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Collaborative Water Governance in New Zealand: Turning the Tide in the Canterbury Region?

Ali Memon and Ed Weber

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1. Introduction

In 1991, the New Zealand government passed the RMA, a landmark framework that devolves natural resource management authority to politically elected regional councils and encourages a collaborative approach to problem solving for the purpose of facilitating sustainable natural resource use. Yet, problems abound with the implementation of the RMA, not least of which is that it has proved to be long on environmental rhetoric and short on the ability to achieve its overarching legislative mandate of sustainability. As well, regional councils have been significantly constrained politically and institutionally to discharge the collaborative role effectively and, in fact, have opted instead to allocate surface and groundwater resources using command-and-control regulatory strategies grounded in a prior allocation, or "first-in-time, first-in-right" property rights framework (Memon and Selsky, 2004). In the case of the South Island's most populated region, Canterbury, growing demand for water resources since 1991 has increased competition and conflicts between different stakeholders for access to scarce water resources. The result has been a rapid advance toward the full allocation and, in many areas, unsustainable over-allocation of existing water resources along with accompanying negative ecological and water quality effects. Given current and expected growth in water use demand over the next several decades, the pending crisis of water resource use and management in Canterbury can only be described as acute and in need of a new approach capable of reframing stakeholders' decisions in support of water resource sustainability for the long haul. Notwithstanding the recently emergent public concerns about declining water quality, the water quality issues in Canterbury are long-standing and with limited natural attenuation potential. Climate is the primary driver of hydro-systems, with evidence of sub-regional climate variation over the last few decades (Martin and Williams, 2006).

Our objective in this paper is to draw on the increasingly voluminous international literature on collaborative approaches to watershed, natural resource, and ecosystem management to critically appraise the potential for successful collaborative governance of water resources in New Zealand, specifically in the Canterbury region of the South Island[1] and specifically for the purpose of engendering sustainable communities. By sustainable communities we mean an approach to governing "in which economic vitality, ecological integrity, civic democracy, and social well-being are linked in complementary fashion,

[1] The Canterbury case study examines the situation as it was until November 2007. Since then, a number of potentially significant initiatives have been undertaken by the Canterbury Regional Council to address water issues. The case study is based on in-depth interviews with a range of key stakeholders. To protect confidentiality, the respondents are not identified personally.

thereby fostering a high quality of life and a strong sense of reciprocal obligation among its members" (Hempel 1999, 48, 52). The approach to sustainability thus necessarily rejects the more traditional top-down, expert-led processes for deciphering and achieving sustainability[2] because it is believed that experts acting alone are inherently unable to deal with the complexity of the sustainability challenge and that long-term environmental policy success necessarily must involve the citizenry ultimately responsible for translating sustainability theory into successful on-the-ground results.[3] In short, we focus on collaboratives because the literature suggests that informed, deliberative engagement with stakeholders and the wider community can resolve competing demands, discover common ground and create ownership in jointly decided decisions and policies, improve environmental outcomes, support economic growth and profit-making activities, increase trust, and, more generally, facilitate the sustainable use and management of natural resources (Heikkila and Gerlak 2005; Kates, Clark et al. 2001; Mazmanian and Kraft 1999a; Ostrom 1990; Sabatier et al. 2005; Weber 2003, forthcoming).[4] Building successful collaborative capacity for the sake of sustainable communities, however, is not easy to do. There is general agreement that the effectiveness of a collaborative approach is contingent on having in place appropriate institutional arrangements that take into account the nature of the problem as well as the social, economic, and political context (Agrawal, 2001; Hanna, Folke, and Maler 1996; Healey, 2007; Lysak and Weber 2007; Sick 2008; Silver et al, 2007; Verma, 2007).

With these lessons in mind we focus our attention on the Canterbury region of New Zealand's South Island and ask "what are the obstacles to a successful collaborative approach focused on sustainable communities?" Using data derived from multiple sources, including published and unpublished documentary records, and in-depth interviews with key stakeholders in Canterbury conducted in November and December 2007, we find five primary obstacles to collaboration in Canterbury. First, some stakeholders have little or no incentive to cooperate, much less cooperate for the sake of sustainability given the current global economic climate for farm commodities, the current institutional inertia within New Zealand that works to reinforce the status quo slide toward unsustainable water use, and the fact that many, if not most people do not know, much less agree, that widespread water resource scarcity is a problem. Second, stakeholders and experts lack the scientific information necessary to develop an effective strategic, integrated water management system needed to support the collaborative sustainability approach. Third, stakeholders in Canterbury currently are operating in a low trust environment grounded in weak social capital. Fourth, the kind of leader(s) required to move collaboration and, by extension, sustainability, forward have not been evident, although this may now be changing. Fifth and finally, there are the complexities and uncertainties associated with the incorporation of Maori customary water rights under the Treaty of Waitangi.

The paper starts with the elucidation of key themes found in the international literature on institutional arrangements for the collaborative governance of natural resources, while the following section explores the obstacles to successful collaboration in the

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[2] The attempts to determine just what sustainability is and how it will be achieved tend to be top-down and expert-led, with limited public input, a command-and-control orientation, and indicators "developed by scientists for scientists" (Bell and Morse 1999, 48).

[3] Nijkamp and Perrels (1994). The move toward ecosystem management, more generally, also "require[s] a much more active role for citizens than was true of past resource planning and management efforts" (Cortner and Moote 1999, 61).

[4] The related theme of adaptive water governance also highlights the imperative for deliberative community engagement in managing water resources based on trust and social learning (Scholz and Stiftel 2004).

Canterbury region. The final section offers conclusions on whether and how such barriers to collaboration might be overcome, while also appraising recent efforts by Environment Canterbury (henceforth ECAN), the elected regional government council for the Canterbury region, to move towards collaborative, integrated watershed (or catchment) management.

2. Building Blocks for the Collaborative Governance of Water Resources

The sustainable development paradigm highlights the imperative to adopt water resource allocation strategies to achieve sustainability well-beings as policy outcomes. Approaching the water resource management issue from the integrated sustainability angle entails making difficult trade-offs between the many competing and often highly contested in-stream and abstractive uses of scarce surface and ground water resources. This means that the process of water allocation by any water allocation authority seeking sustainability is inherently political. Collective choices about the scope of management, who participates and how, and how collective decisions are made to resolve conflicts cannot be avoided by creating a single watershed authority with broad powers to comprehensively manage water on an integrated basis. In fact, there are a range of approaches and methods available that can be used to allocate water resources in order to achieve desired policy outcomes. Such methods range from regulatory approaches to market based economic instruments and community-based approaches. Notwithstanding the relative merits of these different methods (hierarchies, markets and networks), two of the key themes in the recent water resource governance literature that is devoted to making water resource management more effective, hence improving the likelihood of sustainable water use across time, are the concept of appropriate institutional arrangements and the prospect that a more networked system of governance that actively incorporates and empowers community-based collaborative institutions may well be the key to achieving successful integrated, sustainable water usage (Agrawal 2002; Pretty 2003; Ostrom 1990; Stiftel and Scholz 2005; Weber 2003).

We use the term institutional arrangements here more broadly compared with its common usage. The common usage of the term institutions pertains to an organisational entity such as a family, a firm or a government department**.** We use the term 'institution' in its sociological sense, as a rule, norm, or custom simultaneously enabling and constraining human agency (Bakker, 2002; Healey, 2007; Verma, 2007). The term institution encompasses formal rules (such as statutory prescriptions) and informal norms, roles and operating practices that are so stable, structured and accepted that they can said to be 'institutionalized'. Thus, one scholar has defined the term institutions as "the [formal and informal] rules of the game in a society or … the humanly devised constraints that shape human interaction" (North, 1990). Such rules and roles operate within and across organizations (Ostrom, 1990). Moreover, we focus our attention on institutions given that they have been found to play a critical role in determining the course and outcomes of human-environment relations (Connor and Dovers, 2004; Hanna, Folke and Maler 1996). Moreover, precisely because achieving sustainability is a long-term process, the role of institutional reform and institutional learning is critical because institutions exercise a major role in structuring human behavior (Agrawal, 2001) in terms of how humans interact with each other and how humans engage with their environments. The constraints and incentives derived from institutions influence the decisions and choices people make and thus affect policy adoption, implementation, and policy outcomes (Clingermayer and Feiock, 2001; Weber 1998).

