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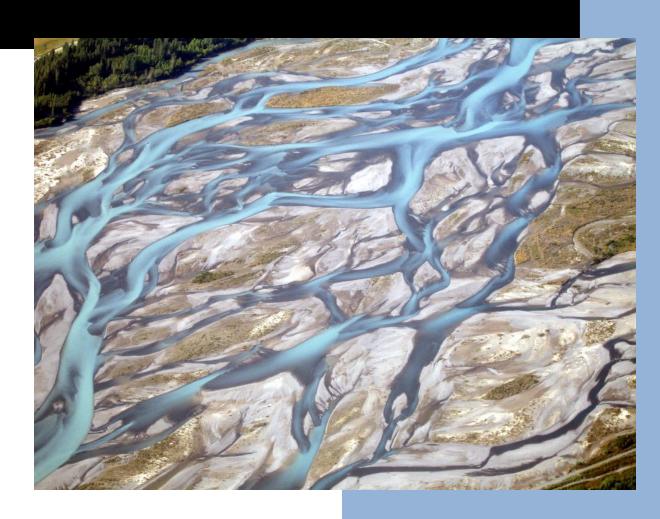
Canterbury Water Management Strategy

"How do you keep community members/organisations and stakeholders actively engaged and participating in an established collaborative governance process – on regional water management?"

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Table of Contents

Acknowledgements

Executive Summary

Water and water management in New Zealand, and specifically Canterbury, has been described as a 'wicked problem' ('Old Problems New Solutions', 2011). Increased demand for water abstraction, along with issues of water quality, water storage and decision making processes that recognise cultural and social values, have resulted in ongoing debates between stakeholders and interested parties. Over time several interventions have been introduced, including resource management legislation and the formation of regional councils.

With the Ministry of Primary Industries setting a goal of doubling agricultural export production by 2025, the 'wicked problem' will continue to challenge our communities into the future. In addition, global markets and their consumers increasingly want to know their purchased food items have been sustainably harvested and managed. To achieve these goals, we will need to learn from the past, think and operate in new ways and continue to be innovative in good management practices (Ministry of Primary Industries, 2016).

Regions, industry, and politicians are collectively working out solutions at a national, regional, and local level to be able to achieve sustainable growth objectives and implement agreed good management practices. A new range of regionally specific implementation tools will be required to achieve these objectives and outcomes. Since the late 1990s the Canterbury Water Management Strategy (CWMS) has been a primary tool used in this region to engage and involve community, special interest groups, industry and agricultural, in the development of enduring water management policies, practices, and outcomes.

Since November 2009, the CWMS has stimulated a significant amount of community and stakeholder engagement and commitment. By resourcing dedicated positions and integrating community members alongside the Regional Council staff, this approach has led to innovative and collective solutions to water management issues. The CWMS engagement process was the centre focus to the development of a statutory regional land and water plan, now into the implementation phase. This region wide plan provided the framework to develop catchment based sub-regional plans, which CWMS was vital in delivering, as well as the identification of catchment specific non-statutory tools.

The author is a Programme Manager for CWMS (and Biodiversity and Biosecurity), and sought to understand, after seven years of implementation of the CWMS, "How do you keep community members/organisations and stakeholders actively engaged and participating in an established collaborative governance process, on regional water management?"

Collaborative community driven water management policies are not unique to Canterbury or New Zealand. An international literature review of differing collaborative community based programmes was conducted to understand the motivators for sustained community involvement. Three catchment based water management models (Murray-Darling Basin, Australia, the Fraser River Basin, Canada and the Lower Saxony, Germany), were looked at in more detail to provide a comparison to local findings from participants in the CWMS.

The required commitment to an integrated water resource management process is ongoing with no likely end point. It continually develops as do the organisations that are charged with supporting or collaborating in the process. The commitment of the region's political leaders to the participatory process as it moves from centralised to decentralised governance, is essential. The motivators for maintaining community engagement include, wider understanding of the issues, building new networks, strengthening existing networks, and developing collaborative solutions.

The main findings from this study are:
- Adoption of a collaborative community process requires significant commitment from the community and governance institutions. Most models allow for an iterative approach of development, implementation and review meaning these processes often have no end point.
- Collaborative community participatory processes enables a shift from centralised decision making to decentralised governance.
- Benefit of community driven processes includes ownership of issues and solutions, growth of community knowledge, stronger networks, wider understanding of issues and viewpoints and a greater sense of community.
- Critical requirement that local or regional authorities fully support and implement the community derived solutions. This requires authorities to adopt solutions without modification and with sufficient dedicated resources.

1.0 Introduction

Water and water management in New Zealand and specifically Canterbury has been described as a 'wicked problem' (Frame, 2009). The main issue for water management is fresh water allocation which is further exacerbated by water quality issues. These issues are driven by the competing objectives and goals of different users, whether it is competing agricultural uses, industrial and commercial uses, reliable community drinking water supply, recreational water users and interest groups. These competing users' impacts include intensification of land use (rural and urban), water storage development and water quality issues that can often impact on the water values and objectives of other users.

In 2002 the Canterbury Strategic Water Study (CSWS) identified that "on-going land use change, primarily in the form of irrigation, continues to increase demand for water abstraction." Between 1985 and 1999, for example, the irrigated area in Canterbury was estimated to have increased from 150,000 hectares to 350,000 hectares (ibid).

Communities, industry, and politicians have been debating water for decades, and over time several interventions have occurred; such as the introduction of the Resource Management Act in 1991, the formation of Regional Councils and governance for sustainable economic development, intensified agricultural practices and rural land development. The removal of trade tariffs and exposure to international markets also adds pressures to local quality and quantity demands. This exposure has led to a heightened local and international community expectation around the social license to operate and the development of environmental bottom-lines.

The Ministry for Primary Industries, utilising the same 'footprint' impacts we have now, has a goal of doubling agricultural export production by 2025 (Ministry for Primary Industries, 2016). To do this we need to think and operate differently than we have done in the past, and even now, we need to keep innovating and improving operation and good management practices. Our markets are now far closer to us in the sense that global markets and their consumers want to see and hear about where their purchased food items have come from and how the animals or properties are sustainably harvested and managed.

Across New Zealand, regions, industry groups, communities and politicians are collectively working out what needs to happen at a national, regional, and local level to be able to achieve sustainable growth objectives. With the growing public awareness of water management

issues the push for increased production and growth cannot come at the expense of community values. To achieve multiple objectives or outcomes you need to have multiple resources and tools available to support the implementation of good management practices. In Canterbury one tool that has been developed since the late 1990's is what is now known as the Canterbury Water Management Strategy (CWMS). At the heart of the CWMS is the community, whether it is rural, urban, indigenous, academic, special interest groups, finance, agricultural, all are involved in the development of enduring water management practices and policies.

To date a collaborative community based process for water management has been at the heart of the CWMS model, however, these practices are not unique to Canterbury. Around the world there are numerous communities and local, regional and central or federal governments thinking differently about how to fix their own 'wicked problems'. The CWMS can be categorised under several internationally defined water management tools, from Integrated Water Resource Management (IWRM), Collaborative Environmental Management (CEM) and Empowered Participatory Governance (EPG) to name some (Jackson, Eppel & Tyson, 2016).

