

Governance of a Complex System: Water

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TE WHARE WĀNANGA
O TE ŪPOKO O TE IKA A MĀUI



**Institute for Governance
and Policy Studies**

A research institute of the School of Government

INSTITUTE FOR GOVERNANCE
AND POLICY STUDIES
WORKING PAPER
14/01

MONTH/YEAR February 2014

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ACKNOWLEDGEMENTS

This paper has been produced with the support of the Institute for Governance and Policy Studies at Victoria University of Wellington. The author is grateful to Professor Jonathan Boston, Professor Rosemary O’Leary, Dr Michael McGinnis, Associate Professor Michael Macaulay, Dr Bob Frame and Dr John Pennington for their helpful review comments on earlier drafts of this paper.

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Overview

Fresh water is a life-enabling resource as well as the source of spiritual, social and economic wellbeing and development. It is continuously renewed by the Earth's natural recycling systems using heat from the sun to evaporate and purify, and then rain to replenish supplies. For thousands of years people have benefited from these systems with little concern for their ability to keep up with human population and economic development. Rapid increases in population and economic activity have brought concern for how these systems interact with human social and economic systems to centre stage this century in the guise of a focus on water governance.

What do we mean by governance and how might we better understand our water governance systems to ensure their ongoing sustainability? This paper sets out a complex adaptive systems view of water governance. It draws on the academic literature on effective governance of complex systems and effective water governance to identify some principles for use in water governance in New Zealand. It illustrates aspects of emerging water governance practice with some examples from New Zealand which have employed a multi-actor, collaborative governance approach. The paper concludes with some implications for the future evolution of effective water governance in New Zealand. Collaborative governance processes are relatively unfamiliar to New Zealand citizens, politicians and other policy actors which makes it more important that we study and learn from early examples of the use of this mode of governance.

1. Introduction

The availability of fresh water to sustain life and enable economic production presents contemporary societies and their elected governments with some complex challenges to resolve. New Zealand's water governance regime is undergoing change, and some doubt whether it can cope with the social, economic and natural environment we have today, let alone the one we might face in the future, and one increasingly affected by climate change. This paper explores some of the challenges to be faced and highlights the implications they have for the governance of fresh water in New Zealand.

Water is a finite resource on the planet and even though New Zealand currently has a plentiful supply, there are increasing concerns about maintaining water quality and regulating use. Demands for the use (or conservation) of fresh water span social, cultural, spiritual, aesthetic, economic and natural science domains. Relative scarcity, deterioration of water quality from use and addition of contaminants, contested use, over-allocation of supply, and threats to the natural cycles of renewal and sustainability of fresh water resources have brought regulatory authorities, water users and the wider community into increasingly acrimonious conflict and judicial battles. The policy framework, put into effect through the Resource Management Act 1991 (RMA) under which fresh water resources have been regulated has been contested and viewed by some as too slow and cumbersome. For others who observe a decline in water quality it has proved ineffective. In some places regulation has operated to the advantage of a powerful few rather than the whole population now and into the future. Against this backdrop, government has recently proposed 'a fresh start' and a framework for reforming New Zealand's fresh water management system (Ministry for the Environment, 2013), which builds on the recommendations for a more collaborative governance process by the Land and Water Forum¹.

The research approach used to inform the paper is described in section 2 and some readers might pass over this section quickly. The main arguments of the paper are set out in sections 3 to 7. Section 3 explains what is meant by governance, identifies the complex systems involved in water governance and the reasons a complex adaptive systems approach to water governance is needed. Section 4 canvasses the boundaries within which water governance occurs and in section 5 uses the international scholarship on water governance to inform principles for the operation of a water governance system. Several recent New Zealand experiments in water governance are summarised in section 6 for the perspectives and insights they bring to understanding what is involved in water governance in New Zealand. The paper concludes in section 7 by identifying some issues which will

¹ At the time of writing, the proposed legislative changes to support the fresh water reform had not been enacted. The Land and Water forum has proposed a collaborative governance approach to water governance as an alternative to the more position-taking and counter-opposition processes of the last 20 years.

affect the implementation of a more collaborative approach to water governance. As background to the material in the paper, Appendix 1 contains a chronology of policy and legislative changes affecting water governance over the last 20 years. It is intended to remind the reader of the history that is influencing and will continue to influence water governance into the future, even when new legislation is enacted to give effect to the government's reform. In this chronology, we can trace the gradual increase in calls for more collaborative approaches to water governance.

2. Research Approach

This paper is based on scholarship from public management literature on the governance of complex systems and natural resources management and governance with a particular emphasis on water. The author has a Bachelor of Science with majors in biological sciences and has most recently researched complex policy processes and collaborative governance in public policy, at doctoral and post-doctoral level, drawing on complexity theories.

A focused literature review was undertaken searching for recent scholarship on 'water governance', 'natural resource governance', 'natural resource systems', 'water management' using databases of peer-reviewed academic journals (proQuest Central, Academic Onefile, ABI/Inform Global). Additional filters included sustainable/sustainability and adaptability in water governance or natural resource systems governance. Abstracts were used to determine potential relevance to the question: what constitutes good or effective water governance? As well as the academic journal search, Google and Bing searches were used to source other grey literature relevant to the research question. Finally, searches on New Zealand-based websites such as those of the Ministry for the Environment, the Parliamentary Commissioner for the Environment, the Auditor General, individual regional councils, and the New Zealand government Ministers (beehive.govt.nz) were used to find relevant policy documents, speeches, and other material of relevance. The latter were particularly important in putting together the exemplars which are presented in the paper.

These sources were used first to distil a conceptual framework for thinking about water governance which is contained in the narrative presented in this paper. This conceptual framework was used to help select the examples which appear in the paper and also to help synthesise the implications for effective water governance presented in the conclusion to the paper.

3. Governance and systems

How fresh water should be managed is characterised by many strongly held and potentially conflicting opinions. Controller and Auditor-General, 2011

Governance, some would say, is about steering but, as everyone who drives a car knows, wheels and brakes out alignment or balance, or loose pinions in your steering column, can land you in a ditch at

the side of the road, or worse. So, too, when we consider governance of water, we are talking about how we steer decisions and actions about water to achieve particular outcomes. That is, we need to identify the forces and mechanisms that must work together to achieve a particular steering trajectory and where the linkages between the different processes that make up water governance have to be reliable enough to enable the governance system to aim for a destination and get there. The usefulness of this motoring analogy ends here and serves as an indirect way of making the point that water governance is not a mechanical process, but involves some very complex, dynamic and adaptive systems making water governance a more challenging process than steering a car.

Government is only one actor in water governance. The governance of water is enacted through the interaction between complex systems, for example: 1) a complex hydrologic system, containing plants, animals and physical elements such as soil, air, and water which is dependent on solar energy and through which the occurrence, and replenishment of, fresh water occurs through hydrological processes in combination with biological metabolic processes; 2) socio-biological systems in which humans, and indeed all life, must have fresh water for survival, and humans throughout millennia have constructed their societies and cultures around the availability of fresh water; and 3) New Zealand's socio-economic system, which demands and relies upon the use of fresh water as a major contributor to human health, food production and economic productivity, and often degrades the quality of the water used through its processes. For the purposes of my argument here, the political and regulatory systems are subsystems within the socio-economic system.

Taken together, these three systems are interdependent and form a very complex macro system involving interaction of all the systems described in the previous paragraph. This macro system is an adaptive one in which many interdependent actors (e.g. individuals, regulatory authorities such as regional councils, decision makers in various levels of government, iwi/hapū, businesses) as well as inanimate components (water, solutes, soils, landforms, built environments) interact in various overlapping, decision-making arenas (national, regional, local) and are influenced by a variety of institutional frameworks² (e.g. Parliamentary Acts, Regional Plans, local water agreements). Both the actors and the institutional settings undergo constant changes, in nonlinear, self-organising ways, as they influence and are influenced by each other, making it difficult to grapple with water governance other than in complexity terms.