The Expected Benefits of Collaborative Institutions

When it comes to collaborative institutions, the expectation is that the institutional constraints and incentives will tend to encourage and direct human behavior toward more effective problem solving in the public realm. Put differently, over the past 20 years, the social science literature has identified a number of expected benefits for public problem solving associated with collaborative approaches. Collaborative governance has the potential to:

- be more responsive to a broader variety of preferences and needs, thus increasing the likelihood of customized solutions which better take account of local circumstances and thus improve the effectiveness and legitimacy of governance outcomes and effective than top-down approaches (Gunningham, 2007).

- reduce transaction costs relative to hierarchical top-down approaches, especially for heterogenous, dispersed problems. The savings mean, for example, that more resources are available for attacking more public problems, or that fewer resources can be used to achieve the same amount of policy gain (Lubell 2002; Weber 1998);
- promote social and cognitive learning and improve the quality of technical information, as well as the political and social information essential to successful problem solving and negotiations among diverse interests (Weber 2003; Suskind 2004; Painter and Memon 2008);
- incorporate societal diversity (a democratic ideal) and give citizens and other stakeholders a genuine stake in policies and outcomes, which translates into ownership, or buy in--a willingness to actively support and enforce final decisions made within the collaborative—and the enhancement of long-term community capacity for problem-solving (Blomquist and Schlager 2005; Gunningham 2007; Painter and Memon 2008; Weber 1998);
- voluntarily leverage the expenditure of additional civil society and private sector resources on the behalf of the management and resolution of public problems that, if left unresolved, would more than likely lead to higher costs later, both in terms of economics (cleanup costs and, in many natural resource cases, constraints on future profitability) and society (quality of life costs) (Weber 2003);
- tap into the problem solving benefits that comes from the incorporation of diverse "ways of knowing," particularly in the areas of experiential (practice-based) and local knowledges (e.g., the culture and practices of indigenous people) (Gunningham 2007; Ingram 2008; Scott 1998);
- increase the potential for positive sum, or win-win outcomes in which all stakeholders are better off than before the collaboration. If the effort adopts a comprehensive, integrated approach, collaboration can increase the likelihood that the needs of multiple policy areas, for example, "environment, economy and community," will be met on a more consistent basis (Weber 2003); and
- transcend jurisdictional boundaries and match the biophysical realities of natural resource systems better than traditional approaches (Folke, Hahn,Olsson and Norberg 2005; Gunningham 2007).

The Importance of Antecedent Conditions

The literature on collaborative institutions also makes clear that the likelihood of success in producing the presumed benefits is connected to the presence of certain conditions, particularly antecedent conditions and the design characteristics of the collaborative institution itself. The appropriate antecedent conditions focus on the attributes of the resource or problem in question, the attributes of community, and the attributes of the existing institutions charged with the responsibility for managing said resources and/or problems. Antecedent conditions are critical because they directly affect institutional choice in two ways. First, they affect the incentives facing key actors to either stick with the non-collaborative status quo or to choose the collaborative partnership alternative. Second, antecedent conditions bear on the problem solving capacity within the community, or communities facing the problem(s). In short, collaboratives are more likely to be embraced and to be successful to the extent actors face strong incentives to choose a collaborative alternative *and* the social-political context possesses the capacity to support the kinds of trust- and respect-based, good faith negotiations and relationships so central to successful collaborative problem solving efforts.

Tables 1, 2 and 3 highlight the antecedent conditions identified as important by a variety of different scholars. Most all of the variables in these tables are taken verbatim from Sabatier, Leach, Lubell and Pelkey (2005, Table 6.1, 182) as derived from Lubell (2002), Ostrom (1990), and Schlager (1995). Other literature sources added to these tables in support of the Sabatier et al. (2005) findings include Agrawal (2002), Baland and Platteau (1996), Ebrahim (2004), Kreps (1992), Putnam (1993), and Weber (1998). The tables also offer brief conclusions as to how each variable fits the Canterbury, New Zealand water resource management case.

TABLE 1/ Attributes of the Resource

ATTRIBUTE	CANTERBURY CASE
Partnerships are more likely to form where environmental problems are heterogenous in nature and geographically dispersed, such as non-point source pollution. Such dispersed problems create enormous transaction costs for centralized command and control regulation.	Yes, the water resource management problem in Canterbury is heterogeneous and dispersed
Partnerships are more likely to form where environmental problems are severe or perceived by most actors to be so.	No, many do not perceive a water resource "crisis"
Partnerships are more likely to form where there is good scientific data about the various facets of the problem(s) at issue (See also Weber 1998).	Not good, getting better; compounded by adversarial use of science

TABLE 2/ Attributes of Community

ATTRIBUTE	CANTERBURY CASE
Partnerships are more likely to form in communities with high existing stores of human and social capital (See also Baland and Platteau 1996; Ebrahim 2004; Pretty 2004; Putnam 1993).	Human capital high; social capital strength varies, but generally weak
Partnerships are more likely to form in communities where stakeholders have low discount rates, which equates to a willingness to trade short-term costs for long-term benefits.	Global demand for agricultural products & laissez faire national government approach creates *high* discount rates for many

Partnerships are less likely to form in situations of high cultural or belief heterogeneity. (See also Agrawal 2002; Baland and Platteau 1996).	Socio-cultural/belief heterogeneity is high across Canterbury
Partnerships are more likely to form in communities where the costs and benefits of management actions are spread equitably over different segments of the community. (See also Baland and Platteau 1996)	Costs and benefits of current management actions are not spread equitably (in part because not all are regulated to the same extent)
Partnerships are less likely to form in communities dominated by extractive industries or where the balance of power among major political interests is skewed. (See also Weber 1998)	Extractive industries dominate most property in at risk water management zones

TABLE 3/ Attributes of Existing Institutions

ATTRIBUTE	CANTERBURY CASE
Partnerships are more likely to form when an existing institution has enough resources to subsidize initial transaction costs. (See also Agrawal 2002)	Some resources available.
Partnerships are more likely to form when existing institutions are not actively addressing, or are having limited success with the problems at issue (See also Baland and Platteau 1996; Ebrahim 2004; Weber 1998)	Existing institutions are addressing some localised parts of the water resource problem set, but are having limited success in doing so on account of system-wide linkages.
Partnerships are more likely to form where higher-level institutions grant local autonomy and/or publicly endorse or champion an alternative collaborative institution. (See also Weber 1998)	National legislation (e.g., RMA) devolves responsibility and ECAN displays a nascent interest in same for catchments; but commitment to local autonomy is guarded given current structure of, & lack of funding from, NZ government
Partnerships are more likely to form when existing institutions with management responsibility for a public problem possess a reputation for credible commitment to collaborative processes and for being a good faith negotiator (Kreps 1992; Weber 1998).	A problem for ECAN and for NZ governments more generally (rhetoric supports, but not necessarily funding and actions, at least on a consistent basis)
Partnerships are more likely to form when mandatory regulatory standards/goals exist with firm deadlines that impose high costs on key stakeholders. Implied here is a reasonable degree of certainty that such regulatory standards/goals and deadlines will be enforced (Fiorino 1988).	Attempts are being made to address water quality non-compliance but the ability to address water quantity non-compliance is severely hindered by the lack of water metering data & the current high rates of non-compliance.

The Question of Institutional Design

A problem arises, however, when some antecedent conditions are present, yet some do not. As noted in the previous tables, the Canterbury case falls into this category. The region-wide problem of growing water scarcity, the heterogeneous and dispersed character of water resource management, and a few other conditions are present, yet most of the antecedent conditions considered appropriate for, or conducive to collaboration are absent in the Canterbury case. Key stakeholders in the development and agriculture (e.g., dairy) camps do not see that a water resource allocation crisis is pending, in part because the science offers mixed messages in support of both sides' arguments. In addition, the current economic benefits from high global prices for agricultural commodities and the inequitable distribution of the costs and benefits of the current regulatory system (and the fear that it will remain so even with a new collaborative arrangement) discourages stakeholders from pushing for a collaborative. Tables 1 through 3 also make clear that other necessary conditions supporting a shift to, or the successful operation of, collaboration do not hold in Canterbury.