Since November 2009 the CWMS has stimulated a significant amount of community and wider stakeholder commitment, often led by dedicated individuals. In that time the community members have gained momentum and engaged with their respective communities and networks, working alongside the Regional Council to find innovative and collective solutions to water management issues. This approach has supported the writing of a statutory regional land and water plan, now in an operative state, along with five of ten locally driven, catchment or sub-regional statutory plans. The development and implementation of many non-statutory tools have supported these statutory plans (Eppell & Tyson, 2016).

In my role as Programme Manager for CWMS (and Biodiversity and Biosecurity), my aim is to understand, after seven years of the CWMS, **"How do you keep community members/organisations and stakeholders actively engaged and participating in an established collaborative governance process – on regional water management?"**

To do this my research will focus on *what has happened* and *where we are now* with an objective of better understanding the opportunities and challenges ahead. In one week, I spoke to three separate people involved in varying capacities with the CWMS, and in their own way all three raised the question or concern over how to keep the community engaged and actively participating in the CWMS.

To understand this question, an international literature review was conducted of the differing descriptors of collaborative community based water management processes or programmes. From this research, three catchment based management models were analysed from different countries to understand what the motivators or drivers are for getting involved in, and staying involved in, a collaborative community participatory governance process. The models were chosen were from Australia, Canada and Germany and were compared with local findings from participants in the CWMS.

2.0 Methodology

Since 2009 the Canterbury Water Management Strategy (CWMS) has stimulated a significant amount of community and wider stakeholder commitment to tackling the complex water management issues facing Canterbury.

This research has used thematic analysis to compare data or themes across literature and specific situations to understand the drivers for people getting involved in and remaining in a collaborative community participatory governance process. The information obtained enables the drawing of comparisons to the CWMS, and provides insight into potential approaches to active community engagement and participation.

Thematic analysis is one of the most common forms of analysis in qualitative research. It emphasizes pinpointing, examining, and recording patterns (or "themes") within data, to provide an answer to the research question (University of Auckland, 2016).

A survey of six participants was carried out to explore why people want to commit to being involved and actively participate in a collaborative process, such as the CWMS, with a focus on how to sustain this level of commitment.

Respondents selected were known to the author through existing professional contacts. Each respondent was invited to complete a Survey Monkey questionnaire (copy of survey provided in Appendix 1).

3.0 Literature Review

I have carried out two literature reviews as part of this research.

The first is on three types of identified resource management models in use – all three centre on community or public participation structures and delivery.

- **Integrated Water Resource Management** – equitable co-ordinated water and land resource management
- **Collaborative Environmental Management** – decentralised citizen empowered policy phases and decision making
- **Empowered Participatory Governance** - decentralised empowered community deliberation and centralised and co-ordinated feedback on an issue.

This is to understand if there are any underlying themes or key attributes to motivating or keeping participants engaged.   The three models selected use examples to help with understanding what the key drivers are for keeping community members actively engaged and participating in an established collaborative governance process.

The second review is of three international water resource management case studies from Australia, Canada and Germany and a New Zealand case study from Canterbury and specifically how these communities, interest groups and governments are managing water resource management issues at a catchment level or scale. All recognised they needed a different approach to trying to solve these issues that had come about over time as a result of changing land uses, resource user's impacts or competing interests and the ongoing development by the wider communities.

3.1 <u>Integrated Water Resource Management (IWRM)</u>

Jønch-Clausen (2004) describes Integrated Water Resource Management (IWRM) as; "a process which promotes the co-ordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems."

IWRM is an iterative process and will vary depending on the development stage of the country (Jønch-Clausen, 2004). The process starts with the planning processes and continues into implementation of the frameworks. A review of the implementation process is then fed back

into the planning process (ibid).   The importance of IWRM has been recognised internationally since the 1992 Rio do Janeiro Earth Summit and reaffirmed in the 2002 Johannesburg World Summit for Sustainable Development. An outcome of the Johannesburg meeting was the directive that countries should "develop IWRM and water efficiency plans by 2005" (ibid).

The key process steps identified by Jønch-Clausen (2004:22) are:

- *Establish Status and Overall Goals:*

The starting point of the IWRM process is the identification of urgent water resource issues seen in a national context. Chart the required progress steps towards establishing an agreed management framework within which issues can be addressed and overall goals achieved. Considerations need to be given to international agreements and obligations relating to freshwater management - pragmatism is key for keeping the process moving.

- *Build Commitment to Reform Process:*

The political will is a prerequisite and building or consolidating a multi-stakeholder dialogue comes high on the list of priority actions. The dialogue needs to be based on knowledge about the subject matter and raising awareness is one of the tools to establish this knowledge and the participation of the broader population.

- *Analyse Gaps:*

Based on the present policy and legislation, the institutional situation, the capabilities and the overall objectives, gaps in the IWRM framework can be analysed in the light of the management functions required by the identified urgent issues.

- *Prepare Strategy and Action Plan:*

The strategy and action plan will be the roadmap towards the completion of the framework for the management and development of water resources and related infrastructural or institutional measures. A portfolio of actions will be among the outputs, which will be set in the perspective of other national and international planning processes.

- *Build Commitment to Actions:*

Adoption of the action plan at highest political levels is key to any progress and full stakeholder acceptance is essential for implementation. Committing finance is another prerequisite for implementing strategies and action plans.

- *Implement Frameworks:*

Taking plans into reality poses huge challenges. The current environment and governance structure requires migration into the new institutional roles and management instruments. Changes have to be made within the present structures and may require capacity building of existing people and infrastructural investments.

- *Monitor and Evaluate Progress:*

Progress monitoring and evaluation of the process inputs and outcomes serve to adjust the course of action and motivate those driving the processes. Choosing proper descriptive indicators is essential to the value of the monitoring.

The IWRM process is a cycle that needs regular review, to enable the ability to deal with new or additional priority matters, management, or infrastructure needs. The key finding of IWRM by Jønch-Clausen is that the IWRM cycle is never complete - it is an ongoing learning and development process. The Global Water Partnership (GWP) forum website description of IWRM supports this finding. It describes IWRM as "an iterative, forward-moving, long-term process with no fixed end point. It is a change process that seeks to shift water development and management systems from current unsustainable practices" (Global Water Partnership, 2016).

3.2 Collaborative Environmental Management (CEM)

Kootnz (2006) describes collaborative environmental management (CEM) as an increasingly popular form of citizen participation and empowerment. A strategy with CEM to foster participation and empowerment, to decentralise or transfer the authority to local government or the community. CEM is about engaging the community, interested stakeholders, along with government, in all policy phases – from priority setting and in planning, implementation, and evaluation of solutions (ibid).

These diverse groups of stakeholders work together to resolve a conflict or issue and advance a shared vision – the collaboration and deliberation generates a more comprehensive understanding of problems and possible fixes. The CEM model can be created by either the community or the government to fix or solve a localised issue or problem (Kootnz, 2006). While group decision-making process incorporates the aggregation of individuals' preferences, it is the group consensus that determines the decision.

The ability to make externally binding decisions is important – in some instances policy makers have empowered the collaborative groups by giving them policy authority. Kootnz (2006) comments that "in addition to environmental conditions, social conditions are a core element of sustainability" and the social outcomes, such as individual's well-being, social equity, and community cohesion, can be used as measurements. Studies have also indicated that "collaboration may lead to improved trust and understanding amongst diverse stakeholders" and "increased legitimacy in the broader community for particular activities. Social outcome

measures focus on community-capacity enhancement to solve problems, including network building, and understanding" (ibid).