In the following sections it will be argued that water governance is an emergent product of interactions between the systems outlined above and cannot be understood, predicted or controlled

² Some of the actors and the institutional frameworks are referenced in the chronology of policy changes found in Appendix 1.

through dissection into its component parts. This has implications for government, non-government and other actors in water governance processes and for the assurance of the quality of governance. In order to describe and intervene in water governance, we need to be able to see the complex whole and also to understand the operation of the generative micro-processes that have created that whole. And, because these micro-processes are neither linear nor predictable, then we must take this into account in the design and operation of the modes and means of intervention (see for example, Innes & Booher, 2010; Teisman, van Buuren, & Gerrits, 2009; Verweij & Thompson, 2006).

4. Water boundaries

Before going further, I should be clear about what 'water' is to be governed and which qualitative aspects of water are considered important for governance purposes. The Resource Management Act 1991 (RMA) provides a legal framework for water governance and vests much of the responsibility for its operation in the hands of regional councils. The Act specifies 'water in all its physical forms whether flowing or not and whether under or over the ground'. It includes fresh water, coastal water and geothermal water. The RMA contains a list of restrictions about what may be done to water or discharged into water, unless specifically allowed by permit or otherwise. Thus the RMA makes an assumption of some natural existing state of water, and a specific permit is required for human activity to change that state, unless on a very small scale to meet individual domestic needs. Seen through the systems lens sketched out above, the RMA is concerned with the impact of one system, the socio-economic system, on the natural water system. The RMA further refers to 'water quality classes' and makes distinctions in limiting the changes that may be made to water quality as a result of use for particular purposes.

The Parliamentary Commissioner for the Environment has summarised the science of three current major threats to water quality: pathogens, sediment, and nutrients. While all three of these might occur naturally, the activities of people, and the increasing number of people and domesticated animals, has increased the likelihood of more pathogens which make people and animals sick; sediments that make clear water murky and blanket stony riverbeds with mud and silt and destroy habitats; and excess nutrients, particularly phosphorus and nitrogen which cause rampant weed growth, algal blooms and oxygen depletion. (Parliamentary Commissioner for the Environment, 2012). In a more practical way, regional councils charged with managing water quality under the RMA, have come to refer to 'three waters': fresh water, waste water and storm water because of the different sets of challenges each of these forms present for management. These management challenges are not static and are constantly modified by human habitation, economic production, built environments and water use.

For effective governance, water cannot be so neatly unbundled. Returning to the three complex systems introduced above, humans have built their societies around the availability of fresh water needed for their survival, to grow food and, because of this life-enabling significance, water is often invested with particular cultural and spiritual values. Fresh life-sustaining water becomes waste water through biological metabolism and excretion via natural processes that make up the first part of the bio/geo/hydrological system. As a result of further natural processing in this system, waste water is cleansed through filtering via soil, absorption by plants, and evaporation into the air. This purified water later precipitates as fresh water rain, sleet or snow to collect in streams, rivers and dams. Storm water is created as the result of precipitation and in natural settings is more immediately available for reabsorption by ground water systems, and use by plants and animals, and so the hydrologic cycle repeats. In its natural environmental state, this cycle ensures the sustainability of fresh water supply.

Human habitation depends on the availability and continuing supply of potable water which may be piped for transfer across large areas. In areas of human habitation, storm water travels overland and picks up various unwanted solutes and suspensions, as well as creating other forms of physical damage along the way, before ultimately ending up in water catchments of natural or human making and again entering into the cycle of evaporation and precipitation as fresh water. Fresh water catchments can suffer a loss of clarity, increases in nutrients and potentially harmful microorganisms through the addition of large amounts of storm water. While population levels are low and relatively sparse, the rate of natural recycling by the hydrological system is sufficient to provide a continuing replacement of contaminated water by fresh water.

In the socio-economic system, agricultural and industrial processes take fresh water from streams and other fresh water catchments, use it and most often return waste water which, unless well filtered and treated, usually contains suspensions of insoluble or only partially soluble materials, microorganisms and solutes of soluble ions such as nitrates and phosphates. Human population growth has meant more people, larger and higher density constructed environments replacing once natural environments, with all demanding fresh drinking water. Larger population leads to more intensive farming of livestock, more economic activity and produces more waste water. Economic production relies upon the reliable availability of water of particular qualities suited to a purpose. Economic production can also degrade the quality of the water it discharges on a scale and at a rate that outpaces natural cycles of renewal. With increasing population and levels of agricultural and industrial production, natural recycling process struggle to keep up the supply of fresh water. Habitat destruction also brings about the elimination of habitats and organisms that are a vital part of the natural recycling process.

The stylistic narration of the systems at work in the two paragraphs above is used to demonstrate the interdependence between these complex systems. There are dynamic interactions within and between the systems. While regulatory authorities like regional councils might with some difficulty make a temporary operational division between the three different types of water (usually partially achieved with the help of separating pipes!), the interdependencies between the systems of biological use of water, natural bio/geophysical recycling, and human domestic and economic use remain. For life to be sustained, a balance which has regard to the slowest part of the processes involved needs to be found. That is, natural recycling processes need to be able to keep pace with population and production, even if they are assisted by conservative use and artificial recycling or purification processes. The complexity of working within these systems and the multiplicity of different actors involved in the governance of water contribute to the conclusion that water governance needs to be treated holistically as a complex adaptive system.

This narration also serves to help make a point which is fundamental to the arguments advanced in this paper. Humans are not outside of these systems as objective observers, ecosystem services users and decision makers but are interdependent components of the system whole. In addition, a change in any one of the constituent complex systems will affect the governance of the whole (see for example, Allen, Maguire, & McKelvey, 2011; Innes & Booher, 2010; Teisman et al., 2009). For example, a change in the pattern of economic activity related to farming, particularly in dairying over the last decade, has produced changes affecting the system whole and has led to more active focus on how water is governed. The recently released report of the Parliamentary Commissioner for the Environment (2013) has drawn attention to how complex and interdependent the interactions between the economic activity and natural water systems really are.

The interdependencies between the three complex systems within national borders are made more complex by the fundamental uncertainty that arises from the dynamics of global climate and its effect on New Zealand weather patterns. Humans have adapted their patterns of water use over the centuries in interaction with relatively stable historical climate patterns in a particular area. Historical data about water flows and rainfall will become a less useful basis for decisions making about water use when climatically caused events such as storms, floods, and droughts exhibit new patterns that are increasingly significantly different from any historical pattern. It is against this introduction to the dynamic social complexity affecting the occurrence and use of fresh water that I begin to set out a framework for understanding water governance.

5. What is meant by water governance?

Water permeates ecosystems, jurisdictions, and communities, linking complex and emergent social, cultural, technological and economic systems. Russell, S., Frame, B., & Lennox, J., 2011

Water governance refers to the processes through which government and non-government actors and citizens interact to produce rules, practices and behaviours through which water is managed and outcomes are achieved (see for example, Russell & Frame, 2011). Good governance and effective governance are not the same thing: good governance has its focus on doing particular things; effective governance has its focus on achieving the best outcomes for all over time (Perry, 2013). Effective and sustainable water governance needs to be purposeful and adaptive (Foerster, 2011) if it is to achieve the outcome of sustainable practices in the use of fresh water and its conservation for subsequent generations. The institutional context in which water governance takes place in New Zealand is a complicated one with a number of action arenas which I describe below and have attempted to summarise in Figure 1.

i) Multi-layered and complex institutional arenas for decision making

At the national level, there are a number of organisational entities of diverse types: the New Zealand Parliament, the Parliamentary Commissioner for the Environment, the Office of the Auditor General, and government agencies such as Ministry for the Environment, Department of Conservation, Ministry for Primary Industries, Ministry of Health, Department for Internal Affairs. Each of these organisations has some specific or general legal mandate and is responsible for some aspect of the regulatory regime applying to the governance of water. While Parliament has established the Resource Management Act as the principal legislation which frames water governance, there are also requirements in other legislation which affect it. The Parliamentary Commissioner and the Auditor General are authoritative commentators on the way in which the Act is operating and how effective (or not) other agencies are in carrying out their responsibilities under the Act. In specific regional geographic contexts, the prime responsibility achieving the water governance outcomes specified by the RMA rests on Regional Councils who must work with a variety of individual and organisational actors to achieve a water governance regime which is consistent with the roles, purposes, and limits specified by the Act. The RMA therefore shapes and constrains the interactions between the actors in the different arenas.

