

Collaborative Management: Community Engagement Process as the Decision Making Process

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Abstract: *Planning theory identifies a step-wise process for making decisions which typically include the following steps: define the problem, develop alternatives, evaluate alternatives, and make the decision. We are seeing the growth of multi-criteria decision making frameworks that can score different factors and weight different criteria to provide overall scores for alternatives to indicate a preferred decision. Legal processes have been developed with complex submission and submission-on-submissions procedures to inform independent commissioners of the variety of viewpoints that need to be considered in their deliberations on the merits of proposals.*

However these technical and legal processes may not be the most effective decision making processes for the sustainable management of scarce resources involving multiple users. Ostrom has identified “collective choice arrangements” as one of the design principles for the management of common pool resources, such as water or fisheries.

This paper describes the decision making process for developing the Canterbury Water Management Strategy. This process was designed to be dynamic and collaborative with stakeholder and community engagement. The steps in the community engagement process defined the decision making process. This is not to say that the technical and legal processes were not followed, rather, they were subsidiary to the community engagement process.

The paper describes the activities associated with the seven milestones of the community engagement process:

- (1) Release and announcement*
- (2) Definition of the process*
- (3) Identification of the breadth of uses and benefits*
- (4) Public reporting of uses and benefits*
- (5) Achievement of depth and sophistication of strategies and substrategies*
- (6) Public engagement on strategy options*
- (7) Implementation and update.*

The community engagement process was successful in achieving widespread acceptance of the proposed strategy which is now being implemented.

Keywords: *Resource management decision making; Collaborative community engagement processes; Acceptance of strategic decisions.*

Background

Sustainability Limits Reached

There has been extremely rapid growth in water allocation in Canterbury in the last 20 years. This is predominantly associated with the expansion of dairying and the demand for irrigation to improve pasture growth and thereby dairy production. New Zealand has the highest growth rate in irrigation of any OECD country¹ with most of that growth occurring in Canterbury which has 70% of New Zealand's irrigated land.

This has led to the sustainability limits of water availability in Canterbury being reached for the current means of abstraction for both surface water and groundwater. It has also led to cumulative effects of use compromising water quality and freshwater ecosystems (Jenkins, 2009).

Strategic Investigations

The first stage of strategic investigations was commenced after droughts in the late 1990s indicated issues with water availability with an analysis of future demand and supply (Lincoln Environmental, 2002). This first stage indicated that, under low flow conditions in rivers from which irrigation water is taken, current peak demand cannot be met by current abstraction methods. Most irrigation abstraction was based on run-of-river schemes. However on an annual basis water is available to meet future demand but would require major water storages for water to be available in the irrigation season. This led to a second stage of the strategic study of major water storage options for the region with respect to their hydrologic feasibility (Aqualinc, 2008).

Stage 3 was designed as the evaluation phase with a 20-person multi-stakeholder group assembled to formulate a sustainability evaluation framework for comparing storage options. They were supported by subregional groups (for north, mid and south Canterbury) that provided input to the evaluation. Assessments were provided of storage options but there were also concerns expressed about broader water management issues and the multi-stakeholder group recommended that before strategic water storage and water management decisions, rigorous scientific and public consideration is required of:

- the impacts of land use intensification and its effects on water quality,
 - mitigation and management systems for water quality, and,
 - methods for maintaining or improving flow variability and low flows in major rivers.
- (Whitehouse et al, 2007)

¹ OECD (2008) indicates a 90% increase in irrigated area in NZ from 1990-2 to 2001-3 compared to the OECD average of 6%.

This led to a fourth stage – the development of the Canterbury Water Management Strategy (CWMS). It is the community engagement process as part of the CWMS that is the subject of this paper.