Koontz (2006) research of the Ohio Farmland Preservation Planning Program (encouraging rural counties to prepare local farmland preservation plans) found it applied a decentralised model where locals could choose topics for investigation. The localised scale to a county level meant that meetings were accessible by any county resident and group recommendations could be transmitted into county land-use plans.

Some key findings of this study relevant to this research are the social outcomes – social capital was often enhanced, with many members more willing to participate in future community problem solving. Many of the group participants reported improved network ties and communication after the planning process. Perhaps the greatest social outcome was increased stakeholder interaction and greater understanding of farmland preservation issues and possible solutions (ibid). Where recommendations were left 'on the shelf' slow policy enactment or implementation dampened group member's motivation and reduced enthusiasm for future collaboration.

Koontz's study (2006) also identifies boundaries for effective collaboration in that it occurs within the constraints and opportunities created by existing governing institutions and that collaboration is more likely to succeed when agencies are willing to adopt more flexible approaches compared to traditional regulatory approaches.

3.3 Empowered Participatory Governance (EPG)

Fung and Wright (2003) research comments on the complexity and size of political and governance institutions and that 19th century democracies seem ill suited to novel problems of the 21st century. The phrase; 'the state is the problem, not the solution,' describes the underlying drivers for EPG, and the ongoing redesign of democratic institutions and how ordinary people can effectively participate in and influence policies that affect their lives.

In EPG, the community engages in deliberations directly with the experts and bureaucrats – allowing for decentralised empowered deliberation and centralised and co-ordinated feedback on an issue. Participants involved in EPG can learn new skills in specific issues and technical areas to enable good decision making that is generally applied to issues in narrower and local geographical areas. Experts in the area can meet with larger bodies face to face and can

together create a flexible, targeted solution that will positively and actively solve the issue (ibid).

Table 1: – **Varieties of Governance Structures and Processes** (*Fung & Wright (2003)*)

		Character of decision-making process	
		Adversarial	**Collaborative**
Governance Structure	**Top down**	Conventional interest group politics	Expert/elite problem-solving (e.g. negotiated rule making)
	Participatory	Some town meetings	Empowered participatory governance

Fung & Wright (2003) identify three principles of Empowered Participatory Governance:

- *Practical orientation* – the focus is on the development of governance structures that are focussed on practical problems, and can deliver resources to those often denied them. Participants co-operate and work together to resolve issues.

- *Bottom-up Participation* – is the opening of channels for those most affected by the targeted problems.   Typically, this is ordinary citizens and officials in the field who are asked to "apply their knowledge, intelligence, and interest to the formulation of solutions."   Specialists are also involved, but do not hold exclusive power.

- *Deliberative Solutions Generation* – "In deliberative decision-making, participants listen to each other's positions and generate group choices after due consideration." (ibid)

4.0 Case Studies: Collaborative Community Water Management Models

4.1 Murray-Darling Basin - Australia

4.1.a Size and Scale
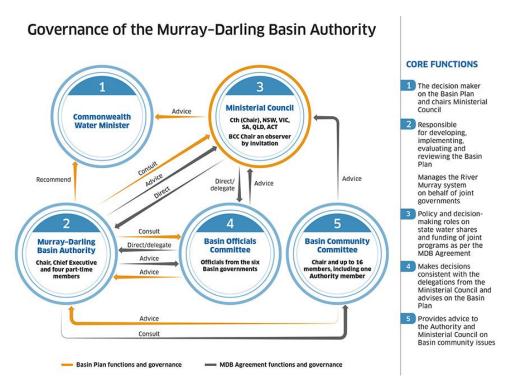
The Murray-Darling Basin is made up of 22 catchments, encompassing 1,061,469 km2 (14% of Australia's total area), and includes more than 77,000 km of rivers, creeks, and watercourses, and an estimated 30,000 wetlands. The river system has a modest average inflow of 31,600GL per year. The Murray-Darling Basin is the most important agricultural region in Australia (Swirepik et al, 2015).

4.1.b <u>The Issue and what was applied</u>

In the 1980s competition for water abstraction by a variety of users and widespread degradation of the basin's natural resources became apparent. Management of the single connected basin system at that time lay with the five state governments (New South Wales, Victoria, Queensland, South Australia, and Australian Capital Territory) – with no co-ordination (Swirepik et al, 2015). In late 1985 relevant land, water, and environmental portfolio ministers from the five state governments came together to create the Murray-Darling Ministerial Council (MDMC).

In 1987 the MDMC commissioned the Murray-Darling Basin Environmental Resources Study – this report highlighted the environmental issues in the basin. In 1988 the Murray-Darling Basin Commission was established to support the MDMC. The objectives of water reform actions in the Murray-Darling are multiple and include objectives to maintain adequate water flows for the basin's water-dependent ecosystems, ensuring the supply of freshwater ecosystem services and sustaining the communities that depend on basin water resources for their livelihoods (Murray-Darling Basin Authority, 2016).

The Water Act 2007 is legislation that unites or ratifies a co-operative arrangement between the Australian Government and the basin states for the management of basin water resources. In 2007 the Murray-Darling Basin Authority (MDBA) was established as a single body responsible for overseeing water resource planning in the basin and the development of the Murray-Darling Basin Plan 2012 (adopted into legislation November 2012) – with an objective of delivering a healthy working basin. An implicit challenge within the Basin Plan 2012 is the development of a water planning approach that is responsive to local values and priorities, and fosters shared ownership for water resources management solutions in the basin (Robinson et al, 2015).

Figure 1: **MDBA Governance Model** (*http://www.mdba.gov.au/about-us/governance*)

The Basin Community Committee (BCC) provides advice to both the MDBA and MDMC. Members of the BCC come from the member states and cover agricultural and industry representatives alongside community organisations and indigenous communities. The BCC provides a 'bottom up' or local input into the overall management of the basin. It should be noted that BCC members are selected based on their expertise or interest in community, water use, environmental water management, indigenous or local government matters. BCC members represent their respective communities and interests and are a key conduit into both local communities and the MDBA.

C.J. Robinson et al (2015) identifies that the Australian Commonwealth Government has used localism or bottom up environmental planning or management to incorporate local values into basin governance. To do this the federal government has incorporated subsidiarity concepts (i.e. allowing the local community to self-govern and have an ability to action – within locally set limits).

This localism approach engages communities' knowledge and partnerships, and builds trust and empowers. A key government support to this is the capability to collect and use credible local information to guide and evaluate planning decisions and have planning mechanisms in place to enable co-operation and co-ordination of multiple actors and institutions at scale (ibid).

What localism looks like at the grass roots in environmental water management and reform and emphasis placed by MDBA is:

i. tapping local knowledge and skills to help manage the river systems of the basin:

ii. working collaboratively to achieve local goals, as well as regional and basin objectives;

iii. devolving management, where appropriate, to regional and local levels;

iv. practicing transparency and keeping local communities well informed;

v. enhancing a sense of local ownership through community engagement;

vi. developing mutual trust and shared values

(*C.J. Robinson et al, 2015*)

4.1.c *Lessons Learnt – Where to Next*

Since the 1980's several lessons have been learnt by the MDBC. A summary of key five lessons identified by the MDBC are listed below from document MDBC- Case #25;

- "The commission has been successful in winning and maintaining community interest, involvement and support because of the participatory approach used in the BCC" (ibid). This is the outcome I am most interested in as the ongoing community engagement that has been maintained is transparent. Throughout the process, the local community and the government, along with government agencies involved, remain engaged in the project.