There is also a Māori dimension which is enshrined in the articles of the Treaty of Waitangi, 1840³ which guaranteed the Māori chiefs 'full exclusive and undisturbed possession of their Lands and Estates Forests Fisheries and other properties which they may collectively or individually possess so

³ For readers unfamiliar, a description of the treaty and its articles in English and Māori can be found at: <http://www.waitangi-tribunal.govt.nz/treaty/default.asp>

long as it is their wish and desire to retain the same in their possession'. As well as the duty to protect and consult with Māori, the Crown has agreed as part of the settlement of historical grievances that some tribes will have a more active guardianship role for rivers in their rohe⁴. For example, the Waikato-Tainui tribes now have a co-management role in respect of the Waikato River. Even where there is no specific agreement as there is in the Waikato instance, there is more general acceptance by government agencies that Māori tribal authorities and hapū will play a more active role in the governance of traditional water resources and examples of this will be found in the 'Examples of Water Governance at Work' section which follows.

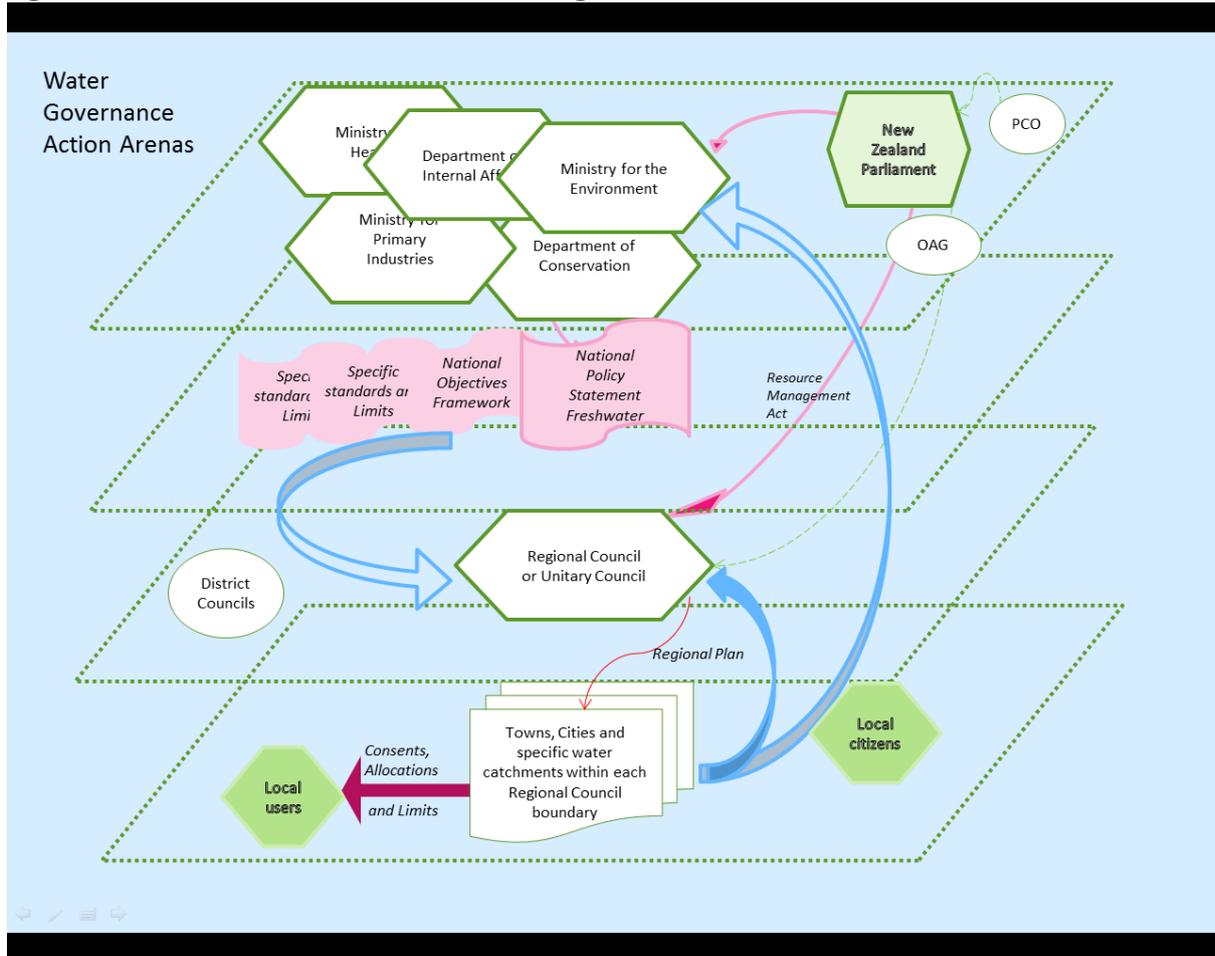
ii) Interacting, interdependent complex systems

An institutional analysis alone would be inadequate for understanding the complex interactions between individual actors and the institutional environment that constrains them (Room, 2011). In the multi-actor institutional arenas described by Ostrom (2005), the rational actions of individual actors are constrained by the institutional rules and processes which shape the arena in which interactions between the actors take place. Ostrom sees each actor 'self-organising', taking into account the institutional constraints and the actions of others, to decide whether to participate in the consumption of common pool resources.

Room (2011) suggests that we also need to understand the consequences of a complex adaptive system at work and the implications for how government agencies (and other actors) might work in such a system. In this conceptualisation, the human actors are part of a series of nested systems that make up the whole. In a complex adaptive system the individual actors are constantly responding to each other and their institutional setting in not completely predictable sequences of action, reaction and counteraction (Innes & Booher, 2010; Teisman et al., 2009). Room suggests that the interactions are less like the predictability of putting on a golf green and more like trying to initiate a similar action in a child's crowded bouncy castle where the movement of the castle makes one's own actions less predictable and more prone to being affected not only by the movement of the castle but also by the unpredictable movements of other actors. He suggests an agile approach in which government actors might see their roles more as tuners, energisers and stewards; seeking to detect feedback loops and identify tipping points where the trajectory of the governance system is moving in some desired direction, and therefore assisted in that direction if desirable, or dissuaded if undesirable (see also Weick & Sutcliffe, 2007).

⁴ Tribal area.

Figure 1: New Zealand's Water Governance Regime



iii) Adaptive and sustainable

Recent literature on water governance suggests that it needs to be sustainable, that is, able to deliver an acceptable result trajectory over time (Rau & Edmondson, 2013), and be adaptive, that is, the governance process producing the governance outcomes must be able to adjust in response to changes elsewhere in the systems affecting the governance system. Wiek and Larson (2012) sum up four dimensions of sustainable water governance consistently encountered in reviews of such academic literature:

- 1) a **systemic perspective** that links ecological, social, economic, technical, legal, cultural and other aspect of the local or regional water system is necessary for understanding the ubiquity and wickedness of water resource challenges and developing robust governance strategies;
- 2) a **governance focus on the social actors** is necessary for understanding who is causing or contributing to the problems and who is willing or ought to be doing what to mitigate and solve problems;

3) a **transparent and accessible discourse** on values and goals helps to specify, reveal and negotiate tangible needs, preferences and visions among regional and local stakeholders and their implications for water systems; and

4) a **comprehensive perspective on water sustainability** that accounts for the richness of the sustainability paradigm, including social-ecological integrity, sufficient livelihoods, social justice, and intergenerational equity, while avoiding a path towards solutions for isolated problems that might be ineffective, inefficient, inequitable or even counterproductive with respect to other problems.

