their experience had shown them that their “opponents” on the Commission would deal honestly with them at the table even as they were trying to eviscerate

each other away from it.³²⁸ Knowing this, they could, as another Commissioner described it, talk:³²⁹

...about urban sprawl or something for a couple of times [laughs]. We bored everybody back into friendship.

In other words, the Commissioners knew that the relationships they had formed at the table, as well as the procedures, terms, and objects, could go on even in the worst of circumstances. These were, in the Commission's trading zone, business as usual, just as the "penny per pound" fight was business as usual in the world outside.

The Chair of the Commission directly encouraged stakeholders to build these relationships. Together with the Commission staff, he organized social events for the night in between the two-day meetings. Some were formal, based around speakers or some other activity; others were just open events in which people could share meals and drinks. As he explained earlier,³³⁰

Part of our strategy was to get everyone to know one another and trust one another again as human beings. ...[O]ver time, as we worked through all these problems, understanding the system, the interconnectedness of the system, what had happened to it, what needed to be done to address the problems...at the same we were getting to know one another and learning that you could trust one's word and all that kind of stuff ...and overcoming this scorpion-like attitude.

What we discover from the Chair is that the Commissioners were able to continue progressing in part due to the relationships they had formed during their deliberations, tentative friendships that the Chair had been encouraging from the beginning. These relationships were founded on being able to trust each other's words even as the groups these stakeholders represented continued

³²⁸ See quote [107.] on page 300.

³²⁹ See quote [106.] on page 299

³³⁰ See quote [108.] on page 301.

fighting away from the table. This trust was not made on false promises to end the conflict, but instead about honest disclosures about what each party valued, what they wanted from the process, what they could and could not do as representatives of constituencies. This trust was local, as we saw in the case of Sugar's attack on the South Florida Water Management District during the "penny per pound" fight, in that the same people could do dastardly things away from the table and still count on each other at it.³³¹

However, there is another aspect here too. Stakeholders were also getting to know each other as people, and developing common stories about fun and interesting experiences together. Several Commissioners, for example, told me gleefully about how one Commissioner danced on a table during a late night get-together. I gave another example about how a developer and environmental stakeholder got together over breakfast to talk about issues and a disagreement they had had the day before.³³²

[B]efore the next meeting, I went over and had breakfast with him. I said, "I want to talk to you about some stuff." And we came to complete agreement. That, for me, was a "defining moment."

In these different social encounters, stakeholders learned that the others were human beings, people that they might battle everyday but with whom, in this forum, they could talk, laugh, and explore solutions. These relationships helped the Commissioners focus on finding solutions for "boring" topics like urban development because they knew that was something that the group had to work on and they had seen their opponents follow the group's norms and expectations. In

³³¹ See quote [106.] on page 299

³³² See quote [105.] on page 296.

other words, the Commissioners could see that their counterparts could still be trusted at the table even when they might have been acting untrustworthily away from it.

While trading zone theory does not talk about the importance of these relationships, it does give us a new perspective on them. Relationships, like the words, concepts, procedures, and objects of trading zones, can function locally and yet remain globally separated. In this incident, the stakeholders found that their relationships at the table had some independence from their interactions outside the room. One of the key characteristics of trading zone theory is the semi-permeable nature of the boundary surrounding the trading zone. Cooperation occurs within a bubble that stakeholders create. What stakeholders create and do in that bubble continues to pay homage to their differences. However, by paying attention to, and seeking to manipulate the particulars of a concrete situation, stakeholders can find new ways to talk about, envision, and manipulate reality that goes beyond what their more abstract conflict normally allows. This dynamic is what trading zone theory calls locality. Trading zones are created when stakeholders mix talking with doing, and we see here that trading zone theory needs to include relationship building as part of its conception of how stakeholder create fragile, site-specific spaces for collaboration that co-exist with global conflict and stakeholders' apparently irreconcilable differences.

Representation

In selecting potential members for the Commission, the Governor's Office was very careful to select a set of stakeholders that were both broadly representative of the stakeholding communities. They even tried to balance the members across their political affiliations

(Democratic, Republican) as well. They also looked for stakeholder representatives who had previously demonstrated their ability to be open-minded in other forums.

Unlike the mediation that preceded it, the deliberations of the Commission were completely open to the public under Florida's Government-in-the-Sunshine. Meeting minutes were freely available to all interested parties, and each meeting included a scheduled time for public comment. Outsiders were even welcome to observe the ad hoc side meetings for which the Chair asked certain parties to work on a resolution of a particularly contentious issue.

The other interesting aspect of the representation in the Commission was described to us earlier in this chapter by one of the Commission members. He talked about how the Commission came to support each other when one member was attacked, even by members of his or her own community. Describing one such event, in which he had been defended against an attack by a fellow environmentalist, a Commission said the following:³³³

[I]t's hard to describe, but it's kind of like the way a well-orchestrated army, the Spartans, would beat most of their allies. Their shields are locked and they're not going to waver. If the guy next to them falls—even if they may hate him personally—they're going to fill the gap and help that person back up.

So we see here a different kind of relationship between the Commission and the global communities than was found in the Everglades Mediation or the Steering Committee described in the preceding chapter. There were times during the Commission's tenure where, as the stakeholder described above, the Commissioners would work together to enforce the agreements that they were creating. Stakeholders mentioned that the representatives made a decision early on

³³³ See quote [101.] on page 280

in the process, once they had begun to trust the process and each other, that they would not let themselves be completely beholden to their constituencies. Their thinking was that if they had to check each move with others, they would never make any progress. By taking this attitude, they said, they were able to be more creative in exploring solutions.