In such a mixed message case, what lessons do the literature on collaboration offer to those seeking to capitalize on the conditions that are conducive to collaboration? If the problematic, or absent conditions are grounded largely in the "community" and "existing institutions" area, as is the case in Canterbury, as opposed to the characteristics associated with the type of resource problem at issue, then the prospects for collaborative success can be enhanced through the application of specific institutional design principles. The "principles" focus on minimizing the uncertainty of cooperation that accompanies low trust bargaining environments featuring diverse, heterogeneous interests. They do this by emphasizing fairness, equity, and a protective social contract that obligates stakeholders to focus on developing solutions offering multiple positive sum benefits vis-a-vis the existing decision-making context for the entire group, not just a particular position benefiting individuals or a selective portion of the group. Put differently, seven institutional process factors appear to increase the probability for successful cooperation by creating for participants a genuine stake in decision processes and outcomes, an environment of trust, an opportunity to discover shared values, and an increased certainty that cooperation will lead to preferred benefits.

Inclusiveness

Successful collaboratives must include a broad-cross section of stakeholders across interests, governmental jurisdictions, and agencies with responsibilities for the wicked problem set in question. The inclusivity factor is important for reasons of democratic legitimacy and practical considerations related to problem solving and policy implementation.[i] With regards to the former point, achieving inclusivity requires collaboratives to practice government in the sunshine. This means an open access design that welcomes interested parties, and that encourages and allows a broad array of citizens and government officials to participate in proceedings, including "outsiders" who may only wish to monitor and report on collaborative activities to those outside the community where the effort is occurring. "Open access" also voluntarily endorses the community's right to know about its proceedings, decisions, and projects by giving public notice of meetings, providing public access to meeting minutes, creating pertinent databases associated with decisions and projects, sponsoring public field trips, and, more generally, engaging the public through regular outreach activities.

At the same time, pragmatism suggests that all stakeholders in a position to block or effectively undermine outcomes must be included and given a credible stake in the collaborative. Otherwise, collaborative participants encounter added uncertainty and face a greater likelihood of failure, as those left out mobilize resources in defence of their stakes. Failure to practice inclusion thus lessens the probability that implementation and the

establishment of the kinds of durable, effective policy programs able to deliver long-term problem solving benefits will occur.

Formal Binding Collective Choice Rules with a Purpose: Promoting Fairness, Equity and Collective Gains

A key design principle involves a set of formal binding collective choice rules for governing the collaborative process and its aftermath. The binding rules restrict the ability of public leaders and other stakeholders to pursue self-interested behavior at the expense of long-term cooperation, thereby reducing uncertainty and inducing a higher level of trust and cooperation than would otherwise be the case. The "rules" are grounded in four basic concepts:

- shared decision-making power, a genuine stake in the decision process and, hence, collective outcomes,
- explicit consideration of participants' interests in programmatic language and the collective choice rules,
- a written "protective" contract that identifies and arranges consequences for defections from the collaborative process, or other violations of the collective choice rules, and
- active monitoring of agreements to ensure compliance.

Shared decision authority grants participants a direct role in crafting and implementing programs, which gives them "the confidence to invest" in, and develop ownership of the outcomes produced by, the collaborative effort (Ostrom 1990, 93; Weber 1998, 116). The explicit consideration of interests in programmatic language often includes mandated monitoring and data reporting systems so that progress and accountability for results are readily tracked, agreement on a standard decision-making procedure that forces decisions to consider a broad cross-section of interests and values before being accepted, and a broad, cross-cutting, balanced mission statement (e.g., protecting and preserving the health of the environment, economy and community) (Ostrom 1990, 93-94; Weber 1998, 115-116; 2003). With respect to protective contracts, Weber (1998) notes the importance of written agreements not to litigate, or otherwise intervene to stop the implementation of jointly agreed decisions (116; see also Daniels and Walker 2001, 181). Ostrom (1990) focuses attention on the need for binding, yet graduated sanctions because people are fallible and they will make mistakes (94-96).

There is general agreement that a consensus decision-rule is critical.[ii] The logic behind the consensus decision rule is that granting all participants a veto power over decisions leads to broad agreement, thereby increasing legitimacy, lowering implementation resistance, engendering self-enforcement, and respecting minority rights. Finally, there is general agreement that a clear mission statement is important because it iconstantly reminds participants of the ultimate goals of the collaborative.

Ongoing, or Repeat Games

The concept of repeat games means that the collaborative is grounded in an iterative, ongoing process of deliberation, negotiation, and problem solving as opposed to "single shot," one time dispute resolution exercises designed to resolve a particular dispute. In addition, participants' involvement with the problem needs to be long-term and iterative. Thus, it matters whether participants are ongoing entities and are embedded in the relevant policy network such that they interact regularly with other stakeholders. For example, government agencies qualify as classic ongoing entities with significant resources, organic mandates, and a responsibility to work on the public problems at the center of wicked problem sets. Major

landowners or otherwise long-term (decades long), or even multi-generation, area residents whose livelihoods and family futures are directly tied to the successful management of wicked problems are another side of the same coin, as are organized interest groups or corporations with a presence in the geographic area or the policy subsystem for extended periods. Such ongoing, embedded entities or individuals are more likely to perceive the game as an iterative one requiring give-and-take, rather than as a one-time opportunity to advance their self-interest at the expense of others.[iii]

Participant Norms

Collaborative problem solving success is more likely to the extent there is a set of well-crafted and diffused participant norms, or behavioral expectations for all participants (North 1990). The norms are part of an implicit bargain individuals strike prior to joining governance deliberations and are used to communicate the message that the character of the participation matters as much or more to problem solving and trust-building than the mere act of participation. Success here requires that leaders and individuals regularly enforce norms when violations occur, and that participants "live" the norms both inside and outside formal collaborative meetings.

Despite the agreement on the importance of participant norms, there is no one set of "must have" norms for collaborative institutions. Nonetheless, there is empirical agreement on the kinds of norms found in successful collaboratives. Some examples include civility and respect for others (and their positions),[iv] integrity and honesty in communication and action,[v] acceptance of and respect for diversity,[vi] acceptance of existing laws,[vii] ensuring the equal opportunity to speak during meetings,[viii] a pragmatic focus on the future and what is possible (versus on past battles and baggage),[ix] making sure all views are represented even if a particular interest is absent that day,[x] and the acceptance of a dual role norm.[xi]

The Leadership Element: Collaborative Capacity Builders

There is general agreement that a distinctive kind of leadership is required for successful collaboration.[xii] Necessary leadership traits and skills includes such basics as the possession of good communication and listening skills, respect for and ability to work with all sides of an issue, and strong people skills, meaning that the leader is comfortable with, and skilled at, interaction and outreach involving a diversity of different organizations and individuals. The collaborative leader also is not afraid to share power because s/he realizes this is necessary in order to get to positive sum, or win-win outcomes. In addition, successful collaborative leaders are those with a reputation for high capacity and honest, trustworthy leadership. Further, they tend to practice "inspired" leadership that relies on persuasiveness and charisma, and is skillful enough to balance the *new* decisions of self-interested participants within the collaborative, with the needs and interests previously codified in collectively decided public goals. Such collaborative capacity builders are also able to convince others to commit to and follow through on promises, cajole participants to stay the course when times get rough, and champion the collective, positive sum benefits of successful collaboration (Weber 1998).[xiii]

When it comes to the leader's role, the frameworks agree that key tasks include assisting participants in discovering common ground and the benefits of collaboration by identifying prospective tradeoffs, facilitating information exchanges, and conducting the decision process in a neutral, honest, and fair manner. Implicit in this role conception is that leaders are instrumental in convincing participants that their stakes will be protected during negotiations and decision-making, and that their participants' own interests are likely to be best served by agreeing to bargain in good faith.