The framework for analysing and assessing water governance regimes put forward by Wiek and Larson (2012) is composed of a number of elements which collectively contribute to the governance regime. Firstly, the boundaries of social-ecological and hydrologic systems must be scoped and delineated in ways that do not lose sight of ‘the interactions between political units of decision making, where power and authority to implement societal actions and policies typically resides, and the biophysical interfaces of hydro-ecological resources and processes’ (p. 3156, and see Figure 2, I). Secondly, the governance system is further defined by a focus on people’s actions and activities related to water resources: where water comes from; how supplies are accessed and managed; where water goes, i.e. how it is distributed to users by engineered and natural means, and how people use and conserve water for various purposes, ‘including human, economic, and ecological needs and wants’ (p. 3157); outflows – i.e. what happens to water after it has been used; and cross-cutting activities that affect the former domains such as planning, monitoring deliberation and advocacy (see Figure 2, II). Thirdly, the systemic cause-effect structure creates a dynamic systems view of the interactions between actors and the rules that influence them, the interfaces between the systems and any factors beyond the boundaries which influence the regional water system or its governance regime. Such a governance regime is supported by a multi-layered information system and the dynamic models that this information generates over time (Figure 3).

Analysis of the water governance regime in operation in a particular context along the lines outlined above is accompanied by judgement about the sustainability of the regime. Wiek and Larson (2012) suggest seven principles are necessary (see column 1 in Figure 4). Their principles allow for the multiple interests in water governance (see Principles 4 and 5: Socio-ecological civility and democratic governance; and inter- and intra-generational equity) and the changing risks to sustainability that arise from the impacts of the effects of climate change on hydrological systems (see principle 7: Precaution (mitigation and adaptability)), but do not emphasise these sufficiently.

Figure 2: Governance Regime analytical framework (Wiek & Larson, 2012)

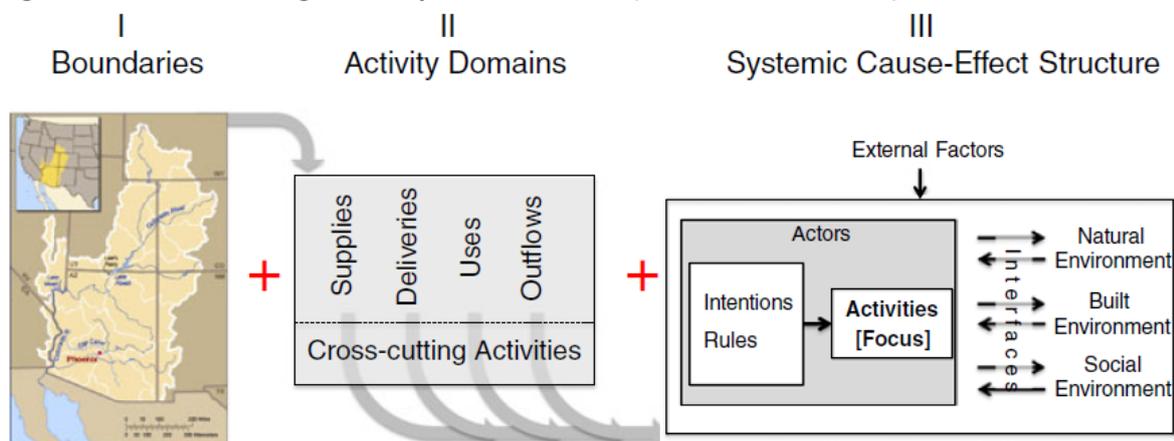
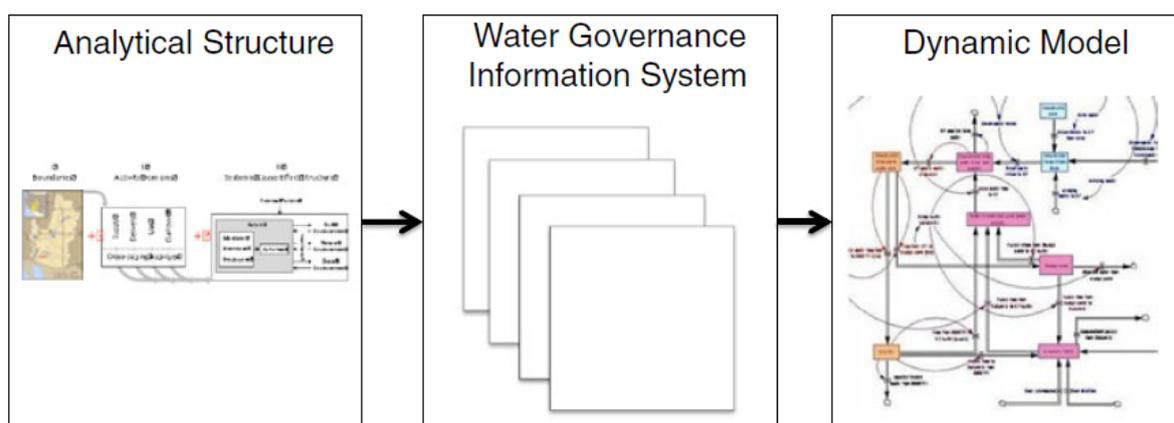


Figure 3: Framework for integrated analysis (Wiek & Larson, 2012)



Returning to Perry’s distinction between good governance and effective governance, a distinction is to be made between what *must* be done (according to the law or policy) and what *ought* to be done (for the sustainability of the resource for future generations) (Perry, 2013, pp. 96, 98). While good is politically determined by governments, effective is much more open to a range of perspectives. In New Zealand (and probably also in other jurisdictions) the incentives on governments to adequately weigh intergenerational trade-offs are weak. The multiple governmental agencies with jurisdictional responsibility also contribute to bounded, and not always consistent, institutional framings of the issues and solutions. Even if governments seek to impose a particular institutional framing, the outcomes from the interactions of the social, economic and natural systems with the processes imposed by the chosen frame are uncertain. This is because the individual systems will adapt in unpredictable ways in response to the institutional processes and each other’s responses. This means that the processes which lead to effective governance are nonlinear and cannot be fully prescribed at

the outset or by following a rigid template. Effective governance emerges from the interactions among the complex natural bio/geo/physical systems, and the human social and economic system, including its regulatory and political systems. It is not static but constantly changing. Therefore to be effective, governance needs to be continuously sensemaking (Weick, 1995; Weick & Sutcliffe, 2007) and adaptive to changes in all of these systems and their processes in a way that takes into account the dynamic whole to maintain a desired governance outcome.

Before considering the implications such a conclusion might have for water governance, the next section draws a picture of some of the richness of the current New Zealand context where effective governance needs to operate and looks for insights that might be available to us from current experiments in governance practice.