Furthermore, the process was already open, they said. Also, as mentioned above, the Commission deliberately sought feedback from other constituents who were not at the table. Most of the time, such feedback came during the allotted time in each meeting. However, as the final Restudy product was taking shape, the Commission also convened a number of sessions solely devoted to hearing the comments, ideas, and concerns of stakeholders who were not at the table.

So we see here that the Commissioners walked a fine line to create space for creativity while faithfully representing the different values and interests in the broader community. Instead of holding the meetings out of the public eye, which the Steering Committee did, this group instead used the prestige of its members and the numbers and diversity of its membership to assert itself while at the same time reaching out to those groups.

Being able to walk this fine line enabled the Commissioners to explore the new ideas with fewer restraints than otherwise might have been possible in such an transparent dialogue. The global differences were still well represented, both through the public comment periods as well as the diligent efforts of the Commissioners themselves. Representing constituencies in this matter,

then, can be seen as an action that encouraged the creation of a trading zone, with its particular cooperation amidst global differences.

Summary

From this case, we can see that trading zone theory provides an important lens into when and how stakeholders are able to cooperate despite their apparently irreconcilable differences. In the Commission, the stakeholder representatives crafted a trading zone that provide the space for them to talk about particular solutions to water management in the Everglades and south Florida even as their communities were fighting bitterly. This trading zone was comprised of words and concepts, procedures, and local objects as outlined by Galison. Each of these elements served to help stakeholders develop site-specific ways to interpreting, discussing, and acting upon the Everglades and the Central and South Florida Project, even as they also resonated with the global communities.

On the other hand, the mediation was not able to develop the same kinds of elements for its stakeholders to talk about what they might do together. Initial moves were made, but then momentum was lost as they moved into the negotiations about finances. Stakeholders fell back on old ways of thinking, talking, and acting as the legitimacy of their initial forays into making a trading zone (such as framing the mediation around “saving the Everglades”) were forgotten.

In addition, we found that trading zone theory is not sufficient, at least as Galison conceived of it. The willingness of parties to start and continue cooperating mattered in this case, as did the moves by the conveners, facilitators, and Chair to encourage that willingness. Third parties were

important in other ways, by creating texts and other local objects that helped structure and prod stakeholder problem solving as well as the procedures they helped stakeholders implement for all aspects of their deliberation. In looking at what the third parties contributed, we saw that they do many things that helped the Commission create and maintain their trading zone. From this, we learned more about how trading zones can be created in these difficult situations, and that we may want to consider adding third parties as an essential element of trading zones for problem solving when stakeholders have apparently irreconcilable differences.

The relationships that parties also helped them balance the tensions of local cooperation and exploration with ethical representation and their global differences. Again, trading zone theory does not explicitly consider the role of relationships, but we learned here how building them helped parties create and maintain their trading zone, and their willingness to forge ahead even when times were particularly tough.

Finally, the Commission and its conveners made important decisions about how the Commissioners would balance their duties to faithfully represent the values and interests of their communities with their abilities to make overtures to “enemies” and explore new kinds of solutions. The Commission made deliberate moves to assert a certain amount of independence at the same time as they actively sought public input into the emerging ideas. Taking this dual and almost paradoxical approach was instrumental in allowing them to make initial overtures, start constructing their trading zone, and explore new ideas in a timely fashion. As such, it tells us that trading zone theory in these cases needs to be expanded to include some thinking about how the

parties at the table can best balance their duties as representatives in terms of creating and maintaining trading zones.

WHAT THE FINDINGS TELL US

Looking at the experiences of the consensus building processes described and analyzed here, it is clear that consensus building theory has much to say about how stakeholders can reach agreements on practical solutions to complex and difficult water management problems even as they continue to be divided about values, identities, and beliefs. However, we also learned that trading zone theory offers some essential insights that consensus building practitioners and stakeholder representatives need when they approach these thorny disputes even as their constituencies are fighting about values, beliefs, and identities. In this chapter, I analyze what we learned about how and when stakeholders were able to cooperate and what that tells us about how to make these consensus building processes more effective in the face of value- and identity-based conflicts.

In California, stakeholders in CALFED's Agricultural Water Use Efficiency (AgWUE) Steering Committee (Steering Committee)³³⁴ were able to cooperate in exploring new ideas, identifying possible solutions, constructing a new scientific framework, and reaching agreement about a revolutionary Agricultural Water Use Efficiency Program. In Florida, stakeholders on the Governor's Commission for a Sustainable South Florida also found ways to cooperate and reach consensus even when they were fighting bitterly about the penny-per-pound tax outside the room. In both Florida and California, stakeholders saw these two agreements as remarkable and

³³⁴ As before, I include both the Focus Group and Steering Committee here under the term Steering Committee.

surprising successes, especially given the failure of the preceding processes to generate agreement and the long history of conflict and acrimony among the groups involved.

GROUND RULES AND NORMS

Realizing that an open, public process would likely fail, the Steering Committee created ground rules that limited how information could be released from the group to constituents and the greater public. While the stakeholder representatives at the table always kept certain key leaders informed of developments, the actual meetings were not open to observation. Removed from the active scrutiny of their counterparts, the Steering Committee members discovered they could explore new ideas and frameworks without fearing immediate retribution from some of their colleagues. How important were these ground rules? Even with these rules, the agricultural and environmental representatives on the Steering Committee continued to worry about how the new ideas would be perceived by their constituencies.