Statutory Processes

While the technical investigations were underway a number of statutory processes were also in progress. One was the development of a Natural Resources Regional Plan for Canterbury. Regional plans are statutory instruments under the Resource Management Act (RMA) that state the objectives for the region for natural resources, the policies to implement the objectives, and the rules to implement the policies. There were also applications for Water Conservation Orders (WCOs) in progress.² WCOs provide for the preservation of water bodies in their natural state, and protection of environmental values and outstanding Maori values of water bodies. There were also a series of controversial irrigation and hydro generation projects that were progressing through resource consent processes.³

All of these statutory processes were based on procedures specified in the RMA: Schedule 1 for the preparation of a regional plan, Part 6 for resource consents and Part 9 for WCOs. Community involvement in these processes was as affected parties or submitters (typically in opposition). The legalistic nature of the processes created an adversarial system for decision making. Information was in the form of evidence in an interrogative process and legal judgement formed the basis of decisions, usually in the Environment Court. Processes were protracted and acrimonious.

Paradigm Shift

It was clear that neither the technical planning approach to decision making (i.e. define the problem; develop alternatives; evaluate alternatives; and make the decision) or the statutory procedures approach (i.e. make a proposal; call for submissions; hear submissions with independent panel or court; panel or court decides) was an effective approach to water management decisions in Canterbury with the resource at sustainability limits.

A different paradigm was needed. Work on collaborative approaches had been initiated in 2004 at the scale of tributary catchments with considerable success at resolving water management issues at this scale. It was clear that the Canterbury water management issues needed to be considered at multiple scales. For Canterbury there were at least four levels:

- the regional level where the key issues are water availability and land use intensification,
- the catchment level at which the sustainability levels of water use, the cumulative impacts of water use, and, the reliability of supply are the main issues,

² One for the Rangitata River and later one for the Hurunui River.

³ Major projects included Project Aqua, Central Plains Water and the Hurunui Water Project.

- the subcatchment level, where environmental flow requirements in river reaches and the management of stream water quality and riparian margins are the main issues, and
- the property level, where the land use practices that influence water quantity and quality are defined.

An overall strategic framework was formulated based on Ostrom’s self-managed community approach to governing common pool resources (Ostrom, 1990) and Gunderson and Holling’s concept of nested adaptive systems for managing natural resources (Gunderson and Holling, 2002). One of the key elements of Ostrom’s design principles for managing common pool resources, such as water, is the “collective choice arrangements”. This paper describes the community engagement process that was undertaken to facilitate collective decision making for the Canterbury Water Management Strategy (CWMS), Stage 4 of the strategic process.

Overview of CWMS and the Community Engagement Process

Canterbury Water Management Strategy

The Canterbury Water Management Strategy involved the following major activities:

- stakeholder and community engagement on the development of strategic options,
- definition of the strategic options,
- community consultation on their option preferences,
- strategic investigations of outcomes, and
- sustainability appraisal of options.

From Stage 2, the strategy process had been reporting to the Canterbury Mayoral Forum which comprised all of the mayors of the district and city councils and the chair of the regional council and their chief executives. A Steering Group under the auspices of the Mayoral Forum provided oversight of the process which was managed by the Regional Council. For Stage 4, the membership and role of the Steering Group was expanded. It comprised representatives of local and regional government, tangata whenua as well as farming, environmental, industry and recreational interests. It was empowered to make recommendations to the Mayoral Forum.

Stakeholder and Community Engagement Process

The community engagement process had activities based on seven milestones:

1. Release and announcement of the process
2. Definition of the process
3. Identification of the breadth and uses and benefits
4. Public reporting of uses and benefits
5. Achievement of depth and sophistication of strategies and substrategies

6. Public engagement on strategy options
7. Implementation and update.

Milestone 1 (Release and Announcement) involved the release of the Stage 3 report and the commencement of the Canterbury Water Management Strategy. A clear separation was sought for the shift from the strategic work that had been focussed on storage to a broader concept of water resource management.