- Strategies for action, programmes and frameworks have benefited from both intergovernmental (top-down) and bottom-up approaches to IWRM (government policies realigned according to MDBC strategies and on-ground support and actions implemented over a large area. This includes localised equitable cost share projects with communities that have been determined, implemented, and maintained.

- Established cross-border water share arrangements, water trading and water use efficiency that is seeing state of the art water use technology in wide use.

- Setting formal targets for resource condition outcomes with clearly established and agreed government accountabilities.

- Unwavering Federal Government support, commitment and funding since the 1980s to sustain the MDBC and all its activities.

C.J. Robinson et al (2015) researched and examined indigenous and environmental perspectives from the community based groups involved and their efforts. Some findings from this research identified:

- the role of local representatives and the elevated importance of strong institutional relationships with the federal water holder and manager and,

- strong technical, policy related and planning collaboration and participation with state agencies,
- locals and communities decide what is researched, monitored, evaluated, and reported and perform an important facilitator role between local interests,
- the localism approach focuses on building capability and trust, enabling creativity and empowering communities and landowners with an obligation of environmental care.

A future area for consideration was the broader management of natural resources and that better outcomes could be achieved through an integrated approach to community-based partnerships.

Further opportunities exist for more creativity around frameworks and to strengthen (anecdotal) evidence relating to community benefits not rigorously captured under current iterations – such as measuring landholder changes in attitudes and preferences, or mental health benefits from stewardship responsibilities that provided a sense of purpose and increased social connectedness.

C. J. Robinson et al (2015) research into the MDBC and the IWRM approach being applied in the catchment, identified –
- the importance of harnessing public participation to achieve regional water resource management goals in context of national policies,
- development and implementation of the human dimensions of natural resource management programmes – by viewing natural resource management as a human activity, rather than relying on biophysical sciences and technology to provide the sole solutions to complex environmental issues,
- how to use partnerships to build policy directions and implementation processes using the values and behaviours of courage, inclusiveness, commitment, respect, flexibility, practicability, and mutual obligation.

4.2 The Fraser River Basin – Canada

4.2.a Size and Scale

The Fraser River Basin covers an approximate area of 234,000 km2 and 'drains' 25% of the province of British Columbia on the West Coast of Canada. The Fraser Basin is made up of 14 separate watersheds and supports agricultural and other land based activities and contributes 10% of Canada's GDP (Watson, 2004).

The river is 1399km long originating in the Rocky Mountains and emptying into the Pacific Ocean. The river and basin systems are fed from a combination of snow and glacial melt and rainfall, peaking in spring and summer. There are three main hydrologic areas – coastal mountains (wettest area), an interior plateau (driest) and eastern mountains (Rocky's) (Blomquist et al, 2005).

4.2.b The Issue and what was applied

Expansion of land based activities (mining, forestry, agriculture, port and urban development) in the 1800s started to impact environmentally and several land and water problems surfaced. Up until the late 1970s piecemeal or single issue responses to problems were applied (fisheries, flood control and water pollution control). Rapid economic growth in the late 1970s – and proposals for the expansion of the Vancouver International Airport in the delta area – catalysed a co-ordinated response. The Fraser River Estuary Management Program (FREMP) was established in 1985 to improve co-ordination amongst federal, provincial, municipal authorities, harbour commissions and other groups with authority in the estuary (Blomquist et al, 2005).

Early 1990 federal policy shifts generated growing interest in basin-wide planning and management from government and non-government groups. In 1991 the federal government launched the Fraser River Action Plan (FRAP) – this provided $CAD100million for pollution reduction, habitat restoration, and regeneration of fish stocks. Between 1992 and 1997 various other groups and associations (Canadian Water Resources Association, British Columbia Round Table) developed sustainability principles. These principles stressed the need for integrated watershed management, consensus negotiation, and active public participation in decision-making as well as lifted the focus on indigenous rights by courts and governments – leading to further institutional reform.

The Fraser Basin example is not one of government decentralisation but the creation of a non-government body facilitating the co-ordination of several decentralised private and public sector activities (Blomquist et al, 2005).

The federal Government recognised that a collaborative approach with others could reduce controversy and be more transparent on initiatives – rather than ones carried out solely by the government. Other motivations included the ability for First Nations (indigenous) and environmental groups to directly participate in policy processes (Watson, 2004). In 1992 there was collective support to initiate a five-year Fraser Basin Management Program (FBMP) and

have this led by the Fraser Basin Management Board (FBMB). The FBMB represented multiple organisations and interests with a purpose of encouraging and using consensus-based decision making. FBMB was made up of 12 representatives from all tiers of government (federal, provincial, regional, or local), First Nations and non-governmental interests representing, economic, environmental, and social interests and was not without its problems in the first year. A Strategic Plan was adopted in 1993 by the FBMB, along with five goals and a set of principles to guide the FBMP. In 1997 the five year FBMP neared its end - the FBMB drew up a constitutional 'Charter for Sustainability' for the Fraser Basin Council (FBC) (Blomquist et al, 2005).

Table 2: The Fraser Basin Sustainability Concept (*Blomquist, et al 2005*).

Vision: The Fraser Basin is a place where social well-being is supported by a vibrant economy and sustained by a healthy environment.	
Four Directions	
Understanding Sustainability	Governments, community groups and individuals recognise why and how they can contribute to building vibrant communities, developing strong and diverse economies, and maintaining the air, water, land and living species that make up ecosystems.
Caring for Ecosystems	Individuals are all stewards of resources such as water, forests, fish, wildlife and land. Individuals, as stewards, conserve and enhance ecosystems to maintain strong and diverse economies and to support growing communities. In this way, people not only enjoy a natural environment, but also conserve it to support a high quality of life.
Strengthening Communities	Communities benefit from local experience, skills, and values. Strong communities are built on a diverse economy, an educated workplace, safe neighbourhoods, accessibility to basic commodities, shared goals, local action, and a sense of belonging.
Improving Decision Making	Decision making is shared and people work together to reach creative agreements and achieve common goals. These reflect the interests of a growing population mixed in gender, culture, religion, age, and interest; and where aboriginal rights now being defined are reconciled in a just and fair manner.
Twelve Principles	
Mutual Dependence	Land, water, air, and all living organisms including humans, are integral parts of the ecosystem. Biodiversity must be conserved.

Accountability	All residents are responsible for the social, economic, and environmental consequences of their decisions and accountable for their actions.
Equity	All communities and regions must have equal opportunities to provide for the social, economic, and environmental needs of residents.
Integration	Consideration of social, economic, and environmental costs and benefits must be an integral part of all decision making.
Adaptive Approaches	Plans and activities must be adaptable and able to respond to external pressures and changing social values.
Co-ordinated and Co-operative Efforts	Co-ordinated and co-operative efforts are needed among all government and non-government interests.
Open and informed Decision Making	Open decision making depends on the best available information.
Exercising Caution	Caution must be exercised when shaping decisions to avoid making irreversible mistakes.
Managing Uncertainty	A lack of certainty should not prevent decisive actions for sustainability.
Recognition	There must be recognition of existing rights, agreements and obligations in all decision making.
Aboriginal Rights and Title	We recognise that aboriginal nations within the Fraser basin assert aboriginal rights and title. These rights and title now being defined must be acknowledged and reconciled in a just and fair manner.
Transition Takes Time	Sustainability is a journey that requires constant feedback, learning and adjustment. In the short term, the elements of sustainability may not always be in balance.