Unlike the Steering Committee, the Commission never established formal ground rules. Instead, they developed a strong set of informal norms that guided their behaviour as they collaborated on solving problems. These norms helped stakeholders regulate their behaviour as members of the group and to move from “scorpions in a jar” to a group whose “shields are locked.”

Indeed, the facilitators in the Steering Committee and Commission worked hard to provide role models of effective deliberative behaviour. In the Commission, we saw that facilitators do not have to be the only role models; the Chair and certain Commissioners also took on that responsibility. In addition, we found in the Commission and the Steering Committee that these

norms went beyond guiding stakeholder behaviour in everyday situations. Stakeholders in these groups also developed norms about how they would handle venting, impasses, external conflict, and other difficult, sporadic events. In fact, as these processes evolved, we heard about how stakeholders took on certain elements of facilitation. In the Commission, for example, we heard stakeholders talk about how codes of conduct were enforced by certain Commissioners. Even as the stakeholders in the Commission expected each member to be forceful representatives for their interests, they perceived some of those same stakeholder representatives as impartial enforcers of norms, subcommittee Chairs. The Steering Committee members also took on some of the responsibilities originally assigned to the facilitators. We heard from one stakeholder, for example, how the Steering Committee members learned to help a member who was venting, eliciting their concerns through a process of questioning and then seeking ways to better respond to that stakeholder's concerns.

Furthermore, in the Commission we saw how these norms could be backed by and encoded in group members' shared expressions and stories. Many of the Commissioners talked about shared adversity, solution-focused problem solving, and pet pigs. These expressions and the stories, attached to them, captured important understandings that the group came to about how they would go about their business in this particular process. While these expressions and stories did not describe or guide the overall relationships among the groups, they provided real inspiration to those within the Commission.

SINGLE TEXTS AND OTHER OBJECTS

Many stakeholders were especially struck by how the facilitators worked with stakeholders to incorporate each new idea into a greater conceptual framework using various kinds of single texts. As the Steering Committee started its deliberations, the facilitators worked with stakeholders to develop a draft Table of Contents for the program document they were working to produce. As stakeholders started to come up with new ideas, those were worked into draft texts that allowed the Steering Committee members to see how those ideas fit within the emerging Agricultural Water Use Efficiency Program, and how that Program fit within the larger CALFED Bay-Delta Program effort. Similarly, the Commission made extensive use of texts in their deliberations. The dot technique described by one Commissioner provided one example of how ideas could be organized and pruned.

Additionally, we also saw how other material representations of ideas and phenomena played a key role in helping stakeholders cooperate and reach agreement. The facilitators of the Steering Committee worked with the Core Team and Steering Committee to develop and use PowerPoint presentations, diagrams, and spreadsheets to coordinate their efforts in building the AgWUE Program. Similarly, the Commission and Restudy team used color-coded maps and other graphic representations to facilitate their cooperation in building the eventual program. In both these processes, these material representations of concepts and phenomena on the ground became an intermediate product that stakeholders used to characterize where they were and where they wanted to go. For example, the Restudy team in Florida used color-coded maps to capture how close the latest technical option had come to achieving the goals set by the Commission. The Commission and the Restudy team would then use those maps to discuss the shortcomings of the

results, and what different options might be tried to improve the results. When it became apparent that the ideal outcome could not be achieved, the Commission and Restudy team used the same maps to talk about and make hard decisions about which solution they would recommend.

In parallel, the Steering Committee used diagrams to represent some of the concepts being discussed by the group and to link those concepts to on the ground realities. To demonstrate what a flow path was, the Core Team gave the Steering Committee diagrams that showed how the scientific framework and techniques being proposed would track the quality, quantity, and timing of water as it moved through the watershed. Those diagrams were complemented by spreadsheets that showed how flow paths would be calculated in practice. Both the diagrams and the spreadsheets then became products that the Steering Committee members worked on to improve the emerging Program.

Through these examples, we saw how objects helped stakeholders develop concrete ways of talking about problems, organizing ideas and options, and optimizing solutions. While consensus building theory recommends the use of single texts, it has little to say about why these texts are important, especially when it comes to stakeholders cooperating despite their apparently irreconcilable differences. The findings of this research gives us more insight into the usefulness of these objects and suggests that we need to expand consensus building practice to include a more deliberate and thoughtful use of maps, models, diagrams, spreadsheets, and other objects to aid deliberations among people who make sense of and value the world in very different ways. Single texts and other objectives provide the means for stakeholders to engage in Innes and

Booher's (1999) bricolage problem solving, in which solutions can be optimized without relying on rational "trades" that are difficult for stakeholders worried about "compromising values."

JOINT FACT-FINDING

In recent years, consensus building has focused more attention on how stakeholders deal with their disagreements about scientific facts and knowledge production (Adler et al., 2000; Ozawa, 1991; Susskind, 1999a; Ehrmann and Stinson, 1999). The Steering Committee and Commission engaged in intensive cooperation with the relevant experts to do the technical work on the emerging programs. The Commission also convened several of its own technical advisory committees to look at particularly important scientific issues—for example, aquifer and storage recovery and seepage management.

Both the Steering Committee and the Commission played an integral role in helping these technical teams develop the science behind the programs, and those technical teams played an equally important role in helping the stakeholder groups develop and integrate those frameworks into their policy work.