Credible Commitment

The concept of credible commitment by participants entails consistency in words and actions which together evidence that a participant, along with their "home" organization, is supportive of the collaborative decision process and collective problem resolution.[xiv] Credible commitment to the collaborative institution means that participants willingly direct their power and resources to cooperate in good faith toward mutually agreeable decisions and then to promote, protect, and enforce such deals. This means that participants will refrain from reneging on deals once agreed and will not use private information gained through cooperation for their own advantage. To the extent that credible commitment exists, the more participants are able to exhibit a high degree of confidence, or trustworthiness in a participant's behavior, and the greater the chances for collaborative success as participants become more willing to share private information, receive and accept others' ideas, and engage in constructive deliberations. There appear to be five elements that contribute to this component.

First, a high level of credible commitment attaches to organizations or groups that demonstrate clear and consistent support for collaboration throughout their hierarchy or group, and vice versa (Daniels and Walker 2001, 174; Sabatier and Jenkins-Smith 1993, 228, 230; Weber 1998, 114-15).

Second, there is agreement that all representatives need enough discretion and authority to make agreements and implement decisions, or, at a minimum, need a clear chain of command that is generally supportive of the collaborative effort and has the capacity to act in a timely manner.

Third, the durability and consistency of representation across time not only signals commitment, but also increases the prospects for collaborative success by minimizing the chance of miscommunication and reducing the transaction costs associated with maintaining trust-based working relationships.[xv] This does not mean that new people cannot join, but it suggests that all stakeholding organizations are best served by committing their representatives for long terms as opposed to a regular rotation system.

Fourth, credible commitment is enhanced to the extent participants evoke a clear, strong commitment to the "place" where the collaboration is occurring, its people, and its livelihoods (Daniels and Walker 2001; Cheng and Walker 2005 30; Weber 2003). Credible commitment thus requires respect for the past (no matter the mistakes by various actors), an appreciation for the present mix of businesses, livelihoods, and land tenure patterns, and a genuine concern for the goal of ensuring a sustainable future for the people, livelihoods, and place in question.[xvi]

Finally, credible commitment to collaborative problem solving does not mean forsaking required commitments to a participants' "home" organization, interest category, or to existing laws and agency missions (Sabatier et al. 2005, 195-96; Weber's 1998, 112-14). In fact, a clear, strong commitment to one's own agency or group mission is required because without it there will be little respect for the participant. The inability to make such a commitment weakens the capacity to influence proceedings, raises suspicions about where loyalties lay (i.e., what is their agenda?), and increases the chance they will be replaced by their organization, along with the probability that deals will be short-lived once the home organization learns of the apostasy.

Technical Expertise and Beyond--Integrating and Applying a Broad Knowledge Base

There is agreement that traditional sources of knowledge—physical, natural and social sciences as well as technical expertise (e.g., engineering)--are essential to collaborative processes (Daniels and Walker 2001, 171-73; Leach and Pelkey 2001; Leach and Sabatier 2005, 244; Ostrom et al. 1993, 50; Weber 1998, 112). Yet the research findings also point to

the value added by local experiential knowledge--the individual and collective expertise of the community members most practiced or familiar with a problem in the geographic area in question (Daniels and Walker 2001, 13, 16; Scott 1998; Weber 1998, 2003, 217-220). Thus, there is a need for integrating, synthesizing, and balancing many different kinds of knowledge is implied by the very nature of collaborative processes focused on difficult public problems—the discussion and decision process automatically includes a broader, more diverse array of stakeholders that demands the sharing of information between and among participants (Weber and Khademian 2008).

3. Obstacles to Collaborative Water Governance in Canterbury

The problems associated with the current approaches to allocating and managing water resources in Canterbury have been magnified in recent years by increasing development pressures and a quantum leap in water resource use due to changing land use practices. As a case study, this Section identifies, explores and synthesizes the political, economic, institutional and social dynamics that, when taken together, create a series of obstacles to the adoption of a collaborative governance approach focused on sustainable communities.

3.1 Lack of incentives to cooperate for sustainability's sake

Even a cursory review of the water resource situation in the Canterbury region makes clear that key stakeholders lack incentives to change the status quo or to embrace a collaborative governance approach for the sake of sustainability. This section clarifies the various components, institutional and otherwise, that impinge on stakeholder behaviour as a necessary first step for sorting out possible levers for changing behaviour.

3.1. a Defining Water Scarcity as a Problem

There is a problem definition issue. The interviews make clear that there is not a broad embrace of the idea of water scarcity, or of impending crisis due to a combination of surging water use demand, the present full allocation and, in some cases, over allocation of the majority of Canterbury's water resources, and the spectre of declining water resources due to climate change. This is partly because the water "problem" is not evenly distributed across the region, therefore what is a problem for some is not a problem for others. A commonly expressed view is that "water is plentiful in the Canterbury region; it is only at the wrong place at the right time" (interview respondent 3). Of particular importance is the fact that Christchurch's primary water supply comes out of the under-allocated Waimakariri River via groundwater, while the rest of Canterbury, especially the vast rural areas, are tied into separate, more stressed water supplies. Given that Christchurch is the major urban area in the Canterbury region, the uneven distribution of the problem serves to enhance the established rural-urban conflict and ever present distrust on many natural resource policies. At the same time, Canterbury has, in recent years, experienced what some describe as "only a short-term improvement" in moisture and water flows that nonetheless has served to alleviate some people's concerns over the likelihood as well as the severity of the water scarcity problem. It has also limited the ability of those focused on longer-term, negative water use and weather (i.e., moisture) trends "to walk enough landowners and resource users through the visible inspection of rivers and streams at very low stages of flow" in order to more forcefully illustrate key issues associated with water scarcity (interview respondent 1). The lack of a consensus on problem definition thus means that any push to change the existing water resource allocation and management regime unsurprisingly falls on at least some deaf ears and is viewed suspiciously in some quarters as but another "underhanded attempt" by ardent

environmentalists to push through their agenda of added restrictions on property rights and individual freedoms/behaviour (interview respondent 4).

3.1.b Globalized Markets, Water Consents, and the Environment Court

Major agricultural water users, especially farmers seeking additional water for converting existing property uses to dairying, have strong incentives to embrace and defend the current system of water allocation. Dryland farm properties in Canterbury with water permits command premium prices. The large, global increases in the prices for dairy products (e.g., milk solids) is the immediate cause of the rapid and massive conversion of rural Canterbury land. Given recent buoyant prices (2006 through 2008 year) and the likely prospect that growing demand for New Zealand dairy products from developing countries, particularly China, will continue and most likely increase significantly in the near term of the next 10 to 20 years, farmers are investing in dairy because it promises to more than triple their farm-based income and land values vis-à-vis most all other agricultural alternatives. The relative certainty of the substantial economic payoff that comes from choosing water intensive dairy production is further enhanced, and some would say actively encouraged, by the current water permit application and approval process and recent decisions by the Environment Court. Water permit applications are channelled through an ad hoc, individualized, applicant-driven process subject to limited constraints. There are no strategic review requirements that force adequate consideration of the cumulative, or spillover effects on downstream users, much less the whole of Canterbury's water resources. Instead, new water permit applications are typically granted as long as the proposal meets the tests in the RMA in terms of acceptable environmental effects and prescribed environment flow regime, and taps into an available supply of surface or ground water. Stakeholders opposed to a particular request can litigate and force the consent review process through New Zealand's Environment Court, and many do just this (ECAN 2004). However, as a practical matter the Environment Court tends to support new water permit applications as long as the water use is permitted and a reasonable scientific case can be made that the expanded usage fits within established, yet localized ecological parameters. This does not necessarily mean that undertaking a water consent request in Canterbury is an inexpensive or timely proposition; it is not surprising to see the water consent process costing applicants hundreds of thousands of dollars and several years of time. But it does mean that the combination of high prices for dairy products with a water permit application process and an Environment Court that favor individualized requests for more water incentivizes people to continue avoiding collaborative planning process with the promise of community sustainability. In other words, converting to dairying with its intensive water demands, or business as usual, is occurring because it is a low risk proposition with great potential for a lucrative payoff.