Figure 4: Principles for assessment of sustainability (Wiek & Larson, 2012)

Sustainability Principle	Key Features	Domain of Activities
1. Social-ecological system integrity	a. Maintain minimum flows in surface water	Supplies
	b. Maintain or enhance the quality of water resources	Deliveries
	c. Ensure aquifers are not over-taxed to points of instability	Supplies / Uses
	d. Recognize and coordinate resource uses and impacts within appropriate physical units	Uses / Supplies
2. Resource efficiency and maintenance	a. Reduce water use or enhance water-use efficiency	Uses
	b. Reuse water or recycle wastewater for various uses	Uses / Outflows
	c. Eliminate water losses	Supplies / Deliveries
	d. The groundwater extraction rate should not exceed the groundwater regeneration and recharge rate	Supplies / Uses
3. Livelihood Sufficiency and Opportunity	a. All people pursuing livelihood activities have access to sufficient quality and quantity of water	Supplies / Uses
	b. All people pursuing activities enhancing their psycho-physical well-being have access to water	Supplies / Uses
	c. All people pursuing economic activities have access to sufficient quality and quantity of water	Supplies / Uses
4. Socio-ecological civility and democratic governance	a. Involve all groups who affect or are affected by water governance efforts into decision making	Cross-cutting
	b. Elicit the full array of interests and perspectives through various stages of governance	Cross-cutting
	c. Establish collaborative endeavors for water governance	All / Cross-cutting
5. Inter-generational and intra-generational equity	a. Ensure a fair distribution of benefits and costs among all actors and stakeholders	All / Cross-cutting
	b. Facilitate stakeholder representation based on demography, geography, and interest	Cross-cutting
	c. Ensure representation of future generations (e.g., via guardians who defend their interests)	Uses
6. Interconnectivity from local to regional to global scales	a. Reduce or eliminate negative impacts on other regions	Supplies / Uses / Outflows
	b. Plan within the watershed or groundwater basin context	Supplies / Uses
	c. Recognize and coordinate between local actors and broader scale stakeholders	All / Cross-cutting
7. Precaution (mitigation) and adaptability	a. Anticipate potential water shortages and water quality problems	Cross-cutting
	b. Mitigate potential water shortages and water quality problems	All / Cross-cutting
	c. Adapt to water shortages and water quality problems	All

6. Examples of water governance at work

Resolving complexity of the watery sort into settled policy is what governments are for. Colin James, 11 September 2012

In the preceding sections of this paper I have argued that effective water governance is the product of interactions between complex systems that over time produce a purposeful, sustainable and adaptive outcome. Far from the claim by political observer and columnist Colin James at the head of this section, governments are only one actor, albeit an important and powerful one in these complex systems and they are limited in what they can do to influence these interactions.

In the absence of an embedded approach to long-term effective water governance in New Zealand, what might be learned from innovative practice which is currently occurring? Because of its longer-term nature, we are unlikely to see every aspect of effective governance in a particular context or at a particular point in time. And yet we do have some very interesting and positive experiments into new ways of governing water which appear to be trending in the direction of effective and sustainable described in the previous section.

So in this section, I have chosen a number of examples which, when seen over time, might represent aspects or parts of an emerging sustainable water governance regime. In these examples, we can see patterns of how aspects of such governance systems are initiated, as well as features that might begin to establish their sustainable and adaptive features. I have also included an example to illustrate very clearly where the pitfalls lie (Canterbury). The examples were chosen because they are widely judged to have brought about a series of framings of water governance, decisions or recommendations, generally using collaborative processes which have advanced the governance of water in a positive way beyond the status quo. The examples chosen include: the Land and Water Forum, Lake Taupo, the Canterbury Water Management Strategy, Te Waihora/Lake Ellesmere, and Horizons Regional Council and the Manawatu River Leaders Accord. These are only a few of the more prominent and better documented examples of water governance experimentation going on around the country and the list is certainly not an exhaustive one.

1) Land and Water Forum

In 2009, after a decade of stalled progress on the development policy frameworks for water governance, ministers tasked a group which became known as the Land and Water Forum with conducting a stakeholder-led collaborative governance process to recommend potential reform of New Zealand's fresh water management; using a consensus process, it was to identify shared outcomes and goals for fresh water and options to achieve the shared outcomes and goals.

Over three years, the Forum engaged in a collaborative learning, deliberation and consultation involving people from over 50 bodies interested in water governance and water quality and produced three reports which were widely consulted upon and have now been accepted by government as the basis for the next phase of fresh water policy reform. The work and operation of the Forum has been documented in a separated case study (Eppel, 2013). Ministers have credited the Land and Water Forum with helping to shape the approach to water governance the government has adopted (Ministry for the Environment, 2013).

The defining attributes of collaborative governance in the experience of the Land and Water Forum, as seen by the members of the Forum themselves included:

- a. It is open to all interested groups to send their own representatives (and in the case of a catchment the process should be open to all landholders) and includes iwi representation
- b. It operates with a consensus rule
- c. It has a skilled independent facilitator/chair
- d. Where a consensus cannot be reached options should be set out
- e. It is supported by the provision of information on economic, social, cultural and environmental aspects of resources and their management, and by scientific information about them, in order to allow the participants to come to an integrated understanding
- f. It has a mandate from a public decision-making body to address an issue or group of related issues, and reports to that body, but it can also be an applicant-led process undertaken in support of an identified development project, or come about through a community or industry initiative.
- g. It has a realistic timetable within which it is required to complete its work. Collaborative processes take time but need time constraints.
- h. It is resourced to do its work. Funding may come from the decision-making body and participants may also contribute resources. It is important that the resources that the collaborative process has at its disposal are utilised for the benefit of the process as a whole⁵.

⁵ http://www.landandwater.org.nz/index_files/releases.htm

2) Lake Taupo

Lake Taupo is New Zealand's biggest natural lake. Water quality in the lake had been declining due to increased concentrations of nitrogen leaching from the surrounding land. The result was increased algal growth and decreased water clarity. A Lakes and Waterways Action Group was set up in 1997, as a group of community members interested in taking care of Lake Taupo and advocating for the protection of Lake Taupo-nui-a-Tia and its waterways and other local catchment environments.

Ngati Tuwharetoa, as kaitiaki⁶ of the Lake, is a partner in the programme to protect it. In July 2001, Tuwharetoa Māori Trust Board and Environment Waikato signed a 'Sustainable Management Fund' contract with the Ministry for the Environment to develop an integrated sustainable development strategy to protect Lake Taupo-nui-a-Tia and the catchment, taking into account the community and iwi values that had been identified as priorities. The Lake Taupo Protection Trust was set up in February 2007 to administer the \$81.5 million fund to protect Lake Taupo's water quality from the effects of past and current land use activities. The Trust was charged with developing a programme of work between 2007 and 2022 to reduce the amount of manageable nitrogen flowing into the lake by 20 per cent. The fund is used to encourage and assist land use change, to purchase land/nitrogen in the Lake Taupo catchment and to fund any other initiatives that assist land owners to reduce the nitrogen impact of their activities on Lake Taupo. The Trust reports to the Government through the Ministry for the Environment, Ngati Tuwharetoa, the Taupo District Council, and Waikato Regional Council.

2020 Taupo-nui-a-Tia Action Plan (2020 TAP) is a community and Ngati Tuwharetoa-owned plan which now documents agreed action and monitoring responsibilities to implement the Lake Taupo Strategy. The project was the first time a sustainable development strategy had been undertaken jointly by tangata whenua, the community and local and central Government agencies. The implementation of the 2020 TAP is overseen by a Joint Management Group. The Joint Management Group comprises a partnership from central and local government, Ngāti Tūwharetoa, and the community. Organisations involved in this partnership include the Department of Conservation, Department of Internal Affairs (represented by the Harbour Master – Lake Taupo), Environment Waikato, Taupo District Council, Tūwharetoa Māori Trust Board, Tūwharetoa economic authorities and the Lakes and Waterways Action Group.

⁶ Guardians

The Action Plan, contains 82 actions that have been designed to achieve a number of community values for the lake:

- clear water
- high quality inflowing water
- diverse plants and animals in lakes and rivers
- good trout fishing
- recreational opportunities
- foreshore reserves
- safe drinking water
- safe swimming
- weed-free lake
- wilderness area
- outstanding scenery
- geological features
- Ngāti Tūwharetoa values
- commercial opportunities.

Waikato Regional Council proposed 'Variation No. 5 - Lake Taupo Catchment' to the Waikato Regional Plan in 2005, which became operative on Thursday, 7 July 2011 after a process of submissions on the proposal and a subsequent Environment Court appeal which largely upheld the proposed variation. New rules in the variation include: limiting the annual average amount of nitrogen leached from rural land use activities (dairy and drystock farming will require resource consents); limiting the amount of nitrogen leached from new wastewater discharges (on-site or community systems); requiring a high standard of nitrogen removal from wastewater systems near to the lakeshore; allowing nitrogen offsetting between properties to provide flexibility for landowners to meet the new rule requirements. Policies in the variation include: working with Taupo District Council and other stakeholders to promote community wastewater upgrades; working in partnership with Tuwharetoa as kaitiaki⁷ of the lake; supporting the 2020 Taupo-nui-a-Tia action plan to recognise and provide for other environmental, social, cultural and economic values when managing land use change; supporting research and development into profitable and viable low nitrogen rural land uses; using public funds

⁷ Guardians

administered by the Lake Taupo Protection Trust to reduce manageable nitrogen losses to the lake by 20 per cent.