The FBC was setup in 1997 with the purpose of "facilitating sustainable development through collaborative decision making and action involving four orders of government plus economic, social and environmental interests from different parts of the basin" (Watson, 2004).

The FBC consisted of 36 members with 18 of these representing First Nations and regional perspectives, the remainder were federal, provincial, and regional government, with basin wide representatives for economic, social, and environmental sustainability headed by an impartial chair. The funding model of the FBC grew to include 'project funding' from public and private sources, but the primary funding is provided by federal, provincial, and local government (Watson, 2004).

The principal resource management challenges in the Fraser River basin are:
- Declining returning salmon spawning numbers in half the basin's streams

- Concentration and accumulation of toxic materials from past municipal and industry discharges
- Drainage of the lower basin has reduced estuarine wetlands that are important habitat for salmon and waterfowl
- Groundwater contamination from intensive agriculture and manure, fertilisers and pesticides
- Some lakes showing nutrient impacts from animal wastes
- High water demands in drier interior areas of the basin have resulted in local water shortages
- Aging flood control infrastructure
  (*Blomquist et al 2005*).

4.2.c *Lessons Learnt – Where to Next*

The fact, that FBMB and the FBMP were separated from government control provided independence and transparency in information generation and sharing fostered perceptions of legitimacy, and reinforced commitments of NGO's and First Nations representatives. Assisting this was a staffing decision made in 1995 by FBMB to hire regional co-ordinators and locate them in the main regions of the basin rather than centralising all staff in Vancouver. This action gave local communities and organisations someone closer to interact and work with. Blomquist et al (2005) interviewed participants in the FMBP and found that local regional co-ordinators not only held good relationships with locals but also reinforced participants' commitment to the basin planning and management efforts. The FBC has continued the practice of placing Regional Co-ordinators across the region (ibid).

Blomquist et al (2005) identified motivators or incentives for participants-
- Federal and provincial agencies viewed FBMB as an instrument or way of achieving inter-organisational co-ordination needed to achieve basin management priorities.
- Local government representatives viewed the FBMB as a way of securing funds from federal and provincial authorities for important local/ regional projects.
- First Nations representatives viewed it as one of the first open recognitions of their status and a forum to air their concerns.
- NGOs saw it as a means of influencing governmental policy decisions.

While the FBC has no regulatory authority to implement decisions on resource management policy, the structure puts the decision makers with the community and other stakeholders. This

has been identified as an important element of stakeholder long term commitment to the process.

Local community participants utilised the FBMB and FBC to get access to good information and raise local issues on an equal footing with federal and provincial representatives. These representatives could work closely with their constituents, build coalitions, and enhance their political influence.

4.3 <u>Lower Saxony – Germany</u>

4.3.a *Size and Scale*

The Hase river catchment is the most intensive livestock farming region of Lower Saxony in Northwest Germany. The agricultural sector is the most important element of the societal and economic structure. Its livestock density of 2.1 animals per hectare is nearly double the average national density. The area stocks 20% of Germany's pigs and roughly 8% of the region's employees work in agriculture or forestry sector, which is more than double the average sector percentage across the rest of Lower Saxony (in 2004). It is known as the "Silicon Valley of agricultural industry" in Germany (Kastens & Newig, 2008).

4.3.b *The Issue and what was applied*

The area's specialisation in, and intensive farming practices in pig and poultry farming and associated high manure production combined with industrialised process and practices has led to nitrate concentrations in surface and groundwater bodies (Kastens & Newig, 2008). The first inventory of the European Water Framework Directive (WFD) in 2000 indicated that four out of five groundwater bodies across the Hase Catchment were significantly polluted due to nitrate concentrations (ibid).

A driver for public participation in European environmental policies and their implementation comes from the WFD with a focus on co-ordination of different stakeholders in watershed planning and partnerships. The WFD also is the first directive to outline explicit and substantive environmental policy goals – with public participation. Article 4 of the WFD demanded a 'good status' for most European waters by 2015. Within this overall goal there are allowances for detailed sub-goals and measures to be determined at lower regional levels. While sounding straight-forward the implementation of European policies previously has not been straight-forward – with the de-centralised or dispersed distribution of power making implementation more complicated (Kastens & Newig, 2008).

The WFD calls for different forms of public participation (information supply, consultation, and active stakeholder involvement) – with rules outlined for these in the production of river basin management plans. While the directive might be quite stringent in forms or frameworks – it leaves involvement and influence for stakeholders to steer the process – with non-state actors given the opportunity to actively develop implementation. The WFD asserts that "public participation is not an end in itself but a tool to achieve the environmental objectives of the WFD" (Kastens & Newig, 2008).

In 2003 the Lower Saxon Ministry of the Environment (MELS) set up a council for the implementation of the WFD in Lower Saxony (Kastens & Newig, 2008). This council informs stakeholders at a state level and is made up of 50 representatives from different sectors. Due to its size and connectivity with and ability to effectively translate information and decisions to lower levels, area co-operatives were setup in 2005.

The makeup of the 28 area co-operatives consists of permanent members representing counties, communities, consumer associations, agriculture/ farming and forestry, water suppliers, industry and environmental organisations and state environment agency (Koontz, 2006). At the local level the co-operatives play an important part in breaking up existing agricultural and state alliances and allow for true consideration and progress towards WFD goals.

Interestingly, state environment agency staff served as leaders in over 80% of these co-operatives, and MELS provides annual funding to each co-operative to support their work. Over several years some of these co-operatives focussed on water quality assessment, identifying heavily modified water bodies and developing and prioritising suggested measures to improve water quality and developing lists of recommendations (Koontz, 2006).

4.3.c Lessons Learnt – Where to Next
Kastens and Newig (2008) identified key factors for a successful involvement process:

> *Seriousness of the Process* – community engagement processes should take place in a trustful and constructive atmosphere. Authorities need to commit themselves to the process and take it 'seriously' or risk losing community engagement and support. Shared decision making allows stakeholders to influence the process and see the connection between participation and decision-making. For the Hase case study, the statute from MELS specifies that area co-operative decisions are recommendations and not binding agreements.

- *Commitment of Stakeholders* – a key factor for successful stakeholder engagement processes is to develop a shared commitment to possible solutions and outcomes. This can create tensions as some solutions come with financial implications or obligations. In the Hase case, there were issues with 'spatial misfits' where community areas or districts did not align with the river catchment. When representation numbers are restricted based on the numbers able to participate, people felt unable to speak for others, so forums and representative numbers swelled. When forums get larger it may impede productive work.

- *Role of Environmental NGO's* - in the Hase representation model there was provision for one environmental NGO on each area co-operation, this saw them as a minority advocate for nitrate pollution reduction. In Lower Saxony the environmental NGOs bundled their competencies for groundwater and surface water issues and were able to appoint expert representatives in each area as well as provide information to interested public. Having a collective NGO presence also led to an increased knowledge pool on groundwater issues and supported the implementation of the WFD (Kastens and Newig, 2008).