Milestone 2 (Defining the Process) had the objective of defining an effective and credible process for the development of a strategy for integrated water management in contrast to the more limited scope of water availability and storage which had been the focus of the earlier work. Key activities to achieve the milestone were:

- Face-to-face briefings and discussions with stakeholders,
- Email exchanges with more remote stakeholders, and
- Approval of the Steering Group of the process.

Milestone 3 (Identifying Breadth of Uses and Benefits) had the objective of ensuring a broad identification of uses and benefits of all stakeholders for incorporation in a water management strategy. This was an extensive activity involving stakeholder engagement meetings throughout the region and meetings on specific topics. It used a collaborative governance software package *Open Strategies* as a framework for engagement and as a web-based recording system of stakeholder views on the uses and benefits of water in the Canterbury region (Driver, in press).

Milestone 4 (Public Reporting of Uses and Benefits) involved the documentation of the outputs of the stakeholder engagement process, making the outputs publicly available and open to public scrutiny. A web site (*Canterburywater.org.nz*) had been established for all reports associated with the development of the water management strategy. Also *Open Strategies* had the facility for stakeholder groups to review how their views had been recorded and to modify the wording of how their views had been expressed.

Milestone 5 (Achieving Depth and Sophistication of Strategies and SubStrategies) had the objective of focussing stakeholders on defining and prioritising substrategies and projects to provide for the uses and benefits identified at Milestone 3 (or as modified from Milestone 4). The original intention was to use the facility in *Open Strategies* which links *Projects* and their *Results* to achieving *Uses and Benefits* (PRUB). However it was found that there were thousands of linkages to be considered and the available technical data had limitations in quantifying the PRUB linkages. For community engagement a less detailed and higher level approach was needed which could cope with greater information uncertainty. The *Strategic Choice* framework (Friend and Hickling, 2005) was chosen to identify strategic options.

Milestone 6 (Public Engagement on Strategy Options) had the objective of presenting to the public the strategic options that had emerged from the stakeholder engagement process.

This was designed to ensure that the public was fully aware that this was an opportunity to have significant input into the water management strategy.

Milestone 7 (Implementation and Update) had the objective of incorporating the Canterbury Water Management Strategy into statutory documents, creating methods for updating the strategy, and developing projects to implement the strategy.

The stakeholder and public engagement tasks - Milestones 3 to 7 - are discussed in more detail below.

Identification of Uses and Benefits (Milestone 3)

Based on the work on defining the process there was support for stakeholder group meetings at locations across the region. Eleven locations were identified.⁴ There was also interest in addressing specific topics: economics (relating to energy and tourism); tangata whenua (Ngai Tahu and runanga); youth; water quality and drinking water; and, land use intensification.

Facilitated workshops were conducted using the web-based collaborative governance tool *Open Strategies* to document the input from the variety of workshops in a coherent framework. The concept of *Open Strategies* is to enable multistakeholders groups to define multiple projects that can contribute to the range of benefits sought by the multiple interests. The *Open Strategies* framework links projects to the results achieved by those projects; the results are linked to uses of these results to members of the community; and the uses are linked to benefits to the community.

Milestone 3 was to define the breadth of uses and benefits that the stakeholders sought from water management in Canterbury. The purpose of the workshops was for stakeholders to identify their uses and benefits. Community input to this process was extensive. Summaries of the output of the workshops are still displayed on the *Canterbury Water* website.

The workshops also led communities to identify values associated with water that were at a higher level than benefits.

This process was pivotal as the starting point in defining for the CWMS a vision statement, a definition of priorities and principles to underpin the strategy, ten target areas for the strategy that projects and actions that form the strategy are designed to achieve.

Public Consultation and Reporting on Principles and Uses and Benefits (Milestone 4)

From the outcomes of the stakeholder workshops, *Open Strategies* identified 10 principles based on stakeholder values that could underpin a water management strategy for

⁴ From north to south these locations were Hurunui, Rangiora, Central Christchurch, Akaroa, Darfield, Rakaia-Methven, Ashburton-Hinds, Timaru, Fairlie, Waimate, and Omarama.