I outlined some of that cooperation in the discussion on about the role of objects in this coordination between scientific and stakeholder groups. Equally important were the procedures behind the development of those products. For the Commission, the Restudy team gave a careful presentation of the basic assumptions, theories, and calculations going into their computer models. They also introduced the Commissioners to how they would use those models. In one striking example, we also heard one stakeholder tell us about one incident where the

Commissioners challenged the Restudy team on some of its assumptions. Despite their initial resistance to that challenge, the Restudy team did eventually try the different approach and both groups came out of that appreciating each other's efforts more. Overall, the Restudy team was able to gain the trust of the Commissioners by the transparency of their efforts.

Similarly, the Core Team was able to gain the trust of the Steering Committee because of the efforts they took in walking that group through the calculations and assumptions underlying the technical work. The Core Team vetted each step in the development of the new scientific framework with the Steering Committee. The Core Team's conscientious efforts to integrate the concerns of all sides into their work were essential to generating legitimacy for the new framework. The Steering Committee and Core Team also worked cooperatively together to develop the presentations that CALFED used to present the Program to the broader stakeholder constituencies.

However, joint fact-finding was built on more than objects and procedures. The Steering Committee and Commission also had to create words to describe what the models and procedures were telling them. For example, as the Core Team and Steering Committee were constructing the new scientific framework, they had to develop new definitions for old and contested terms such as water use efficiency and new words such as quantifiable objectives. By the time the Program was almost fully developed, it was impossible to separate the science, words, objects, and procedures. The meaning of words was incomplete unless one knew the calculations and analyses that linked them to watersheds, ecosystems, agency jurisdictions, and

so on. Computer models and their outputs meant nothing until the Commission and the Restudy team had agreed on how would relate the results to their conception of sustainability.

From the findings of this study about joint fact-finding then, we see that consensus building theory needs to account not only for the procedures for creating jointly acceptable science, but also the objects and words that stakeholders need to develop and tie to those procedures in order to coordinate the crafting of agreement with the creation of science. The Everglades Mediation provided an excellent contrast. Stakeholders in that group was able to develop an initial technical plan, but they lacked the means to tie that framework into an overall conception of Everglades restoration that made sense to each and every party, both at the practical problem solving level of the negotiating table and the value and belief level of the global constituencies. Neither the Mediated Technical Plan nor the financial negotiations tied into an overall conception, however broad or vague, of the Everglades (including not only the land and water but also the politics, regulations, and other elements of the site), both of its present state and what a more desirable vision of that site might be. There were no maps and words to describe those possible connections.

BRICOLAGE AND PRAGMATISM

We also discovered that there was something very interesting about how stakeholders worked with the material as problem solved together. We heard very little about trades between differently prioritized interests or the victory of compelling arguments. Instead, what we saw in the Steering Committee and the Commission doing was constructing a complex product piece by piece. In the Steering Committee, for example, we heard one stakeholder talk about the

architectures that they developed as a group. As they constructed various ideas, he said, the group would constantly check how that component fit within the architecture they had. Similarly, when they reached an apparent impasse over some parts of an emerging product, another stakeholder described how the group members would start proposing modifications to the product on the table to see whether they could find another iteration or version of it that might work. To that product, each party brought a set of ideas and concerns that they would use to suggest modifications to it. Then, the other parties would look at the modified product to evaluate whether it was better or not, and what they might do to further improve it. So everything was centred on something outside the group, with no party having the total set of ideas, theories, and constraints to optimize it. A similar dynamic was seen in the Commission as they developed draft texts, maps, and charts of ideas and options.

As we see, there is no completely understood, single theory guiding what product the group chooses; instead that theory is distributed among many stakeholders who each apply their portion of it to the product being developed.

This aspect of how stakeholders work together resonates with some observations from the consensus building literature, most poignantly Innes and Booher (1999) analogy of consensus building as bricolage. We see this bricolage in the outward “solution-orientated” focus of the Commission and Steering Committee. Solutions are constructed by pieces, and sometimes the pieces added are unanticipated, strange, and exciting. The initial framing of the Commission around “sustainability” is one such example, as was the three-circle diagram. In the Steering

Committee, the unexpected addition of the ideas of quantifiable objectives and flow paths reveals another illustration of this idea that produced surprising results.

There is another aspect of this action within a trading zone that speaks directly to Gurevitch's (1989) idea of the "power of not understanding." As the parties in the Commission and Steering Committee moved away from theory-focused problem solving method applied to a known puzzle (e.g. phosphorous) towards the construction of an incompletely theorized process for constructing a jointly acceptable product (e.g. the Steering Committee's quantifiable objective-based AgWUE Program), they gave up arguing over which theory should govern decision-making and took on the project of producing an incompletely theorized yet acceptable creation. That is, no one party claimed to know what the formula was for an ideal product; instead each party separately applied their own formulas in evaluating and adjusting the product before them. And so, they were able to move ahead specifically because they gave up on the project of reconciling their differences into a single measure or theory and instead focused on what they could do with multiple and incompletely shared theories. As such, their action reminds us of Forester (1999a,b) and Susskind and Field's (1996) call for pragmatic action in the face of deep value differences: work on what you can solve rather than fight over what you can not.

This is not to say that the parties did not learn about each other, and should not. We saw in each case that the parties at the table did learn much about each other and that this learning and appreciation was important in helping those parties accept the contributions of each other to the final product, and also the limitations each put on where the solutions could go. However, the key point here, as indicated by Innes and Booher, as well as Gurevitch, is that understanding can

be distributed among multiple and different sources, with no one source containing a complete understanding. Furthermore, the responsibility to see that those different understandings are reflected in the emerging product is similarly distributed.