The Lower Saxony example faces considerable implementation challenges – it is a top-down directive from the state to establish collaborative planning and processes at a local level. However, in return the state did not necessarily use or implement the bottom-up recommendations or plans in policy or to unlock funding support (Koontz, 2006). Any localised plans that were used were stripped of location detail and generalised the approach resulting in non-specific plan guidance to drive any on-ground action. Some implementation that did occur happened through local networks and actions separate from the state environment agency.

Koontz and Newig's (2014) area research and interviews identified that through the collaborative process, co-operative members felt the process of working together had led to some projects happening that would not have occurred without the collaborative process and coming together of diverse stakeholders – the consensual plan was important. Another member commented that "you get to know your people, some kind of network develops…this would not have been the case without the area cooperation…next week some of us will make a field trip to [a place] where we have some problems with eutrophication and the installed measures didn't work out as we thought. So, we will go there together and have a look at it" (Koontz and Newig's, 2014, pg 433).

Kastens research found that a Ministry of the Environment study that evaluated all area co-operatives – "that the majority of stakeholders achieved a better understanding of the other stakeholder's positions as well as the need for improvement of water quality" (Kastens, 2007). In this case the co-operatives activated learning processes – which could increase the willingness to take financial responsibility for measures to achieve WFD goals. If people work and connect in a trustworthy, non-biased environment, the solution is far easier to achieve amongst the variety of groups represented.

4.4 <u>Canterbury, New Zealand</u>

4.4.a <u>Size and Scale</u>

Canterbury is the largest region in New Zealand by area (45,238 km2) and features diverse landscapes from the Southern Alps that are highly valued for their natural landscapes, indigenous flora and fauna and recreational values to the Canterbury Plains with mixed livestock, dairying and cropping crossed by braided alpine rivers that provide significant wildlife habitat. The region's economy is diversified into agriculture, industry, fishing, forestry, tourism and energy resources. Canterbury has 65% of the national storage volume for hydroelectric power generation and over 70% of the country's irrigable land (Auden, 2012).

The importance of Agriculture (Canterbury Regional Economic Development Strategy, 2015)

- Between 2008 and 2012 the hinterland agricultural economy's real GDP grew by 30% (from $758m - $983m).
- The estimated net farm gate contribution of irrigation on Canterbury's GDP increased from $335m in 2003 to $1,394m in 2012, driven by expansion in areas with access to irrigation and an increase in gross margins per hectare associated with access to irrigation.
- From May 2010 to January 2015 the total irrigated area in Canterbury increased from about 425,000 hectares to 507,000 hectares- a change of 82,000 hectares or 19%

4.4.b <u>What is the Issue?</u>

Canterbury water resources are used for hydro electricity generation, agricultural production, and drinking water, as well as for a range of customary and recreational uses. These water resources have come under pressure, aquatic health of lowland streams, high country lakes and groundwater has continued to decline, there has been a loss of cultural and recreational opportunities.

The Resource Management Act was introduced in 1991 and the role of government was to define and address the environmental constraints and have a role in allocation of water rights to take and for use and to leave it to the private sector to propose water resource development.

Following the severe drought of 1998, Canterbury Regional Council (Environment Canterbury), Ministry for the Environment (MfE) and the Ministry of Agriculture and Forestry (MAF) (now known as Ministry of Primary Industries – MPI) commissioned the Canterbury Strategic Water Study (CSWS) over collective concerns about whether Canterbury would run out of water in the future. The first stage of the study was published in 2002.

"The "alpine" rivers of Canterbury provide nearly 90% of all its surface water, with nearly half coming from the Waitaki and Rakaia Rivers. These rivers are also major contributors to groundwater. "River recharge is estimated to provide nearly 60% of total recharge to the groundwater system between Rakaia and Waimakariri Rivers, the remainder coming from land-surface (rainfall) recharge" (Canterbury Regional Council, 2009).

Canterbury uses about 60% of all water allocated nationally for consumptive use and approximately 80% of this water is used for irrigation. There is about 1,000,000ha of potentially irrigable land in Canterbury with resource consents currently allowing for irrigation on about 650,000ha. The demand for more water to be made available for irrigation continues to increase. "Allocation has reached a stage where Environment Canterbury considers some groundwater zones to be over-allocated and where new run-of-river takes are less able to provide reliable supply for irrigation. Notwithstanding this, there are filed applications seeking allocations for more water from most rivers and groundwater zones. Canterbury water is in a gold rush period where irrigators are trying to secure a right to an increasingly scarce resource" (Canterbury Regional Council, 2009). These over allocated groundwater zones now sit within or across CWMS zone committee boundaries or catchments.

Different and innovative thinking and solutions were needed to deal with the challenges and opportunities presented by this complex problem.

4.4.c What was /is applied
- Socio-political will and demand: agreement among the region's 10 mayors via the Canterbury Mayoral Forum that water management was a complex, 'wicked' policy issue that could only be resolved by collaborative governance. Through the CWMS a collaborative framework has been established to address these issues to enable

present and future generations to gain the greatest social, economic, recreational, and cultural benefits from Canterbury's water resources.

- Economic & Environmental: The desire for economic prosperity while maintaining or improving freshwater quality. It is recognised that the aspiration for increased production through irrigated agriculture can only be achieved with equal commitment to improved water quality outcomes which in turn impact on wider environmental, social and cultural aspirations. An early and aspirational CWMS Target of 850,000 hectares in total could provide $5.8 billion of regional GDP per annum.

- Climate change: Requirement for a resilient policy framework necessitated by lack of knowledge of ecosystem change drivers, the escalating demand for water and the threat to water supply posed by climate change. While Canterbury has sufficient water resources in total to support increased irrigation, climate patterns undermine the reliability of supply during the mid to late summer period. Impacts could include:

- Water shortages: Higher temperatures, less rainfall and greater evapotranspiration are likely to cause increasing pressure for water.

- Fire risk: Strong winds, combined with high temperatures, low humidity and seasonal drought may result in an increased fire risk.

- Biosecurity: Climate change could increase the spread of pests and weeds.

- Agriculture: Warmer temperatures, a longer growing season could provide opportunities to grow new crops. Farmers might benefit from faster growth of pasture and potentially better crop growing conditions.

- Central government direction: During this time the National Policy Statement on Freshwater Management (NPS-FM) has also been developed and requires regional councils across New Zealand to meet water quality targets, and phase out over allocation of water. The NPS-FM sets national bottom lines for two compulsory values – ecosystem health and human health for recreation and sets minimum acceptable states for other national values and, acknowledges iwi and community values by recognising the range of their interests in fresh water, including environmental, social, economic, and cultural values.

Starting around 2005, Canterbury communities and interest groups agreed that the old ways of managing water were not working. Not only were they adversarial, expensive, and drawn-out, they didn't even achieve the outcomes the communities wanted. The region needed a strategy and a framework that protected and enhanced our environment, while developing our economy.

The Canterbury Water Management Strategy, launched in 2009, articulated an approach to achieving these goals. The Strategy put finding solutions to local water issues into the community's hands. The Strategy itself is a driver as it now forms a social contract with the community based on a balanced approach to achieving economic and environmental outcomes.