3.1.c Sustainable Management Purpose of RMA as a Devolved Planning Mandate and Strategic Regional Water Management Plans

Third, there is institutional inertia favoring the status quo that stems from the RMA's devolution of natural resource management authority to regionally elected officials. Many have argued that Section 5 sustainable management purpose of the RMA has been interpreted too narrowly by regional governing councils, including in Canterbury. The narrow interpretation has meant that instead of managing water in a strategic, integrated fashion for broader sustainability purposes, elected officials and ECAN staff have opted for a much less politically controversial reading that allocates water according to some very basic "effects based" principles (Skelton and Memon 2002; Memon and Skelton 2007). The scope of most regional water allocation plans in New Zealand is typically limited to specifying:

- environmental baselines to protect instream values,

- which consent holders have priority when not all the allocated water is naturally available (e.g. during the dry season) and
- how water will be shared between competing consumptive users, particularly for irrigation (e.g., priority users, rostering regimes).

In addition, the ECAN regional plan does not contain long-term policies and priorities for allocating water efficiently between different broad classes of activities based on an assessment of anticipated future demands from different land use activities in relation to available supply. Nor does it contain a strategic policy framework for dealing with contentious issues such as the reallocation of water among classes of activities due to changing demands or the allocation of responsibility among water uses in cases where demand exceeds availability *over the long-term* (i.e., over-appropriation). Further, ECAN policies typically lack timeframes for achieving stated objectives, calling into question the seriousness of the implementation and enforcement efforts.

A key reason for such a limited understanding of Section 5 and the subsequent limitations in current ECAN water management plans can be partly attributed to a view during the 1990s that the RMA does not permit elected councils to allocate water between different groups of uses, as explained earlier. Such a strategic planning approach was deemed akin to picking winners and was rejected by the national government and ECAN at that time. Moreover, the national government has provided little to no support or strategic policy guidance putting pressure on regional councils to move beyond a narrow reading of Section 5 and to encourage the adoption of a stronger strategic approach to water management (Lowry et al, 2003; Memon and Skelton, 2007). Perhaps the most important factor in understanding the narrow interpretation of the RMA water allocation mandate, however, is that the RMA devolved responsibility to elected politicians who must necessarily be responsive to their constituents, many of whom are well organized and practiced at influencing policymakers. In the Canterbury case, the elected leaders of ECAN were a product of a relatively conservative population in which rurally based water user and development-oriented interests have always been well represented. These rural sections of the community have hitherto been over-represented at the council table. This made it difficult, if not impossible, to embrace fully the bold sustainability language implied by Section 5 of the RMA and highlights a fundamental weakness of the RMA—effective implementation of a devolved mandate anticipates that regional authorities have the capability and political commitment to follow through on the implied promises within said mandate (Memon and Skelton, 2007).

3.2 The Information Problem: Bridging Inherent Knowledge Gaps

Successful collaboration for the sake of environmental sustainability requires the availability and incorporation of applicable scientific knowledge, while also recognizing the importance of integrating many different kinds of knowledge, including cultural, into problem solving processes (Ensminger 1996; Scott 1998; Ingram 2007; Weber and Khademian 2008).

There is broad agreement, even within ECAN, that Canterbury lacks the kind of systemwide, rationalized and integrated scientific data sets on quantity and quality required to manage water resources successfully across the region and with respect to both surface and groundwater sources. Substantial repositories of excellent scientific work exist for some catchments, and for key reaches of major rivers, yet systematic data across catchments, *within* many catchments, and with accurate assessments of the relationship between current surface water demands with groundwater demands and capacities, are in short supply. Nor do extensive water metering and general monitoring programs yet exist. Typically, once a water consent has been issued it is assumed that the actual use of water matches the amount listed

in the original request, although without effective monitoring there is no way to know for sure.

The lack of data hamstrings ECAN's ability to develop an effective strategic plan for allocating water and shaping stakeholder water use decisions according to the overall, or cumulative, effects of an individual resource consent request. The information asymmetry in favour of water users with sizable financial interests in the success of a consent request also means that ECAN has limited ability in many situations to refuse a consent request, or to defend a consent refusal if the matter goes to the Environment Court.

The information deficit problem and the uncertainty associated with the scientific information that does exist are further exacerbated by what some describe as "a deeply ingrained adversarial science dynamic, or [more colourfully,] the scientists as gladiators idea (interview respondent 8). This means that opposing groups hire duelling scientists who then present alternative interpretations and understandings of science that tend to support very different conclusions as to whether and how much a particular water use, or development, will cause harm" (interview respondent s 6 and 8). The indeterminancy associated with politically driven adversarial use of science thus serves to marginalize the role of science, even when it does exist, in the decision process.

The "scientists as gladiators" concept highlights the political reality accompanying any discussion of scientific facts and the uncertainties associated with the exchange, translation and application of knowledge in a decision environment marked by political, cultural, social and professional diversity. This component of the knowledge problem reflects that fact that information flowing through such a diverse setting is likely to have different meanings, uses, values and consequences for the people receiving and using it (Weber and Khademian 2008). It strongly suggests that even if scientific experts can agree on either a set of appropriate methodologies/protocols for producing facts, or on a set of facts themselves, the work of shepherding and gaining significant support for the conclusions from other stakeholders is only just beginning.

At the same time, not all stakeholders see the world as scientists and professional public managers do. In other words, scientists, and many managers in charge of implementing programs focused on water resources and environmental protection, tend to believe that more and better information is an inherently good and desirable thing precisely because it leads to better informed decisions. Yet new information associated with any natural resource fundamental to a business or agricultural livelihood also can be a threat by introducing uncertainties related to how the information will be used (interview respondent 5). It raises questions such as "what will the new information be used for?" How will it affect my ability to practice my livelihood or implement my established, and heretofore successful, business plan? Will the information offer new opportunities for improving my business practices or will it be used to restrict my freedom of action? Will it be used against my interests by reducing or eliminating my current of water?

3.3 Operating in a Low Trust Environment

It has long been established that to the extent an area has strong social capital and high levels of trust among the citizenry successful collaborative governance is more likely to be forthcoming. Social capital involves the extent to which a community develops a web of horizontal, cooperative, cross-cutting relationships built on trust. More social capital, hence a stronger, well-connected web of cooperation cutting across key groups and cultures, increases the likelihood of a community, or communities, developing a capacity for effective governance of public problems (Putnam 1993; Jackman and Miller 1998). To the extent that such collaborative social capital networks include critical government agencies as well as societally based individuals and groups, the likelihood for collaborative success increases

even further (Weber 2003; Koontz et al 2004). The problem for Canterbury, as with so many communities around the world, is that it suffers from strong social capital *within* stakeholding groups and weak social capital (low to no trust) *between* the diverse stakeholders that matter, including between government officials and key water user groups and other interested parties. This means that even in a best case scenario the disaggregated character of the region's broader social capital network requires extensive bridging/liaison work. What is behind the disaggregation?

The long embedded demarcation, lack of trust, and disparate interests between the older money, established rural landholding elite and the urban centers of commerce in Canterbury are still strong and can be heard in the everyday conversations of Canterbury residents , as observed by a number of interview respondents. The current divide between rural farming and city centre, Christchurch in particular, has been made all the more stark by the roller coaster economy associated with agricultural commodities over the past 10 to 15 years. A key component of current concerns over water resource use involves the recent explosion of water intensive, and highly profitable, dairy farming in place of dryland sheep pastures and forests. In response, the New Zealand Fish and Game Council mounted what it viewed as an educational advertising campaign that singled out dairy farming as "Dirty Dairying"—not welcomed rural communities as a message grounded in respect and trust. Dairying and other landed agricultural interests, for their part, are also sceptical of those who now display what they view as belated concern for "community-based interests" and now ask farmers to give up some of their profits for the sake of sustainability. Opines one farmer, "where were all these community-minded folks after the government freed up commodities markets in the 1990s and farmers suffered through year after year of low prices, barely making ends meet, with bankruptcies and suicides, and so on? When the economy was sour and it was hard to make a living, who was there to help us? And now that we have adapted and are rolling in clover [money] and the global markets are rewarding us, they want us to be community-minded" (interview respondent 2).