Finally, we see this bricolage depends on the consensus building process creating these diverse pieces. These pieces stakeholders use to construct and optimize products are not ideas, they are representations of ideas and understandings that are captured in created words as well as texts, maps, models, spreadsheets, diagrams, and other tangible objects. To talk about sustainability, the Commissioners had to develop procedures for talking about it, divide it into issues, and represent it using the three-circle diagram, texts, and other objects.

WILLINGNESS

There were important lessons in the cases about parties' willingness to explore options, and the moves that conveners, facilitators, Chairs, and the parties themselves could make to improve that willingness. Whether or not parties started a process willing to negotiate was not so interesting, although it is, of course, crucial. It is important for process conveners to somehow assess how willing parties are to negotiate with each other before proceeding. This willingness was based at least in large part on each group's individual perspectives of the desirability of a negotiated agreement or, using negotiation terms, the zone of possible agreement (ZOPA). At the same time, it is obvious that something more here is important, because the parties had expressed at least some readiness to participate before each of the four processes covered here.

What is more interesting then, is what we learned about how stakeholder representatives' readiness to explore new solutions was increased, or decreased, in these processes. For example, in the Florida case, we heard about the Governor's Office careful planning towards framing the overall mission of the Commission around sustainability. Framing the Commission this way opened up initial avenues for exploration that otherwise would have been missed if the group had just concentrated on water management or the restoration of the Everglades' ecosystems. We also saw how the facilitators and Chair worked with parties to increase their faith in the process by developing some early and simple products that demonstrated the possible effectiveness of the group as a deliberative body. In these and other ways, the Governor, Chair, and facilitator were able to increase the Commissioners enthusiasm for participating in the process.

Similarly, Bruce Babbitt's ultimatum to CALFED's Steering Committee—produce a Program description or watch someone else do it—proved to be a strong motivator for stakeholders to take the risks they needed to develop that Program despite the strong hostilities and mistrust between their constituencies. The parties' willingness also increased with the new ideas coming out of the Independent Review Panel on Agricultural Water Conservation Potential, which gave them some initial definitions and concepts for agricultural water use efficiency that fit each of their global values and beliefs. Following the example of the facilitators, the Steering Committee members had already started listening to and asking better questions of each other. This too made Steering Committee members more enthusiastic about seeing what their group could do.

We also observed how the Commission and the Steering Committee moved from mistrust to enthusiastic participation as they formed their site-specific concepts (e.g. the Commission's

definition of sustainability), procedures (e.g. the criteria and selection process for convening CALFED's Independent Review Panel), and objects (e.g. the three-circle diagram in the Commission's early deliberations). As they developed these words, procedures, and objects, the stakeholder representatives began to get a clearer idea of what threats and opportunities existed in this particular problem solving effort, and so they could assess more clearly what the consensus building literature calls the "zone of possible agreement" (Fisher and Ury, 1991). While stakeholders in the Commission and the Steering Committee never fully mapped out what that zone was, they had the means to identify solutions that were in the zone of possible agreement, and to choose from those solutions the ones that worked best.

The importance of these words and concepts, objects, and procedures can not be underestimated. While it would be easy to point to the influence of the Governor's Office and Bruce Babbitt's ultimatum as threats that motivated stakeholders to seek agreement, the reader must remember that parties in the BDAC WUE Work Group and the Everglades Mediation faced similar pressures to reach agreement as well. The BDAC WUE Work Group was tasked with providing guidance to a previous iteration of the Programmatic Environmental Impact Statement/ Environmental Impact Review and the Everglades Mediation was seeking to find a resolution to a long-standing, expensive litigation and improve the conditions of the Everglades. What both of these processes lacked, however, was the means for parties to articulate and visualize what they might achieve as a group while meeting the needs and values of the constituencies. Threats were not enough. There had to be a vision, which could be increasingly articulated over time using an interlanguage, of what the group could achieve.

RELATIONSHIPS

The relationships that the parties built in the Steering Committee and Commission played an important role in site-specific problem solving even as difficult battles were being waged outside the room. These relationships that parties in the Steering Committee and Commission formed created room for parties to help each other take risks in exploring new directions while defending their dearest values at the same time. As such, they tell us more about how stakeholders were able to maintain the boundaries around their problem solving space.

In the CALFED Water Use Efficiency Work Group and the Everglades Mediation, the parties with the deepest divisions were not able to, or in some cases not even willing to, build working or personal relationships with each other. In contrast, the members of the Steering Committee and Commission developed effective working relationships. Steering Committee members talked about the margarita party where they explored for the first time each other as human beings. Those relationships grew over time, as demonstrated by the humour in the meetings, the respect for each other's boundaries, and other actions (e.g. the baby gift). These relationships, they told us, helped them depersonalize the most difficult of issues, allowing the stakeholders to see and talk about them as if they were components to be worked into a solution, rather than positions to be fought. Such was the case in the Commission too. There, for example, we saw how one environmental and development stakeholder sat down over breakfast to talk about a difficult incident that had occurred the day before and then explore possible areas of agreement. This was, the stakeholder who described the event said, a defining moment in which he realized that the Commission was about solving problems, not defending positions.

In the Commission, we also discovered that Commissioners were willing to support and defend each other, even if they remained enemies. Or, as one stakeholder put so eloquently,³³⁵

Their shields are locked and they're not going to waver. If the guy next to them falls—even if they may hate him personally—they're going to fill the gap and help that person back up.