Canterbury. It also summarised the range of uses and benefits identified in the stakeholder workshops. This was received by the Steering Group and public feedback was sought on this information (Canterbury Water, 2008).

The ten fundamental principles were: sustainability; kaitiakitanga; instream values; region-wide (in terms of input and statutory adoption); non-abstractive uses (e.g. food gathering and swimming); efficient and effective water and land management; drinking water; maintenance of essential character of waterways; public access to waterways; stock exclusion from waterways. There was also a wide-ranging specification of uses and benefits under general categories of economic, environmental, cultural and social.

The public input confirmed the list of uses and benefits and suggested some changes to the fundamental principles.

Achievement of Depth and Sophistication of Strategies (Milestone 5)

Strategic Choice

An important component of strategy formulation is selecting a framework designed for the type of decision situation. *Open Strategies* required information on the links between projects, results, uses and benefits. While some of this information had been generated there wasn't sufficient information to make effective use of the *Open Strategies* framework for the development of alternative strategies. The development of strategic options was facilitated by the use of *Strategic Choice* (Friend and Hickling, 2005). This approach for option development and selection arose from experience of decision making in environments where interorganisational collaboration was essential to successful service delivery (Midgley, 2000). It is more a method of problem structuring rather than problem solving. It is designed for finding solutions to complex problems where there is incomplete information, many interconnecting issues, uncertainty about possible effects of options, and multiple interests with conflicting objectives.

Rather than the choice process of "define problem/develop alternatives/evaluate alternatives/make decision", *Strategic Choice* considers multiple problems are to be addressed and comprises four modes of "shaping, designing, comparing and choosing" in order to deliver a commitment package including multiple decision outputs. The commitment package includes early actions, explorations in response to uncertainty, and arrangements for deferred decisions. A workshop of the Steering Group and technical support group addressed the shaping and design modes. This led to four strategic options which were subject to sustainability appraisal workshop (comparing mode) and a choosing mode involving community consultation, public hearings and stakeholder engagement. The Strategic Framework document (Canterbury Water, 2009) set out the commitment package.

The shaping mode involves defining *key decision areas* which were derived by the uses and benefits from Milestone 4. It also involves identifying *links between decision areas* as well as

other decision areas that could be affected by courses of action to achieve uses and benefits. In addition, this mode includes defining priority decision areas in terms of urgency and importance (referred to as *problem focus*). A key input for these tasks was the Canterbury Regional Environment Report (Environment Canterbury 2008) which had analysed the resources, processes and outcomes with respect to water management in Canterbury.

The designing mode involves identifying possible options for each decision area and then the incompatibilities between options in order to develop a working shortlist of possible strategic options. There had been two camps prior to this stage in strategy development. One camp favoured further storage as the priority. The other camp opposed storage and wanted the adverse effects of water use and land use intensification addressed before any further storage development was contemplated. The workshop identified another option of improved water use efficiency which would make additional water available and reduce the water quality contamination from excess runoff or groundwater leakage but would involve reconfiguration of consents.

Strategic Options

From the *Strategic Choice* workshop, four strategic options were agreed by the Steering Group for public consultation:

- Option A: Business as usual (base case) – current RMA approach that was effects-based and applicant-driven;
- Option B: Advance environmental protection first then infrastructure development – set limits, initiate restoration and improve efficiency;
- Option C: Reconfigure consents and infrastructure to improve reliability and enhance the environment – redistribution for integrated water management;
- Option D: Advance infrastructure development with environmental repair and protection – storage incorporating environmental mitigation.

Public Engagement on Strategy Options (Milestone 6)

Public Consultation on Options

All households in Canterbury (about 150,000) had delivered to them a booklet describing the fundamental principles and the four options. Over a 1,000 submissions were received and more than 100 were heard at public hearings conducted by the Steering Group members. The booklet also included a request for feedback on the preferred option. From the responses it was clear that there was little support for Option A (Business as Usual). Option D (Storage led strategy) and Option B (Environment led strategy) were the most favoured. However, Option C (Efficiency-led strategy) received considerable first preference support and was the dominant second preference.