At the same time, the classic divide and lack of trust between government and citizens is alive and well in Canterbury. ECAN, the regional governing body, as it has coped over the years with trying to find a workable balance between environmental protection and economic growth, has earned the enmity of virtually all the major stakeholders, from environmentalists to farmers to developers. Many stakeholders see the source of the problem in the traditional hierarchical, top-down, orientation of ECAN that uses its in-house expertise to decide matters and then tell people what to do despite having little knowledge of, or concern for how their decisions affect local conditions (interview respondents, 1, 8 and 9). New Zealand Department of Conservation (DOC), for its part, has played a prominent role in two major cases that have widened the lack of trust in government agencies. In the 2001/2002 Fauna and Flora survey, the DOC collected significant amounts of biological and ecological information from private landowners on plant and animal species residing on their high country properties. The DOC promised not to use the information against landowners by way of more extensive and tougher regulations, but eventually reneged on the deal in some cases. In November 2007, DOC used it authority to unilaterally raise land use rents by anywhere from ten- to one hundred-fold for agricultural properties in the South Island's high country. The net effect of raising a property's rent from $1,000 per year to $10,000, or to over $100,000 for the same period sent an unmistakable message—at least from the perspective of rural agricultural interests—"the best use of the land is a no use natural state, and who cares about the people currently on the land?" (interview respondent 1; New Zealand Herald, 11/25/07).

The general lack of trust among stakeholders has also been exacerbated by caustic, aggressive, no holds barred rhetoric and actions by the national leaders of Federated Farmers.

The aggressive, private property-rights orientation of the leadership makes clear that no one else can be trusted to represent farmers' interests effectively and that compromise with competing interests is an undesirable strategy. This type of approach, however, may be wearing thin inside many agricultural communities within Canterbury. Key stakeholders on all sides of the water issue sense that some rural landowners and farmers may be growing tired of such "overheated, unhelpful rhetoric" and are far less recalcitrant when it comes to working with others to resolve legitimate water resource use issues (interview respondent 3). To the extent this sentiment does exist, it has not been systematically organized into a competing voice representing agricultural interests (interview respondent 5). On the environmental side, despite the general lack of trust, some nationally influential NGO leaders, such as Guy Salmon from the Ecologic Foundation and Gary Taylor from the Environmental Defence Society, have taken on board the message of addressing environmental conflicts collaboratively. This perspective also has been advocated by leaders of Maori tribal organisations such as the South Island based TRONT (Te Runanaga O Ngai Tahu) and there is growing evidence of constructive stakeholder engagement at the national level and, to a lesser extent, at the regional level that belies the historical adversarialism among stakeholders with considerable interest in natural resource issues. As discussed previously, the low trust adversarial dynamic extends to the production and use of scientific data in the natural resource policy arena, with "dueling" scientists representing opposing interests presenting conflicting data, offering differing interpretations of the same, or similar, data sets, and, as a result, tending toward differing policy conclusions.

Finally, the mere mention of sustainability as a policy or management goal is often enough to raise red flags and added distrust for key stakeholding groups across the ideological spectrum. For business and agricultural interests the term carries the baggage of "environmental" sustainability, an approach that may well sacrifice and discount economic development goals, wealth creation and jobs for the sake of long-term environmental protection. On the other hand, many environmentalists conjure up images of sustainable "development," the term coined by the United Nation's Brundtland Report in 1987, as a policy that in its worst form is an oxymoron and at best gives too much emphasis to economic growth at the expense of environmental protection (Hempel 1999, 52). These traditional uses of the term also imply significant top-down government, or regulatory control of business and citizen decisions, *not a broad-based collaborative approach involving the significant involvement of citizens in defining and designing the sustainability framework*. This limited understanding of sustainability has the potential to increase citizens' mistrust of government and thus hamper attempts to implement a collaborative for the sake of sustainable communities.

3.4 Collaborative Capacity Builders, Politics and Cultural Constraints

The Canterbury setting to date, especially as it pertains to the natural resources policy arena, has been largely devoid of the distinctive, critical leadership style afforded by successful policy entrepreneurs,[5] or more specifically, collaborative capacity builders (CCBs) (Weber and Khademian 2008, forthcoming-this is A & S piece). A CCB is someone who either by legal authority, expertise valued within a governance setting, reputation as an honest broker, or some combination of the three, has been accorded a lead role in public problem solving exercises. While public managers inevitably will be involved in addressing public problems, CCBs do not always need to be public managers, although to the extent CCB leadership traits

[5] Blomquist 1992; Heikkila and Gerlak 2005; Kettl 2006; Thomas 2003; Vasi and Macy 2003; Weber 1998

are attached to key public officials within the effort, the likelihood of success improves (Daniels and Walker 2001, 173, 183; Weber and Khademian 2008).

Collaborative capacity builders have the overarching responsibility to frame the approach to problem solving and the relationships between government and other participants in the organization or network. They accept the inhospitable circumstances of heterogeneous interests and goals as well as the uncertainties and complexities inherent in any network setting and focus their collaborative capacity building actions for the purpose of facilitating the integration of knowledge necessary for tackling difficult problems and guiding stakeholders forward to successful win-win (or, more realistically, mutual gain) conclusions (Weber and Khademian 2008).[6] With respect to collaboration in the Canterbury water resources case, this means working to craft a network-based culture grounded in a credible, effective commitment to collaboration that increases the certainty that participants' stakes will be treated fairly and as legitimate claims within the broader context of sustainability goals. This requires a set of skills and traits, a reputational component, and the execution of key tasks.

The skills and traits required of a successful collaborative leader or professional facilitator are essentially the same, although long-term efforts aimed at institution building as opposed to simply the resolution of a non-iterative, or single-shot problem, because they require extended, often years long involvement, tend to benefit from the sustained attention afforded by a CCB leader with clear stakes in the success of the effort. They include basic traits and skills such as the possession of good communication and listening skills, respect for and ability to work with all sides of an issue, and strong people skills, meaning that the leader/facilitator is comfortable with, and skilled at, interaction and outreach involving a diversity of different organizations and individuals. Nor is the CCB afraid to share power because s/he realizes this is necessary in order to get to positive sum, or win-win outcomes (Ostrom 1990, 101; Sabatier et al. 2005, 185; Weber 1998).

In addition, successful CCB's are persuasive and skillful enough to balance the *new* decisions of self-interested participants within the collaborative, with the needs and interests previously codified in collectively decided public goals, whether it is the RMA or other mandates. Such collaborative capacity builders are also skilled at convincing others to commit to and follow through on promises, cajole participants to stay the course when times get rough, and champion the collective, positive sum benefits of successful collaboration.[7]

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[6] Such an approach to the development of governing structures in the public sector has been explored by others in far different settings. In his book *Leadership and Administration*, Philip Selznick (1957) argues that successful managers or leaders infuse their organizations with a set of values that can guide the practices and behavior of organization members and that are essential to organizational success. These values focus not only on what the organization does, but how the organization does its work—its "distinctive competence". The argument also is similar to La Porte's (1996) recognition of the importance of a "cohering," or common informing logic "that is persuasive to [a network's] members in providing guides that order their relations with each other. These cohering logics are a source of legitimizing and ordering member relationships" as well as "a central influence in shaping the … sources of the net[work's] rules of engagement"(58).

[7] Weber (1998). Sabatier's (1999, 121) policy broker and the professional objectivity inherent in the facilitator concept accept and implicitly endorse the activities associated with inspired leadership, yet reject the "inspired" nomenclature and the need for charisma. Instead, as the facts present themselves, learning occurs, and the walls between beliefs and values are broken down, the honest broker/facilitator serves as the neutral functionary who leads

When it comes to the leader/facilitator's role, key tasks include assisting participants in discovering common ground and the benefits of collaboration by identifying prospective tradeoffs, facilitating information exchanges, and conducting the decision process in a neutral, honest, and fair manner. Implicit in this role conception is that CCBs are instrumental in convincing participants that their stakes will be protected during negotiations and decision-making, and that their participants' own interests are likely to be best served by agreeing to bargain in good faith.