This defense did not extend beyond the purview of the Commission, however. This we saw clearly in the account of the “penny-per-pound” fight that occurred during the Commission’s deliberations. There, stakeholders who were cooperating actively and effectively in the Commission were also attacking each other mercilessly away from the table. This pragmatism could also be found in the Steering Committee, where stakeholders were very clear about where lines were being crossed, and then explored as a group how to find solutions within that defined space. For example, the environmental representatives did not attend the outreach sessions held for the agricultural constituency because they knew that even their presence at those meetings might have been enough to harm the credibility of the Program and their counterparts.

Agricultural Steering Committee members did not attend the environmental outreach sessions for the same reasons. Neither side wanted to be the “skunks at the party.”

From these and other findings from the two case studies here, we ascertained that personal and working relationships created space for stakeholders to explore options and new ways of thinking about the Program despite ongoing hostilities among their groups. These relationships clearly had a pragmatic dimension. Whether they liked or disliked each other did not matter.

These stakeholder representatives were able to balance what they did at the table from what they did away from it. At the same time, being able to see each other as humans as well as

³³⁵ See quote [101.] on page 280 above.

counterparts made the exploration of differences easier. As they treated each other with more respect, they discovered that they could separate the positions and values from the person, putting them on the table as materials and constraints to explore and employ in constructing solutions.

REPRESENTATION AND LOCALITY

The Steering Committee and Commission members were able to balance site-specific agreement with global disagreement because of the careful attention they paid to the ethics and mechanisms of representing their constituencies. For example, we discussed earlier why it was so necessary for the Steering Committee to conduct its meetings out of the public eye. This group opted for a more strategic, controlled way of informing stakeholders, choosing to release ideas only after the Steering Committee, and a few select informants such as the regional liaisons, had worked out its details and implications. Furthermore, the Steering Committee was never a formal advisory body. The Program that they developed was always presented as a CALFED product; the role of the Steering Committee was always minimized. The Steering Committee chose to do it this way to avoid knee-jerk reactions on the part of some stakeholders about “compromising with the enemy.”

The Commission’s approach to transparency was markedly different. Convened as a formal Governor’s commission, the Governor’s Commission for a Sustainable South Florida was obligated to open up their meetings to the public under Florida’s Government-in-the-Sunshine law. However, the Commissioners decided early on to assert a certain amount of independence from their communities. More specifically, they decided as a group that they would proceed with

exploring new and different ideas without checking each and every step with their organizations or constituencies. This did not mean that they stopped representing those parties faithfully, but that they created some room to explore new ideas and surprises as they arose. They were able to do this, in part, because of their large size, the political clout of the participants, and the explicit support of the Governor for the group's efforts.

We also discovered, however, the stakeholders in the Steering Committee and Commission found it easier to be effective representatives when they developed terms, objects, and procedures that allowed them to describe what they were doing in such a way that it resonated with the values and identities of their constituencies and with the situation on the ground. In California, a definition of water use efficiency was created for the Program that linked (a) local control over water management to (b) environmental objectives via (c) flow paths that tracked water quantity, timing, quality throughout the watershed. That definition was possible because of the comprehensive focus of CALFED, the nature of the watershed and it fit the values of the different stakeholder constituencies. In other words, it was a concept that linked global disparate values to specific solutions within a certain set of opportunities and constraints as defined by the specific physical, political, and administrative realities of the CALFED Bay-Delta Program and the watersheds it was acting upon.

Put another way, the words, objects, and procedures, along with the consensus building process, created a new playing field with new ways of deliberating and a different way of representing the world that was sufficiently different from the ones driving the conflict among stakeholders and yet intricately tied to and respectful of those different worldviews.

FACILITATORS, CHAIRS, AND JOINT FACT-FINDERS

The facilitators, the Chair of the Commission, and joint fact-finders played an important role in the Steering Committee and Commission's consensus building. They helped group members become better deliberators, create a comfortable working environment, develop a coherent process and product structure, coordinate the expert and planning efforts, and maintain the boundaries around the table that helped stakeholders explore new ideas while still representing their constituencies faithfully.

To start, the facilitators and the Commission Chair helped their group's members become better deliberators—individually and as a group. Although the members of both groups had been chosen for their open-mindedness, many of them still credited their facilitators, and in the Commission's case the Chair as well, for showing them how to negotiate and talk with each other more effectively. In the case of the Steering Committee, for example, the members said that they were very impressed by the careful listening skills of the facilitators. They found that the Steering Committee members learned and embodied those skills to such an extent that the facilitators could let the parties deal with many difficult situations—for example, when one party was venting.

In the Commission, the Chair and facilitators helped the Commissioners become better deliberators in another way. The Chair selected a subgroup of Commissioners whom he thought would be effective leaders in the group, and then had the facilitators work with those parties to improve their deliberative and facilitation skills. These parties then served as examples for their

peers. They also led their own ad hoc subgroups and, later, subcommittees. In these ways and others described in the case chapters, the facilitators and the Commission Chair helped their groups develop many of the procedures and norms that they would follow as they constructed solutions and sought agreement.

The impartiality of the facilitators and the Commission Chair was also essential to their effectiveness.³³⁶ It enhanced their credibility when they presented expert evidence, distributed draft texts, or proposed changes in how the group's procedures. As they acted impartially, these third-parties became loci for the recording, modification, combination, and testing of the diverse ideas that stakeholders were bringing to these processes. For example, the members of the Steering Committee credited their facilitators for how they would help the stakeholders combine and compare ideas in a larger conceptual architecture.