3) Canterbury Water Management Strategy

'In the last decade pressure on Canterbury's water resource has increased significantly and with it has emerged a highly adversarial approach to allocation and management, infrastructure provision, and related land management practices which has exacerbated the situation leading to sub-optimal outcomes.... Compiling this strategy has demonstrated that there is a better way forward, based on collaboration and integrated management that will maximise the opportunities for the environment, economy and community of Canterbury in the years ahead' (Canterbury Mayoral Forum, 2010, p. 1).

This statement from the preface of the Canterbury Water Management Strategy (CWMS) alludes to the context in which the strategy was developed and the rising interest in, and perhaps even commitment to, more collaborative approaches to water governance in Canterbury. The strategy was developed by a Steering Group under the auspices of Canterbury Mayoral Forum, using consultation powers under the Local Government Act. The development was in response to serious concerns about the state of Canterbury's river systems and the environment affecting them seen from multiple perspectives:

- Pressure on river systems – run-of-river takes are near the limit of what can be safely abstracted while maintaining environmental flows; and restrictions are already widely in use, with the greatest pressure on lowland streams
- Pressure on aquifer systems – ten red zones in Canterbury, where water has been fully allocated, and four 'yellow zones', where allocation exceeds 80% of the allocation limit
- Cumulative effects on ecosystems – remaining indigenous vegetation in lowland and coastal areas, tends to occur in small, scattered fragments; less than 10% of the region's previously extensive wetlands remain; a general decline in fresh water biodiversity; accelerating land use change and intensification in parts of the hill and high country is threatening the important indigenous habitat that remains
- Cultural health of waterways
- Water use efficiency – some substantial efficiency gains could be made
- Climate change – projections suggest the Canterbury will become drier and need more irrigation simply to maintain existing outputs from the land; natural systems for delivering water will become less reliable and therefore less able to support current levels of output
- Water quality impairment issues – if there are to be substantial increases in land-uses associated with nitrogen leaching, then there must be a corresponding decrease in nutrient leaching from existing land; modelling suggests it will be possible to substantially increase agricultural output while maintaining groundwater quality within acceptable limits as long as land management practices and technologies that reduce nutrients and other contaminants

are applied across the region; to achieve this outcome will require existing users of water as well as new users to adopt the improved land management practices and technologies

- Infrastructure issues – new infrastructure needs to be introduced in conjunction with much more efficient use of water, both by existing users and new users to reduce the scale of new infrastructure requirements to manageable levels; new ways must be found to harness the knowledge and experience of existing irrigators in conjunction with external world class engineering, financial and management resources to build the next generation of storage.

Inclusion of CWMS as an exemplar in this section might to some seem questionable because of events that occurred towards the conclusion of the development of the Strategy and its still contested results. It is included here because it illustrates the complex interactions between different action arenas at national and regional level, and also the extent to which the economic system can bring about changes in the natural hydrologic systems.

The elected statutory body responsible for environmental management in the Canterbury region, Environment Canterbury (or ECan as it is often called) was dismissed by the Minister in 2010 (see Appendix 2: pp. 32-34) and replaced by a set of government-appointed Commissioners. As well as suspending the normal democratic processes for the election of Regional Councillors for two elections, government passed a new Act to give the Commissioners powers and exemptions from the provisions of the RMA unavailable to any other regional council (Brower, 2010). According to Brower (2010) the ECan Act came about at the urging of the Mayoral Forum and arose out of long-standing and widespread criticism of ECan from many quarters: too much water abstraction from the environmentalists; too little, too costly, and too slow allowance of consents from the farmers and other water users. Since 2010, the ECan Commissioners have been responsible for decisions regarding water quality, use and conservation made under the RMA or the more permissive ECan Act, and have continued with the implementation of the CWMS.

The CWMS included notions of 1) parallel development – that environmental and production-related objectives can be advanced in parallel to achieve ‘balanced progress’; 2) new water resources can be sourced from irrigation efficiency, and building new water impoundments for alpine catchments which can be used in times of rainfall shortage; 3) brokering between holders of existing rights and water permits in return for lower cost or more reliable sources or both. Because of the complicated pattern of existing irrigation schemes which have built up in over 175 years of settlement and farming in Canterbury and cutting across natural river catchment systems, a series of 11 ‘zone committees’ have been established to advise the regional council on the contents of the Canterbury Regional

Council Long Term Plan 2012-2022 for a particular zone. These are appointed, not elected, bodies, although the Council calls publicly for expressions of interest in participating.

Russell and Ward (2011) have noted the opportunities for citizen participation which the development of CWMS afforded and the benefits this brought. Environmentalist Guy Salmon has called the development of the CWMS a process of 'guided collaborative governance' (Salmon, 2012). In his report on the development of the Strategy, Salmon focused only on 'accountable' stakeholders, i.e. those involved in 'a deliberative process for building informed consensus amongst **accountable**⁸ stakeholder representatives about how to resolve a policy issue' (p. 12). Salmon analysed the development of the CWMS through three questions about the process: 1) in what sense was it democratic? 2) how effective was it in achieving an integration of different policy perspectives? 3) how did it alter the institutional norms, incentives and risks facing resource users and the Government? Salmon concluded that the outcomes of the CWMS Steering Group process were shaped by five main institutional and policy elements affecting participants' decision-making, which he summarised as:

1. The extended stalemate between irrigation and environmental interests, in which neither side was confident it could achieve its objectives without the agreement of the other side;
2. The persistent framing of the main policy problem as water being unavailable where and when required, thus implying a need for storage as part of the solution;
3. The centrally-determined selection of Steering Group members and in particular, the non-inclusion of advocates for sharing of the economic benefits of irrigation;
4. The options facing group members, either within or outside the collaborative process, for progressing their interests and projects; especially the existence of alternative statutory processes and litigation opportunities; and
5. The expectation that central government funding would be available to assist the provision of irrigation storage schemes in Canterbury and thus overcome the economic and financial barriers to their being built.

In Salmon's view, the resulting architecture of the Strategy, as agreed upon by representatives of central, regional and local government, as well as regional stakeholder representatives, relies heavily on two key assumptions: 1) that rural landholders can successfully be incentivised to cooperate in the achievement of the water quality and quantity targets which the Strategy propounds, through provision of new, low cost, more reliable water for irrigation from new water storage infrastructure; 2) that the three proposed water storage projects will indeed be provided, whether or not they are economically viable and capable of being privately financed. Salmon also points out a number of

⁸ Authors' emphasis

deficits in the CWMS process which may yet affect the final outcome for water governance in Canterbury. There was an absence of representatives of the view that the economic benefits of water use by commercial irrigators should be shared along with the costs. Government has since budgeted \$435 million to support accelerated development of irrigation projects in the region which, given important uncertainties about the costs and revenues of the projects, might see the New Zealand taxpayer and rate-payers of Canterbury bearing the cost and the risk of increased irrigation (and the agricultural development which will follow) disproportionately to the benefits received.

Notwithstanding the 'collaborative approach' to the development of CWMS, its implementation offers many challenges for finding balanced, adaptable and sustainable solutions at the zone level. When government made it a requirement under its new National Policy Statement for Freshwater in 2011 that regional councils must set limits on both water quality and quantity for all the fresh water sources in their area by the end of 2013, ECan took the staged approach available to it and has approved an implementation plan that stretches across its zones from 2013-2020, one of the longest staged-implementation timeframes approved by any regional council⁹. To many these are long timelines during which existing water user's benefit, and longer-term, perhaps unrecoverable inroads are made on water quality and the capacity of the ecosystems to recover. The Parliamentary Commissioner for the Environment has made this point most vividly in her recent publication (Parliamentary Commissioner for the Environment, 2013).