The vision 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.*

Achieving the community's water goals is long-term game and particularly when it comes to ground water, change isn't immediately visible, and the Canterbury Water Management Strategy targets stretch out to 2040. The CWMS target areas are:

1. *Ecosystem health and biodiversity:* focus on protecting and restoring biodiversity and ecosystems throughout Canterbury.
2. *Natural character of braided rivers:* aim to maintain or enhance the character, ecosystems, and species in Canterbury's braided rivers, and achieve environmental flows.
3. *Kaitiakitanga:* work in partnership with Ngā Papatipu Rūnanga to normalise and integrate the practise of kaitiakitanga in water management, and to protect wāhi taonga and mahinga kai waterways.
4. *Drinking water:* increase the percentage of the population supplied with high quality drinking water.
5. *Recreational and amenity opportunities:* maintain and improve the diversity and quality of water based recreational opportunities.
6. *Water-use efficiency:* drive for best-practice water use on all irrigation, stock water and industrial/commercial use. Achieve significant reductions in community water use, and significant increases in the benefits per unit of water.
7. *Irrigated land area:* achieve substantial increases in the reliability of supply and the area of irrigated land, along with establishing high standards of management.
8. *Energy security and efficiency:* focus on reducing electricity demand for water use and increasing productivity per unit of electricity used.
9. *Indicators of regional and national economies:* emphasis on increasing the economic value added per unit of water through agricultural production, biodiversity protection and improvement, and recreational use of water.

10. *Environmental limits:* achieve environmental flows and catchment load limits in all waterbodies.

5.0 Findings and Discussion

5.1 <u>Key Framework Findings</u>

This research has identified and investigated different community or public participation resource management models that have been successfully implemented. The focus of the research is on how each location and model were able to engage the community in the process and then maintain that involvement over the long term.

The three international models reviewed were Integrated Water Resource Management (IWRM), Collaborative Environmental Management (CEM), and Empowered Participatory Governance (EPG). Each model provided insight to the challenges, and potential solutions, faced in maintaining a high level of community participation.

The CWMS best aligns to the Integrated Water Resource Management framework, as it is an ongoing process with a roadmap, a set of targets and is reshaping and changing the ways that support organisations operate and their capability and capacity to support the CWMS.

5.1.a <u>Integrated Water Resource Management (IWRM)</u>

As highlighted by Jønch-Clausen (2004), the IWRM model provides a co-ordinated approach and considers an equitable balance between social, economic, and environmental values. It provides the framework for the development of a strategic roadmap, including setting targets, and enables institutional roles and practices to evolve throughout the change process.

IWRM is a continuous improvement model that does require significant ongoing active participation from the community and engagement from stakeholders. It is a process that continues to develop, challenge and shift organisations course of action and build capacity and capability in water management practices.

5.1.b <u>Collaborative Environmental Management (CEM)</u>

CEM provides a flexible and adaptive approach to the implementation of community participation resource management process. This flexibility is a key motivator allowing for quick effective statutory responses to community solutions derived from the consultation process. Participants identified social capital benefits from involvement with the CEM model,

such as network building, increased stakeholder interaction and greater understanding of issues and solution development.

As described by (Kootnz 2006), the CEM model is an increasingly popular form of citizen engagement and empowerment and allows the transfer of authority from local government to the community. CEM is about engaging the community, interested stakeholders, along with government, in all policy development and review phases.

5.1.c *Empowered Participatory Governance (EPG)*

The EPG model provides the framework for decentralised deliberations with an empowered community and a centralised, co-ordinated feedback on resource management issues. In EPG, the community engages directly with the experts, governance institutions, and decision makers. A key requirement for success is allowing the governance opportunity at the community level – empowering an informed community who can provide direction and feedback on the process and outcomes.

5.2 **International Case Study Findings**

The following findings are from the review of international community participation models and are key to maintaining community engagement over the long term:

- Adoption of a collaborative community process requires significant commitment from the community and governance institutions. Most models allow for an iterative approach of development, implementation and review meaning these processes often have no end point.

- Collaborative community participatory processes enables a shift from centralised decision making to decentralised governance.

- Benefit of community driven processes includes ownership of issues and solutions, growth of community knowledge, stronger networks, wider understanding of issues and viewpoints and a greater sense of community.

- Critical requirement that local or regional authorities fully support and implement the community derived solutions. This requires authorities to adopt solutions without modification and with sufficient dedicated resources.

5.3 <u>Discussion</u>

Since the 2009 launch of the CWMS, across the Canterbury region there are multiple communities of interest, from landholders to Rūnanga, local councils (territorial authorities), industry sectors and groups, non-government organisations and government organisations who all are playing a part in achieving the vision of the CWMS.

In that time 10 catchment based zone committees and an overarching regional committee, have been established from the above community to start to facilitate solutions and to make recommendations for environmental improvements, efficiency improvements, land management practices and infrastructure for reliable water supply.

Canterbury Regional Council has enabled these solutions by providing innovate and enforceable rules that also prevents undermining of solutions, and supports the vision and principles of the CWMS, along with multiple non-statutory tools and solutions developed with partners.

In the last two years the zone committee recommendations have moved from thinking to implementation and delivery by CWMS partners, councils and industry. Multiple players have collaborated on actions to achieve outcomes by establishing the means - funding, actions, and responsibilities - for solutions to be actioned on the ground. Projects successfully implemented under the CWMS include, Wainono Lagoon restoration, Whakaora te Waihora co-governance and lake restoration, managed aquifer recharge, farming industry agreed good management practices, water metering accreditation and irrigation efficiency programmes.

The Canterbury Regional Council, as the Regional Authority, has supported most proposed solutions, advice and direction provided by each zone committee, including demonstrating commitment to the delivery of statutory and non-statutory measures within each CWMS zone. Within the statutory RMA process there is a public hearing process, where zone committee recommendations to council policy and rules are further tested by submitters and independent hearings commissioners. This hearings process can take some time to complete and can result in alterations or even abandonment of zone committee recommendations as a result of these public hearings.

The Canterbury survey results provide three distinct considerations that should be incorporated into the development and implementation of community orientated and led management processes:

- Local Solutions to Local Problems

The survey respondents became involved in the CWMS process because they wanted to contribute to their community, recognised the importance of the water management issues in their location, and were all strong supporters of 'local solutions to local problems'. While some participants had engaged in the process with preconceived ideas, all survey responders believed they were given the opportunity to influence and to effect positive contributions throughout the process.

Ongoing community commitment to the process can be improved by ensuring the local community is actively involved in defining the local problems and identifying and implementing workable solutions.

- Collaborative and Inclusive

To be successful a community based governance process must be collaborative and inclusive of the values and viewpoints of all participants. This also requires the participants to proactively engage with the process and demonstrate a willingness to consider the point of view of other stakeholders.

The collaboration process must be widespread and not limited to those in the room. Additional support may be required to ensure all stakeholders have the same technical understanding of the problem and issues. Without this collective understanding and inclusive consultation process, participants are unlikely to be able to reconcile competing interests.

- Tackling the Big Issues and Celebrating Success

Survey participants identified that they were motivated by the challenge of working collaboratively to tackle the big issues around water management. They remain productively engaged and contributing to the process because they have a good understanding of the local challenges and are willing to make a personal commitment to ensure their values are considered in the decision-making process.