We also learned that interested parties could earn the right to act as impartial parties in a process. For example, the Chair of the Commission was known for his environmental leanings and yet the Commissioners respected him as both a model of impartiality and an inspiring leader who dedicated himself to helping the group reach consensus. The deep emotional and personal commitment the Chair showed to helping the group reach consensus led the Commissioners to believe they had a "mandate for consensus."

³³⁶ The importance and dimensions of the neutrality of impartiality for facilitators has been explored extensively in the consensus building literature (e.g. Forester and Stitzel, 1989; Susskind, 1981, 1999; and Cobb and Ritkin, 1991).

The importance of impartiality extended beyond the facilitators to key experts. Like the Commission's Chair, these parties could have been perceived as partial parties with distinct interests. Jack Keller was a long time advisor to agricultural water users and the Restudy team liaisons were US Army Corps of Engineers staff, with a distinct interest in the C&SF Project. However, they were able to demonstrate their impartiality in both processes.

In California, the Steering Committee members talked about the painstaking efforts the Core Team went through to make the science understandable to the lay members of the Steering Committee, and for how dedicated the Core Team was in incorporating their input into the development of the new scientific framework. The stakeholders felt confident that the Core Team was taking all of their values and input into account when constructing the new scientific framework.

The Commissioners made similar observations about the Restudy team's liaisons. The Commissioners were deeply impressed by work of the Restudy team's liaisons in explaining the science behind their work and in their ability to deliberate with stakeholders to analyze the results of computer simulations that tested different technical options.

Furthermore, these facilitators, Chairs, and experts served as medium upon which ideas, procedures, and objects can be placed, tested, and modified. For example, we heard from some stakeholders in the Steering Committee how the facilitators played a key role in reframing or mirroring the statements and explanations of stakeholders during the meetings (e.g. "is this what

you meant?”). As such, like a draft text or map, they help stakeholders by look at and manipulate ideas separated from participants.

Finally, we discerned from the experiences in these two cases that facilitators, Chairs, and experts played a large role in the crafting and maintenance of the boundaries that allowed stakeholders to solve specific problems and disagree about values and identities at the same time. They helped parties create relationships, understand more clearly the advantages and disadvantages of cooperation, and manage the flow and content of information between the group and represented constituencies. They modeled for parties a commitment towards group process and consensus. They worked with parties to integrate the scientific and policy work. Last but not least, they joined words and objects as media upon which ideas can be viewed and manipulated.

WORDS, OBJECTS, AND PROCEDURES

In the sections above, we have seen that consensus building theory provides some important explanations about how stakeholders were able to cooperate, but not a sufficient one. Words, objects, and procedures played an important role in each stage and each dimension of consensus building. Each word, object, and procedure was created at the table to explain and talk about how a local situation could be changed into a better one as seen through the eyes of each stakeholder community's values and identities. Furthermore, taking words, norms, calculations, ground rules, expressions, maps, models, stories, charts, and spreadsheets as separate ignores the interdependencies that we saw between them in the Steering Committee and Commission, and the lack of those connections in the BDAC WUE Work Group and Everglades Mediation.

To clarify the importance of these connections, I will draw upon one example from the case studies described in this work: the definition of water use efficiency in the Steering Committee. When we look back at the deliberations of the WUE Work Group, we saw that individual stakeholders had made efforts to introduce alternative definitions of water use efficiency that used either a watershed or quantifiable objective approach; however, that group never adopted or worked on these suggestions. In fact, the WUE Work Group never developed a consensus definition of water use efficiency at all.

So why did the Steering Committee take on this approach, and go so far with it? First, the Steering Committee members were more willing to go with the idea because they were involved in its creation from the beginning. The new definition had its roots in the Scoping Session of the Independent Review Panel on Agricultural Water Conservation Potential. That panel and its panelists were convened using procedures and guidelines developed in consultation with the Steering Committee members. In fact, the Scoping Session was convened two months before the actual Independent Review Panel because stakeholders wanted to have some say in the questions and procedures that would govern the deliberations of the panel.

For the Scoping Session, stakeholders also developed a set of questions that they wanted CALFED to ask the Independent Review Panel. The stakeholders were present when the panelists told CALFED that the questions being asked were the wrong ones, and their experts were able to play a role in helping the process form new questions that the Independent Review Panel would address in December.

Having gone through this process, the Steering Committee members were able to see the thinking behind the idea of a watershed approach based on measurable objectives as reflected in the observations of and deliberations with the impartial, expert panelists. It mattered that those same stakeholders had helped to choose those panelists and that the panelists were responding to questions developed by stakeholders. In this way, stakeholders could see these new ideas being played out on a medium that was removed from, and yet supported by, them. The Scoping Session was an important step towards exploring a new direction, but the definition of water use efficiency did not end there.

Over the next few years, the stakeholders had to develop this idea of water use efficiency. For example, how would they measure these objectives? How would they be set and by whom? How would water use efficiency measures in agricultural water districts be connected to these measurable objectives? How would that Program fit within the greater CALFED Bay-Delta Program and the state and federal regulatory system and water delivery projects? Would this idea of water use efficiency be acceptable to stakeholder constituencies that were used to fighting about what percentage of efficiency water districts should achieve?