From an examination of the membership of the Zone Committees, most seem to have agricultural user and iwi perspectives covered, but the breadth of other perspectives included is unclear, as are the criteria by which Zone Committees are appointed. Other lobbyists are concerned about the undemocratic processes used to select the Zone Committees and their lack of accountability to the citizens whose long-term interests their recommendations affect. Further large-scale projects, for example, the Central Plains Irrigation Scheme, as well as smaller schemes are seeking consents through the processes available to them. These schemes represent tests to the inclusiveness of the interests that are part of any decisions made and ultimately how the human, natural physical and economic systems interactions play out over time, especially since some system changes are not reversible.

⁹ See <http://www.mfe.govt.nz/rma/central/nps/progressive-implementation-programme.html>

4) Te Waihora/Lake Ellesmere: the role of Māori people in water governance

"Te Waihora was once a considerable tribal resource known as Te Kete Ika a Rākaihautū - The Fish Basket of Rākaihautū. Today, it is one of New Zealand's most polluted lakes. It is going to take considerable time, effort and resource to restore and rejuvenate the many values of Te Waihora." Mark Solomon, Kaiwhakahaere, Te Rūnanga o Ngāi Tahu¹⁰

Te Waihora is a nationally significant wetland with special significance for Ngāi Tahu, especially mahinga kai, the customary fishery and kaitiakitanga. The restoration and rejuvenation of the mauri¹¹ and ecosystem health of Te Waihora/Lake Ellesmere has been confirmed with the signing of Whakaora Te Waihora, a long-term relationship agreement and shared commitment between Environment Canterbury, Ngāi Tahu and Te Waihora Management Board. The parties have also signed an interim co-governance agreement which establishes an enduring co-governance framework for the active management of Te Waihora and its catchment.

These agreements signalled the start of a new approach to management of natural resources in Canterbury, bringing together the tikanga responsibilities of Ngāi Tahu and the statutory responsibilities of Environment Canterbury. According to the Environment Canterbury Chair of Commissioners, Dame Margaret Bazley, the agreement with Ngāi Tahu is an important milestone in the life of Environment Canterbury because it is 'forging a way in which iwi and regional government can work together for common goals'.

According to its website, Whakaora te Waihora is a long term (35 year), intergenerational project and its success will depend on the support of and collective contributions from central and local government, tangata whenua, industry, tertiary institutions, non-government organisations, landowners and members of the community. As announced by the Government in August 2011, \$11.6 million has been committed to clean up the lake made up of contributions of:

- \$6.1 million from the Government
- \$3.5 million from Environment Canterbury
- \$1.3 million from Fonterra
- \$500,000 from Ngāi Tahu
- The balance from Selwyn District Council, Waihora Ellesmere Trust and Lincoln University.

Volunteer groups, the universities, CRIs and the local community, are also a vital part of this project.

Because of the interdependence of the areas covered by the Whakaora te Waihora plan and other developments on the Canterbury plains, such as the Central Plains Irrigation Project, it is too soon to

¹⁰ <http://tewaihora.org/>

¹¹ Life force

say if the early moral and financial commitments made by all the partners to the agreement, and the early achievements can be sustained to achieve their vision.

5) Horizons Regional Council and the Manawatu River Leaders Accord

Early in 2010 the chairman of Horizons Regional Council invited key leaders with an interest in the Manawatu River to meet and discuss the state of the river. The leaders represent those sectors and groups that have an impact on or interest in the river: local government, iwi, farming, industry and environmental. The leaders agreed that the state of the Manawatu River is unacceptable and the community wants it “cleaned up”. This group set goals to guide a community wide process of improvement which were recorded in the Manawatu River Leaders Accord¹², signed by iwi/hapū, environmental interest groups, farming and industry groups, the local council and the regional council, set out below:

Our Focus is the whole of the Manawatu River Catchment as it affects the mauri (life-force) and ecological health of the Manawatu River and its tributaries; to take ownership of the issues and their solutions; and the rehabilitation and protection of the health and well-being of the Manawatu River Catchment for future generations.

Our Vision: Kei te ora te wai, kei te ora te whenua, kei te ora te tangata. /If the water is healthy, the land and the people are nourished.

The signatories to the Accord noted that the Manawatu River flows through a developed landscape that provides important social, cultural and economic benefits. They acknowledged that the community has concerns about the poor state of the river, which has been described as ‘dirty, lacking life and culturally compromised’. The Accord signatories have set a goal to ‘improve the Manawatu River, the mauri of the Manawatu River Catchment, such that it sustains fish species, and is suitable for contact recreation, in balance with the social, cultural and economic activities of the catchment community’ because ‘people living in and around the Manawatu River want to be able to appreciate and enjoy the river by swimming in it, taking food from it, using it as a water source and protecting its cultural values’. They want to ‘develop leadership in catchment improvement and capture the social and economic benefits of such leadership’ so that:

- The Manawatu River becomes a source of regional pride and mana.
- Waterways in the Manawatu Catchment are safe, accessible, swimmable, and provide good recreation and food resources.

¹² <http://www.horizons.govt.nz/managing-environment/resource-management/water/manawatu-river-leaders-accord>

- The Manawatu Catchment and waterways are returned to a healthy condition.
- Sustainable use of the land and water resources of the Manawatu Catchment continues to underpin the economic prosperity of the region.

The Accord Leaders commitment was to:

1. Establish a collaboratively owned and implemented Action Plan by March 2011 ready for implementation by 1 July 2011 that will recommend targets for improvements, timeframes for achieving the targets, identify actions and opportunities, and include indicators and methods of monitoring.
2. Work together positively and collaboratively towards achieving our goals and realising the vision.
3. Keep the community informed of our goals and progress towards them.
4. Advocate for our vision and goals.
5. Meet as leader's forum at least twice a year to receive reports on progress and provide guidance to those implementing the Action Plan.

The Manawatu Action Plan 2011¹³ set out the key actions and activities to be undertaken, and by whom, to achieve the goals established by the Accord; progress is reported to the Leaders group. The Action plan has been developed against the backdrop of the Horizons Regional Council's new regional plan to guide the management of natural resources, referred to as the One Plan because it weaves together the six separate plans and Regional Policy Statement into one document. The One Plan has yet to be adopted because it has been subject to contestation in the Environment Court since 2009. A Court mediated resolution is now emerging and the Plan will need to be updated to give effect to the National Policy Statement which came into force in 2011.

The Manawatu Action plan represents one local process, involving representatives of key stakeholders whose collaboration is necessary for giving effect to the Plan. The Action Plan requires sophisticated information systems which might be capable of matching what is required by the effective governance regime advanced by Wiek and Larson (2012). Sub models simulating the dynamics of five "spheres" - the Biosphere, the Lithosphere, the Atmosphere, the Hydrosphere and the Anthroposphere (the human dimension) spatially across the landscape are being developed.

¹³ <http://www.horizons.govt.nz/assets/Managing-our-Environment/Resource-Management/Manawatu-River-Leaders-Forum-Action-Plan-electronic.pdf>

Some lessons from the Examples of Collaborative Governance at Work

The five exemplars presented above illustrate aspects of how complex collaborative governance systems operate. Firstly, none of the systems involved is static. The natural systems, the human social systems, and the economic systems are all undergoing changes in response to each other as well as to systems outside of the current consideration, such as the global climate system and the global financial system. Increasing economic use of water in agriculture is altering the natural system but it is also altering the societal patterns through changes in lifestyles and the intensity of economic activity such as dairying. In the areas chosen, which are by no means the only examples available, there appears to be an acceptance that no one person or group of interests have sufficient knowledge or resources for the effective governance of fresh water. Collaborative processes have been used as a way in which the complexity of the changes these systems are undergoing can be accommodated in management decisions. The collaborative processes bring the knowledge and resources of all of the groups involved into play, and allow collaborative learning (Emerson, Nabatchi, & Balogh, 2011; Gerlak & Heikkila, 2011), adaptation, and emergence of creative solutions to occur. The overall effect is something approaching Wiek and Larson's (2012) sustainable governance regime.