Consultation takes time and reconciling diverse competing interests over limited resources is not a quick process. Without the added time a statutory RMA planning and hearings process can add. Participants have engaged in the process because they want to influence change and find workable solutions. Celebrating each milestone success on the journey is an important part of the process and is a key driver for participants to remain motivated and actively engaged.

6.0 Conclusions

The results of these surveys support the findings of similar studies reviewed from around the world. The three key challenges that have been consistently identified across different community participation models from around the world are:

6.1 *Speed of Process*

The development of frameworks to address complex water management issues through a collaborative consultative process can be a time-consuming process and challenge participants both mentally and physically. Maintaining broad community engagement is difficult where progress is slowed or even stagnates. The onus is on the partner agencies to keep up with and actively support the community in their thinking, decisions and delivery of actions.

6.2 *Opportunity to Influence*

A key consideration for a stakeholder's decision to remain active in the collaborative consultation process is based on that individual's opportunity to influence the process. Participants need to feel as if they have had an opportunity to influence discussions and their view point and values are represented in mutually acceptable outcomes. The 'rub' can come where the softer collaborative community process hits the firmer and constraining RMA process that can distort community decisions and aspirations.

6.3 Willingness and Commitment

Central to the success of any public consultation process is the commitment and support provided by council and local government agencies. Where resourcing is insufficient, particularly in the implementation phase, community and stakeholder representatives can become disillusioned if no tangible, on-the-ground progress can be measured. While part of the institutional framework, local and central government representatives must be able to demonstrate comprehension of the identified challenges. Along with recognising the importance of collaborative and inclusive processes, and maintain an active willingness, including financial support, to work with the solutions identified by the groups.

In summary, participants became involved in the CWMS process because they care about their community, recognise the significance of water management issues and are motivated to be part of the community led solutions. Being part of the process has provided them with

new experiences, they have developed a greater understanding of the problem and challenges, and develop stronger networks and more resilient communities.

As with all community oriented and led management processes, the key challenge is always maintaining active participation from all stakeholder groups. Identifying and understanding these challenges early in the process allows the community (including cultural), government agencies, councils, industry and NGO's, to work through complex issues in a collaborative way.

7.0 Recommendations

Community or public participation resource management models, such as the Canterbury Water Management Strategy (CWMS), are recognised as ideal tools for developing solutions for community issues. This paper has focussed on identifying factors that influence long term community engagement in this process.

International research and case studies support the importance of community participation in developing solutions for complex resource management issues. This requires the community to have a high level of trust in and an ongoing commitment from political leaders to the process and also to see appropriate ideas adopted. To ensure collaboration is successful, all stakeholders need to be fully engaged and committed to the long-term process. While challenging, this collaborative engagement will align organisations, institutions and individuals to common resource management goals and outcomes.

The Australian experience identified there has been an increase in community trust because of the collaborative process.   The high level of trust in the Murray-Darling model, from both the community (bottom up) and government (top down) perspectives has been the key to keeping the community engaged. In New Zealand and Canterbury water management issues we need to maintain trust with our communities and engaged organisations.

Equally important is the turning of words into agreed work plans that are actioned and then maintained, whether it is from government, industry, or the community. To be effective, collaborative environmental management requires quick statutory responsiveness to proposed solutions, coupled with action on the ground. It is paramount that timeframes and milestones are set to keep all participants connected and engaged.

The commitment to the Canterbury Water Management Strategy (CWMS) will be an ongoing process that will continually develop, as will the organisations that are charged with supporting or collaborating in the process. Local community representatives are a key conduit into the process and their feedback to their communities and support networks. This feedback loop should create an 'obligation' on community and landowners to care, and may lead to changes in behaviours. The social capital these representatives build needs to be understood and supported by agencies, councils and industry – lose this and quickly you can lose engagement and people and future behaviour change potential.

Survey participants identified a strong interest in being involved with their community, enjoyed the opportunity to develop a greater understanding of the issues, and being part of the decision-making process. While participants feel empowered and that they are achieving progress on issues, they are more likely to remain involved.

To achieve a successful outcome, the Canterbury Regional Council must support the process with efficient policy, and statutory and non-statutory tools that enable community derived solutions. This council support will help maintain a high degree of trust between all stakeholders in the process, it is critical to the long-term engagement of communities that proposed solutions are implemented in line with the communities and stakeholders' expectations. The CWMS target areas have a timeline out to 2040 and some recommendations and solutions being implemented will show short term results, others will have a similar timeline as 2040 before today's actions are evident or provide visible results or changes.

The importance of trust between participants and government agencies, and participants' feelings of empowerment and success in issue resolution are key ingredients that should not be overlooked. These ingredients must be at the fore of the long-term CWMS implementation to ensure continued engagement and commitment of the community.

8.0 Next Steps

In Canterbury the CWMS partners need to remain committed to the iterative process they are on – it is just starting!

Ownership of the CWMS and what it can mean and do for water management is understood by and has been grasped by the community – agencies, councils and industry organisations need to recognise this and remain consistent in support of the collaborative process.

Implementation of actions is occurring across zones and catchments now – collective support is needed to enact the community driven policy and decisions and deliver.

Over seven plus years community representatives and supporting partners need to comprehend the significance of the social capital and networks in their communities they have built in decision making processes and work out how to leverage and apply this in localised and regional implementation and action.

Integrated Water Resource Management is an iterative process that is constantly evolving and moving – support councils and agencies need to remain agile to this process and realise there is not one set model that can be applied in a community – they are in a constant mode of learning.

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Appendix 1

Kellogg 2016 Project Survey Questions

Project question

"How do you keep community members/organisations and stakeholders actively engaged and participating in an established collaborative governance process – on regional water management?"

Survey context

Since November 2009 the Canterbury Water Management Strategy (CWMS) has stimulated a significant amount of community and wider stakeholder commitment by dedicated individuals. In my project and this survey I am interested in understanding why people want to commit to being involved and actively participating in collaborative processes such as the CWMS. With a focus on how to keep motivating this level of commitment and challenging participants, communities, and stakeholders nearly seven years in.

(You may or may not be involved in the CWMS, but may be involved in or on the periphery of collaborative governance processes of some shape or form)

Questions

1. What do you think are the key drivers to getting involved in a collaborative governance process? (why get involved)

2. What are some fundamental factors/principles that make a collaborative governance process successful and unsuccessful?

3. What does it mean to commit to or become a part of a collaborative governance process – ?

    3 (a) at what cost does it come?

    3 (b) or what benefit does it provide?

4. Entering into a collaborative governance process –

    4 (a) did you have any pre-determined outcomes, objectives or bottom lines?

    4 (b) on reflection of that process - where did you end up compared to the start?

5. What keeps you productively engaged and contributing in a collaborative governance process -?

    5 (a) in terms of challenges?

5 (b) in terms of opportunities?

5 (c) in terms of ownership?

Specific CWMS questions - Zone Implementation - Plans have been developed and Zone five year outcomes (in most cases) for delivery –

6. What is the focus for the next five plus years? (Is it the 2009 CWMS Goals/targets? Is it the local zone or catchment aspirations?)

7. What do you think are or might be the upcoming opportunities or challenges for the CWMS to explore?

8. Name some of the biggest or sharpest influencers in your thinking for the next 5- 10 years in the context of:

(a) agribusiness?

(b) the CWMS?

(c) the Canterbury region?