As stakeholders answered these questions, water use efficiency became a concept that was connected to a set of procedures for implementation, to spreadsheets that contained procedures of calculation and methods of representing on the ground phenomenon, and to stakeholders' disparate and conflicting beliefs and values. Stakeholders created or redefined words to describe

these connections (e.g. targeted benefits, quantifiable objectives, and flow paths) by following a consensus building process they agreed was effective.

In this example, it is clear procedures, objects and words became intricately connected as stakeholders created a program for agricultural water use efficiency. It was not enough to create a scientific report or go through a consensus building process. Stakeholders needed to be able to represent the systems being discussed so that they could imagine what those systems might look like if certain changes were implemented; and then iteratively improve that representation until they agreed on a solution that they thought was the best achievable. That representation included a set of diagrams, spreadsheets, calculations, textual definitions, and program texts—all whose legitimacy and connection to stakeholder values had been carefully considered and crafted.

Galison argues that this process of generating a linked set of words, objects, and procedures—what he calls an interlanguage—enables stakeholders with apparently irreconcilable differences to solve problems that meet the disparate needs and values of their communities. As these words, objects, and procedures are developed, they create the local components that can be combined together to create meaning in the trading zone space. Interlanguages, he said, are geared towards coordinating specific actions to achieve specific results in the location of cooperation, while respecting and operating within stakeholders' differences.

Clearly, trading zone theory tells us how stakeholders who struggle over what viewpoints should be applied to the world can make sense as a group when they work on specific solutions for a particular dispute. Additionally, trading zones theory tell us why single texts are so important in

these consensus building processes, and why facilitators and stakeholders need to pay more attentions to the objects they use, or could use, to represent the situation on the ground. We learned how these interlanguages could increase the power of ground rules and group norms. Joint fact-finding also relies on more than just choosing procedures of knowledge creation that all stakeholders agree are valid. A vocabulary of words and objects are needed to focus that effort on what disparate and conflicting stakeholders care about, and to better coordinate the efforts of technical and stakeholder groups.

LIMITATIONS OF THIS STUDY AND FUTURE RESEARCH NEEDS

In choosing case studies investigated here, I deliberately selected ones in which a consensus building process had reached an agreement three to four years before the study commenced. My rationale for doing so was, simply, that I wanted to study collaborative efforts by stakeholders that had achieved a relatively stable agreement that was supported by stakeholders for a significant period of time. However, choosing these historical cases limited the kind of data that could be collected—for example, I could not observe the processes in any depth—and the quality of the data, in that the people I interviewed had to recall details of conversations and interactions that occurred many years ago.

While I was pleasantly surprised by how much stakeholders recalled of their interactions during these processes, there is no doubt that further studies that include the active observation of ongoing deliberations are necessary to learn more about the potential of trading zone theory to (a) explain moments of cooperation, (b) explore in more detail what trading zone theory might contribute to consensus building theory, and (c) inquire further into what both theories can tell

practitioners about how to better create and maintain these spaces and manage the boundaries between them and the conflict in which stakeholders are engaged.

Participant observation of ongoing processes is needed to better study the actions and interactions, attitudes, surprises, inspirations, frustrations, and other factors that draw stakeholders to unpack their world views and frames for interpreting a situation, and then create new, parallel perspectives and representations that combine their disparate and conflicting values, beliefs, and identities with the specifics of the situation on the ground. The findings of this research argue that these new representations are not so much transformations as creations. Delineating between changes and creations is not always easy; hence a more thorough study that tracks and compares the ways of representing the world and visualizing desirable outcomes at the table, in the heads of representatives, and at the level of organizations and constituencies could shed more light on the role and relative importance of transformations in the parties, as compared to the products and spaces created and shared by them, in helping stakeholders solve problems in the face of their apparently irreconcilable differences.

Observing participants in action and conducting interviews with them as the process unfolds could also be extremely useful for uncovering the choices and moves that individual stakeholders and the group as whole make as they balance exploring new ideas with faithfully representing their constituencies. Innes and Booher (1999) suggested that participants may sometimes forget or put aside their role as representatives in order to explore new ideas or acknowledge new ideas and understanding they have gained. Yet, the stakeholders in the two disputes here were always mindful of the fact that they represented their constituencies, and of the risks they took in

exploring new ideas. Further study of ongoing deliberations could reveal more about how stakeholder representatives actually manage this tension.

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APPENDIX A: SOME OF THE KEY ISSUES IDENTIFIED BY THE STEERING COMMITTEE'S *ISSUE AUDIT*³³⁷

Assurances. Stakeholders widely agree that this issue must be addressed to satisfy both agricultural and environmental concerns. Both agricultural and environmental interests are acutely concerned about reliability, but their definitions about reliability differ.

Real Water Savings versus Water Quality Gains. A key issue underlying the water use efficiency debate is the need to draw a more readily agreed-upon distinction between irrecoverable (real water) versus recoverable losses. There appears to be both confusion and disagreement over the gains to be realized from agricultural water use efficiency – in both real water saved and water quality improvements. The stakeholder interviews suggest the need for clarity of terms, definitions and aims.

Agricultural MOU (AB 3616) versus the Bureau Criteria. ...A number of stakeholders characterize the Agricultural Water Management Council process as a good start and suggest the Focus Group work to identify ways the Council process can be amended to build stronger support from the environmental community. Stakeholders from some environmental organizations, however, believe the MOU that created the Council is significantly flawed.

³³⁷ CONCUR (1998). *Issue Audit*. Presented at the Agricultural Water Use Efficiency Assurances Stakeholder Focus Group meeting, October 27, 1998.