Sustainability Appraisal

The four options were subject to a Sustainability Appraisal by the Steering Group and an Officials Group (technical advisors) using the Framework developed by Sadler and Ward (2008) to reflect New Zealand institutional arrangements. The Framework is founded on four pillars of sustainability (social, economic, environmental and cultural) which correspond to the four well beings of the Local Government Act.

The appraisal process involved an intensive month-long period of identifying sets of social, economic, cultural and environmental capital assets that are involved in the regional water management and selecting assessment criteria to reflect these assets. In an application workshop involving community representatives and technical specialists over two days (Russell and Ward, 2010), participants reviewed evaluation criteria and scale descriptions for the four groups of capital assets on a 5 point scale (from -2 strong negative impact to +2 strong positive impact with the neutral position 0 representing the status quo). Once the evaluation criteria had been amended, each group was asked to identify points on the five-point scale that represented an acceptable minimum position (quadruple bottom line) and a desirable objective position (quadruple top line).

The four options were then scored against the amended evaluation criteria. Some of the key findings of this appraisal were as follows:

- Option A (business as usual) was below the sustainability bottom line on nearly all criteria;
- Option B (environment-led) scores well on environmental criteria but is below the bottom line on economic criteria;
- Option D (strategic-led) scores well on economic criteria but is below the bottom line on environmental criteria;
- Option C (efficiency-led) scores above the bottom line on nearly all criteria.

When considered at the sub-regional level, the workshop participants considered that combinations of Options B, C and D were most likely to achieve sustainability at the sub-regional level.

Strategic Framework and Implementation Programme (Milestone 7)

A Strategic Framework document was released in November 2009 (Canterbury Water, 2009a). The document provided a vision and principles for the strategy. The vision statement of what success would look like for the desired outcome of the CWMS is: "To enable present and future generations to gain the greatest social, economic, recreational and cultural benefits from our water resources within an environmentally sustainable framework."

First order priorities for water were identified as: “environment, customary use, community supplies and stock water”. Second order priorities were: “irrigation, renewable electricity generation, recreation and amenity”.

Primary principles were defined as: “sustainable management, regional approach, and tangata whenua”. Supporting principles were: “natural character, indigenous biodiversity, access, quality drinking water, recreational opportunities, and community and commercial use”.

It also summarised the key challenges facing the region and the outcomes of the strategy process with respect to options and their sustainability assessment. CWMS has been designed to deliver on a balanced set of outcome targets in the following areas:

- Drinking water
- Irrigated land area
- Energy security and efficiency
- Ecosystem health/biodiversity
- Water use efficiency
- Kaitiakitanga
- Regional and national economic growth
- Natural character of braided rivers
- Recreational and amenity opportunities.
- Environmental limits

The Strategy also provided the approach for developing the implementation programme for the strategy and the issues to be covered by those programmes. It continues the nested approach to collaborative governance with a multistakeholder Region Committee to address regional issues and 10 Zone Committees of community members and runanga representatives to facilitate community-driven implementation programmes to meet the CWMS targets. A water executive unit, as part of the regional council, was established to facilitate the delivery of the implementation programmes. In addition the strategic framework document indicated how these programmes would be given statutory backing through regional policy statements and regional plans.

Concluding Comments

A key element of the success of the collaborative approach for developing the strategic framework was the design of the community engagement process as the driver of the decision making process. This included involvement in the design of the process, compared to having a predefined statutory process. The community involvement in defining the issues to be addressed, the options to be considered and the evaluation of the options differs from technical decision making processes which are usually undertaken by technical experts and professional planners.