Given these tasks, successful collaborative capacity builders also benefit from a reputation for fair play and honest, trustworthy leadership. The reputational component facilitates stakeholder willingness to move beyond negative caricatures of erstwhile adversaries and to share privately held information critical to the kinds of innovative, complex, positive sum deals found in multi-party collaborative governance situations. It also makes less likely that outcomes will be lopsided bargains favoring one, or a few interests at the expense of others (i.e., that individual stakes and interests will be protected and treated fairly).

Bryan Jenkins, the (unelected) chief executive of ECAN, the regional government, is probably closest to matching virtually all aspects of the CCB leadership profile in the Canterbury water management case. Since being appointed in 2005, he has moved cautiously to capitalize on his reputation as a successful collaborative leader on natural resource matters in Australia by taking steps to encourage community outreach and input within some ECAN units and by initiating a region-wide collaboration seeking agreement on key elements of the science behind water resource decision-making (interviews). Yet his attempts to move in this direction have been constrained by a number of factors.

First, he has faced the problem of a divided culture within the staffing ranks of his own agency. Until recent new staff appointments, , several in ECAN's senior ranks have had a history of preferring both an adverse "effects based" approach to water resource governance (as opposed to sustainability) and a top-down, hierarchical approach that favours administrative experts in charge as opposed to robust citizen engagement and collaborative deliberation and agreement over how best to allocate and manage Canterbury's water. The division is noted by stakeholders who are unsure as to whether Jenkins attempts to change ECAN's organizational culture to be more supportive of collaboration and strategic, sustainability planning will prevail. Second, there is uncertainty about how far or broadly he is willing to engage the collaborative approach, given that the current structure of the "science" collaboration just described is heavily weighted toward irrigation, agricultural, and other water development interests, and appears to place great faith in the promise of a technocratic, engineering-based approach to the water resource management problem. Third, Jenkins is heavily constrained by the fact that he has not yet been joined on the collaborative capacity building stage by other prominent stakeholders, whether it is an environmentalist, a leader in the agricultural community, or someone else. All of which may be to say that any analysis of the general lack, or cautiousness of CCBs in this case, must once again take into account the political setting. There are limits to how far ECAN's Jenkins can go on his own without support from powerful regional interests and elected officials.

3.5 Maori Values, Treaty Rights and Water

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participants through the information maze and collaborative decisions (Sabatier et al. 2005, 195).

Lack of clarity pertaining to Maori customary water rights guaranteed in the Treaty of Waitangi is an unresolved issue that has constrained the willingness of Pakeha[8] in many parts of New Zealand to collaborate with Maori when it comes to water resources. In addition, the incorporation of Maori cultural values, practices, and rights pertaining to water creates tremendous challenges for water resources planning, allocation and management given the stark differences between existing water resource institutions, rights and practices and the communal emphasis in Maori society, their holistic perspective of water as a *taonga* (a treasure), the belief that no separation can be made between water in a river, the riverbed and surrounding land, their stance against the mixing of water from different catchments, and Maori customary water ownership and management rights as recognised in the Treaty of Waitangi. The process of defining the scope of Maori freshwater property rights thus could prove to be very divisive with parallels to the contest over negotiating Maori fishery rights during the 1990s and more recently the claim by Maori to foreshore and seabed property rights.

Yet this obstacle to collaboration runs head long into one of the primary elements associated with collaborative success—inclusivity. The lesson from the literature is that successful collaboratives must include a broad-cross section of stakeholders across interests, governmental jurisdictions, and agencies with responsibilities for managing, and claims on, the natural resources in question. The inclusivity factor is important for reasons of democratic legitimacy and practical considerations related to problem solving and policy implementation.[9] With regards to the former point, achieving inclusivity requires collaboratives to practice government in the sunshine. This means an open access design that welcomes interested parties, and that encourages and allows a broad array of citizens and government officials to participate in proceedings, including "outsiders" who may only wish to monitor and report on collaborative activities to those outside the community where the effort is occurring. "Open access" also voluntarily endorses the community's right to know about its proceedings, decisions, and projects by giving public notice of meetings, providing public access to meeting minutes, creating pertinent databases associated with decisions and projects, sponsoring public field trips, and, more generally, engaging the public through regular outreach activities.

At the same time, pragmatism suggests that all stakeholders in a position to block or effectively undermine outcomes must be included and given a credible stake in the collaborative. Otherwise, collaborative participants encounter added uncertainty and face a greater likelihood of failure, as those left out mobilize resources in defense of their stakes. Failure to practice inclusion thus lessens the probability that implementation and the establishment of the kinds of durable, effective policy programs able to deliver long-term problem solving benefits will occur.

Further complicating matters is that the inclusion of the Maori may well exacerbate the problems in Canterbury arising from increased water use and unsustainable land use practices. This is because while many Canterbury stakeholders (both Maori and Pakeha) give

[8] A Maori term to refer to New Zealanders of European descent.

[9] See Daniels and Walker (2001, 21, 174-75), although there are some limits on this, particularly their call to "[r]educe the number of parties on each side" in order to make negotiation more manageable" (182). However, note that this advice does not reduce the number of key interests or viewpoints at the collaborative bargaining table, rather it includes representatives from distinctive interests. See also Weber (1998, 116-117) and Sabatier et al. (2005, 184, 195).

credit to the very positive stance of the South Island Maori tribe Ngai Tahu toward cooperating with others on water management issues, the corporate tribal authority for the Ngai Tahu—the TRONT—is insisting that collaboration in this area be conditioned on awarding the Maori their treaty-based property rights, largely so that they can expand their dairying operations, hence income. In this sense, the push for cooperation is not directed at a better collective outcome for the Canterbury region in terms of integrated, sustainable water resource management, rather it is for the purpose of gaining control over more water for the purpose of concentrated economic gains for Maori interests (interview respondent 2).

4. Where to from here?

In recent years, water resource management in New Zealand has begun a cautious move away from a hierarchical top-down, regional council–directed decision process towards a collaborative governance approach of negotiation and problem solving. We refer to this as the network model of water governance. This emergent approach to water resource decision-making reflects dissatisfaction with traditional strategies and their inability to deal with a variety of inter-related problems including water allocation, water quality and protection of intrinsic in-stream ecological values. These problems often require a detailed knowledge of local situations and catchment conditions, and the coordination of multiple agencies focused on the diverse, and often divergent, interests of catchment stakeholders and those of various different Canterbury communities.

In contrast to the hiatus that has prevailed until recently in the minds of some senior ECAN officials, they should now have no doubts now about ECAN's water resource governance mandate[10]. In fact, during the last few years, Environment Canterbury has already sought, in the course of exercising this mandate, different ways to address a number of commonly held concerns amongst stakeholders articulated in the analysis above.[11] The balance of urban-rural representation is now--following the election outcomes in November 2007--arguably more representative and robust as an electoral democracy forum for sustainable water governance. The big challenge for ECAN now is how to go about overcoming the obstacles to collaboration on water resources noted above infuse a much stronger measure of participatory governance with institutional arrangements and decision making processes grounded in liberal electoral democracy, in exercising its water mandate. In this section, we highlight points that could enhance the effectiveness of participatory water governance initiatives.

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[10] The Act was amended in 2005 to clarify the water resource allocation functions of regional councils in order to address the uncertainty in the minds of many councils regarding the scope of their functions. These amendments reconfirm that regional council functions include the establishment of rules in a regional plan to allocate water. In addition, subject to Part 2 of the RMA, a plan can allocate water resources amongst competing activities.[10] However, little has been done by central government to address resourcing capacity and commitment issues.

[11] For example, the recent Conway River and the Hurunui River flow regime planning processes involved river stakeholders (farmers and environmental groups) in the development of 'draft' policy. This draft was presented to the Regional Planning Committee for variation to the NRRP for the flow regimes of these rivers. This is now becoming common practice.

We endorse the recent decision by ECAN to allocate a higher priority to prepare catchment based water plans[12] on a collaborative basis. Given this, it is imperative that a robust foundation should be laid to embed formal and informal collaborative practices in rural and natural resource governance institutions such as ECAN to sustain such collaborative efforts. Toward this end, we suggest the following:

- Collaborative approaches are not magic bullets and should be used appropriately. They are not justified in situations where existing institutions are already adequate.

- In catchments where low trust and weak social capital exist, the collaborative approach to watershed management should be designed to foster trust and a culture of cooperation among relevant stakeholders, including scientists. This is because to the extent that low trust exists, this must be resolved first before one can resolve the information problem. Otherwise, opponents will throw up enough "doubt" with their own scientific results that a decision-maker won't be able to know the best science when they see it anyway (because they are not scientists) (Melnick 1983).

- Start the information search process by focusing on important, yet less controversial, widely accepted information needs as one way to build trust.

- decrease scientific uncertainty and increase scientific knowledge acceptability (hence increased likelihood of use) through the joint development (i.e., deliberation by all stakeholders) of, and agreement on, science protocols and research agendas.

- Collaborative institutions should develop milestones, and measure, and monitor progress at regular intervals with respect to the primary social, economic and environmental goals.

- Practitioners should rely on the lessons of institutional design described above to design and manage the collaborative structures and processes and to avoid escalating conflicts to other venues, such as the Environment Court (on this last point, see "binding rules" in particular). Resorting to coercive regulatory or judicial tools may destroy the collaborative process. However, if collaborative processes are used by stakeholders to delay or avoid environmental improvements, then the traditional regulatory tools should be considered (i.e., keep the hammer in your back pocket, never completely put it away).

- Without consistent and adequate enforcement of current regulatory provisions for water management of water allocation and water quality provisions by ECAN, there is limited incentive for many parties to collaborate.

- The watershed collaborative must be perceived as representative (inclusive) of the stakeholders for it to be legitimate.

- Do not be afraid of intense ideological conflict. If proper strategies (as described above) are employed to guide the conflict toward increasing peer understanding of the sources of the conflict, this intensity can ensure continued participation in the collaborative process.

[12] or for groups of spatially contiguous catchments.

- Do not expect stakeholders to change deeply held core beliefs over the course of the collaborative process, but instead use the lessons provided above to design the collaborative process to develop understanding of the sources of the positions held by the conflicting parties and attempt to create policies that address multiple concerns.

- Engage applied researchers with procedural and scientific expertise in the watershed collaboration process. This can enhance the probability of achieving substantive legitimacy and credibility to defining the scope of knowledge applicable to a watershed issue. Not only can they provide insight into the state of knowledge on issues, they can also provide analysis of new and existing data provided by stakeholders in the watershed collaborative.

- ECAN's organisational culture needs to be reviewed. Currently there is no central integrating unit to tie together, or make coherent, the decisions and approaches of the various different units within ECAN. Clear and consistent support from ECAN for collaboration is required.

- Make sure that leaders of collaborative efforts fit, as best as possible, the description outlined above when it comes to skill sets, reputation, and ability to manage successfully a multi-faceted, often difficult negotiating environment.

- Some stakeholders will likely require additional incentives to participate in good faith, especially in cases where compliance cost burdens are likely to be considerable, are distributed inequitably, and/or involve the diminishment of a stakeholder's water usage right for the sake of the common good. Others will require binding guarantees prior to fully engaging a collaborative effort. In the former case, one possibility involves the concept of "shared savings." For example, if the actual water use associated with an individual consent is less than the consent amount, then some of the "surplus" water is devoted to environmental/water quality/ecosystem health needs, some is banked for future community allocation and use, and some is left in the hands of the original consent holder for either expanding their own operations, or for donating or selling/leasing to others. In the donation case, the water consent holder would get some kind of credit of value to them, in the selling option they would get cash. Other examples of more general "rules" voluntarily binding stakeholder behaviour in order to reduce the uncertainty associated with collaboration are noted in the institutional design discussion earlier in the paper.

- Two other environmental agencies in Canterbury (Fish and Game and DOC) exercise an important monitoring and review role in the region and should be adequately resourced and included within collaborative efforts.

- All stakeholders should remember that collaborative approaches to water management are not easy and are time consuming, and that while the prescriptive design elements outlined above will assist in the quest for successful collaboration and decision outcome, participants should be willing, ready and able to incorporate additional elements that may well make sense in a specific catchment.

5. Conclusion

Sustainability in the water sector demands significant changes in established, traditional formal and informal governance institutions in order to modify socio-economic and organisational behaviours to take account of sustainability well-beings. It is unrealistic to limit the scope of water sector reforms to fine-tuning administrative and technical approaches to address water conflicts when the real issues are those of power, competition, lack of social trust and related ingrained social mores and behaviours not compatible with sustainability objectives. These are frequently the ultimate structural constraints to sustainability (Connor and Dovers, 2004).

We have argued in this paper that institutional inertia, in terms of formal and informal institutional constraints on water governance, is a major barrier to realizing the innovative potential of the RMA's water planning provisions. . While the RMA has devolved the water management mandate to an inadequately resourced local government sector, until recently central government has essentially taken a hands-off role in providing national policy guidance. Too much reliance has been accorded by regional councils to formal hierarchical approaches to managing water, based on statutory RMA plans and the related practice of allocating water on a first come, first served rule, as in the past. There have been limited opportunities for stakeholders to collaborate on crafting water management solutions in a deliberative and communicative manner. Strong *government* and strong *governance* are not mutually exclusive or necessarily competing imperatives for promoting sustainable water governance. We endorse the recently adopted strategy by ECAN to focus on catchment based water plans developed on a collaborative basis and conclude with suggestions to enhance the robustness of collaborative processes.

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ENDNOTES

[i] Daniels and Walker (2001, 21, 174-75), Sabatier et al. (2005, 184, 195), and Weber (1998, 116-117).

[ii] Daniels and Walker (2001, 72-73), Weber (1998, 115-16; 2003, 4, 77), and Sabatier, Leach, Lubell and Pelkey (2005, 195).

[iii] Daniels and Walker (2001, 22, 63), Ostrom (1990, 88-90), Sabatier et al. (2005, 195), and Weber (1998, 111, 117).

[iv] Daniels and Walker (2001, 184); Weber (2003, 87).

[v] Daniels and Walker (2001, xviii, 181); Weber (2003, 87).

[vi] Daniels and Walker (2001, 184, 187); Weber (2003, 89).

[vii] Daniels and Walker (2001); Weber (2003, 237).

[viii] Daniels and Walker (2001, 184); Weber (2003, 88).

[ix] Daniels and Walker (2001, 184).

[x] Daniels and Walker (2001, 181); Weber (2003, 88).

[xi] The argument is that accepting a dual role as community member and representative of a particular interest obligates participants to take a broader view of problems, thus encouraging more constructive discussion and deliberation, and ultimately contributing to problem solving and goal achievement (see Weber 2003, 88-89). Daniels and Walker (2001) endorse a similar dynamic associated with role reversal, imaging, and mirroring exercises (184).

[xii] See Sabatier et al. (2005, 185). Ostrom (1990) notes the importance of "low-cost" conflict resolution services and finds that "leaders are … the basic resolvers of conflict" (101).

[xiii] These individuals can and do come from anywhere within participant ranks. The key to success appears to be the presence of the collaborative leadership characteristics less so than the *organizational location* of the leadership itself (Daniels and Walker 2001, 173, 183; Weber and Khademian 2008).

[xiv] Walker and Daniels (2001) argue the need for "a strong, demonstrated, literal commitment to the collaboration process" (182). The concept of credible commitment for Weber (1998), while not noted as a key factor, infuses the AM framework thoroughly (see pp. 113-115).

[xv] The ACF model argues that "there should be continuity in the participation of representatives from a given organization … [because] [t]urnover kills trust building" (Sabatier et al. 2005, 195). For the assurance mechanism, see Weber (2003, 198).

[xvi] This element does not mean that the status quo is the measure of collaborative success, rather it is a legitimate starting point. By definition, the collaborative has been engaged to combat and manage problems that have arisen precisely because of past and present practices and management regimes. What it does mean is that participants are dedicated to facilitating meaningful change while *including* existing livelihoods in plans for the "place's" future, all while recognizing the likelihood that modifications to such livelihoods will be needed to achieve the ultimate goal of long-term problem solving success.

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