From a starting situation where there was polarisation of community views about whether water storage and associated land use intensification should proceed, there was widespread support for the strategic framework for integrated water management that delivers on multiple targets. The strategy development process shifted from a focus on water availability and storage to identification of community values and the wide range of uses and benefits associated with water. The acceptance of the strategy appeared to be related to the ability to be involved in and to influence the strategy development, as well as the outcomes of the process.

The use of a facilitated collaborative process resulted in a greater level of dialogue between different stakeholder interests compared to the adversarial style of statutory processes. This led to new concepts for increasing water availability being brought into the process such as different types of storage, e.g. tributary storage and aquifer recharge (Jenkins 2013) and water use efficiency (Jenkins 2012).

The emphasis on community engagement led to the introduction of innovative methods. *Open Strategies* enabled a stakeholder definition of uses and benefits for water. *Strategic Choice* was able to accommodate incomplete information and multiple interests with conflicting objectives. *Sustainability Appraisal* was based on the simultaneous achievement of multiple criteria rather than trade-offs between objectives.

The use of collective choice arrangements required innovative processes and methods compared to typical technical and statutory decision processes and led to greater acceptance of the outcomes and improved likelihood of their implementation.

References

Aqualinc Research Limited (2008). *Canterbury Strategic Water Study (Stage II)*. Prepared for Environment Canterbury, Report No. LO5086/1.

Canterbury Water (2008). *Milestone 4: Stakeholder & Public Consultation Guide on the Uses and benefits of Water in Canterbury*. Prepared for Environment Canterbury.

Canterbury Water (2009a). *Canterbury Water Management Strategy: Strategic Framework*. Prepared by Environment Canterbury for the Canterbury Mayoral Forum.

Canterbury Water (2009b). *Creating a sustainable future for Canterbury Water*. Prepared by Environment Canterbury, Christchurch.

Driver, P. (in press). *Open Strategies*. Gower: London. See also www.openstrategies.com.

Environment Canterbury (2008). *Canterbury Regional Environment Report 2008*. Environment Canterbury, Christchurch.

Friend, J. and Hickling, A. (2005). *Planning under Pressure: The Strategic Choice Approach (Third Edition)*. Elsevier, Amsterdam.

Gunderson, L. H. and Holling, C. S. (2002). *Panarchy: Understanding Transformations in Human and Natural Systems*. Island Press, Washington.

Jenkins, B. R. (2009). *Canterbury Water Management Strategy: A Region-Wide Approach to Improve Water Management*. Paper presented at National Water 2009 Conference, 18-20 August 2009, Melbourne.

Jenkins, B.R. (2012). *Water Issues in Canterbury*. Plenary address Agronomy Society of NZ Annual Conference 2012, Lincoln University.

Jenkins, B.R. (2013). *The Development of Sustainable Alternatives to Applicant's Proposals Using Collaborative Approaches*. Paper presented to NZ Planning Institute Annual Conference, 2 May 2013, Hamilton.

Lincoln Environmental (2002). *Canterbury Strategic Water Study*. Prepared for Environment Canterbury, Ministry for Agriculture and Forestry, Ministry for the Environment. Technical Paper 2002/6.

Midgley, G. (2000). *Systemic Intervention: Philosophy, Methodology, and Practice*. Kluwer Academic, New York.

OECD (2008). *Environmental Performance of Agriculture in OECD countries since 1990*. OECD Berlin Centre.

Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press, New York.

Russell, S. and Ward, M. (2010). *Sustainability Appraisal: Application to the Canterbury Water Management Strategy*. Landcare Research Contract Report LC0910/052. Landcare Research, Lincoln.

Sadler, B. Ward, M. And Frame, R. (2008). *A Framework for Sustainability Appraisal in New Zealand*. Landcare Research Contract Report LC 0708/090, Lincoln.

Whitehouse, I. Pearce, A. and McFadden, G. (2007). *Final Report – Canterbury Strategic Water Study (CSWS) Stage 3 – multi-stakeholder evaluation of water storage options*. Prepared for Environment Canterbury, Christchurch.