Each example chosen is at different stage in its evolution and it is clear that New Zealand is in the early stages of learning how to do collaborative governance well. The Treaty of Waitangi and settlements made through the Tribunal process have had an effect on the willingness of government and its various agencies to work with Māori iwi and hapū in co-management arrangements in particular areas. Māori involvement brings a diverse set of perspectives which include traditional spiritual and cultural values into play but also more recent post-settlement values associated with ownership and economic development. Advocates for economic development spanning interests in maintenance or enhancement of the natural water qualities, such as tourism and water recreation and sporting activities, as well as those who would like to reshape the natural environment to suit a different economic purpose, such as increased dairy production, bring a second set of diverse perspectives; so, too, scientists and technicians with knowledge of how natural systems function and remain self-sustaining. The collaborative process is requiring people from these diverse perspectives to learn more about what they each know and understand about water use and to use the processes to generate new knowledge and workable solutions for both the shorter and longer term that integrate these different system views. The overall effect is something tending in a direction that could be capable of achieving Wiek and Larson's (2012) sustainable governance regime, with some distance to go to become an embedded national regime.

7. Implications for Effective Water Governance in New Zealand

A government is only one actor in effective water governance, albeit an important and powerful one. Given the nonlinear behaviour of complex adaptive systems, one actor's intention or power does not translate so simply to what actually happens in the interactions between complex systems. Governments and other actors are limited in what they can do to effectively influence these interactions if the outcome wanted is a sustainable one rather than alternating crises of either the social, economic or environmental sort or even all three together. When it comes to governance of complex systems, power does not have the direct and predictable outcome that some might expect, like, for example, power steering in a more mechanical system such as the car analogy in the introduction. The processes of effective governance are not so linear. Ideas and actions will influence further development of ideas and actions in response. Rather than plan, command and control, new roles are needed to be able to detect feedback loops, identify tipping points in trajectories. Room (2011) calls these tuners, energisers and stewards.

It was argued in the early sections of the paper that a water governance system is an emergent product of the nonlinear interactions between other very complex systems (social, economic and natural). For the governance system to be adaptable and sustainable, the implications of complexity need to be built into its design and operation. If the implications of complexity are not designed in, that does not mean a simpler system. It means instead that we are operating with a model of a too simple system that is constantly found to fail to adequately cope with the interactions the real world presents to it and is constantly caught by surprise events that the simple system could not anticipate (see for example, Eppel, 2012; Weick & Sutcliffe, 2007).

The governance system consists of a large number of diverse parts (people, and other organisms, roles and organisations, institutions and rules, and inanimate natural components). These function in a variety of functional ways which are not always evident or easily understood. People within these structures operate through intricate social, cultural, legal and organisational frameworks governing their operation, often using tacit knowledge of how these systems work. This can lead to bounded understanding of issues, and path dependency in the decision responses of people and organisations to changes elsewhere. Consequently water governance has large elements of ambiguity in the understanding of the water governance context and uncertainty about how different parts of the system will respond to changes internal to the governance system but also external changes such as global climate or financial changes.

The institutional capabilities in the current system are bounded within traditional, and artificially segmented roles. For example, regional councils have traditionally been responsible for producing

long term plans and consulting on those plans before putting them into practice. Regional council expertise therefore has been in the information gathering and synthesis tasks involved. A move to more collaborative approaches such as the one foreshadowed in *A Freshstart of Fresh Water* (see Figure 5) introduces the need for different capabilities. Some examples include: identifying new types of knowledge and information which may be relevant and recognising that the council does not currently have that information nor the means and capability to generate it; designing processes to enable those with different knowledge and perspectives to share it; being able to facilitate collaborative engagement and learning processes; and translating the outcome of collaborative processes into artifacts (documents and the like) that trigger wide ownership and selective action.

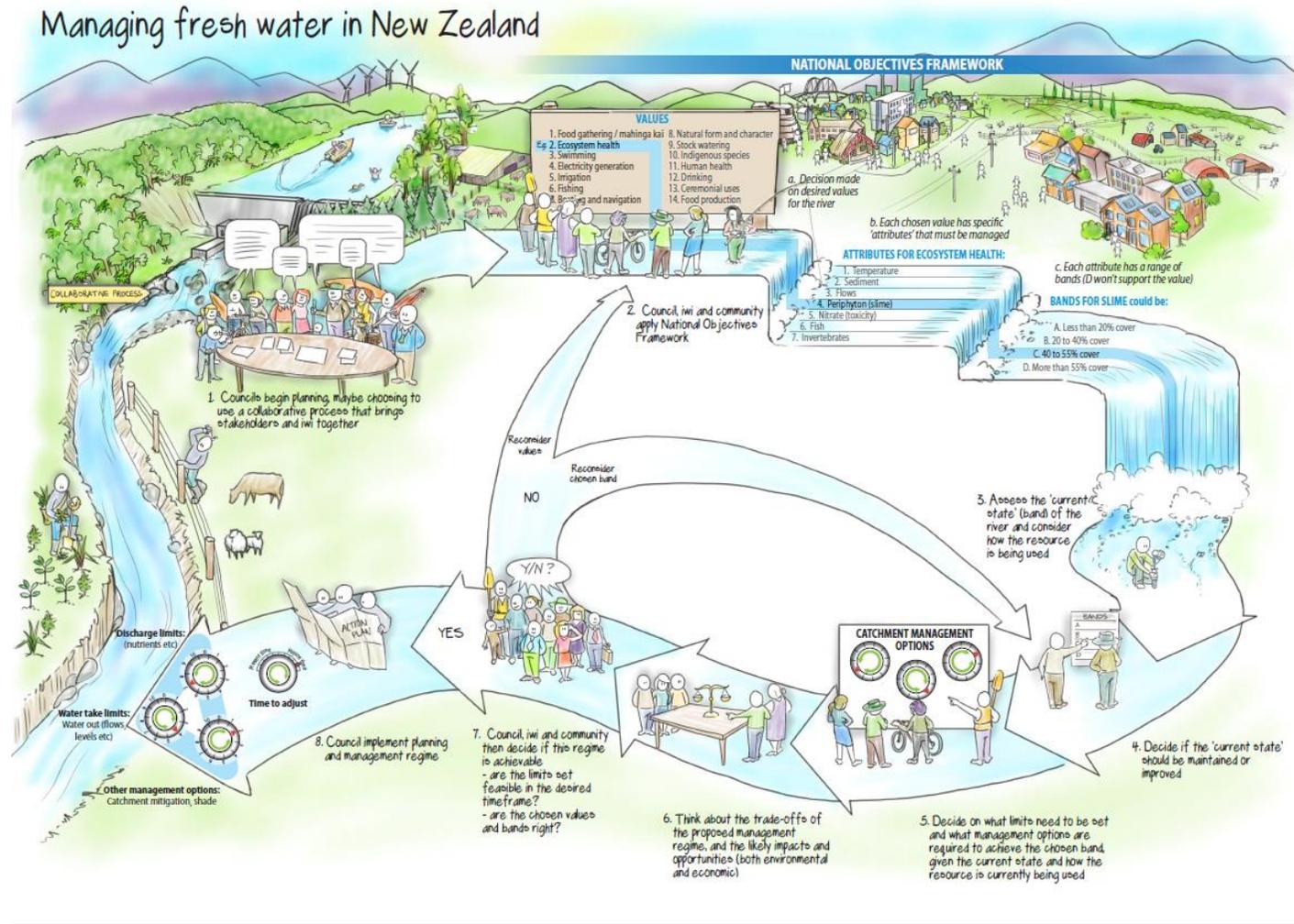
A consequence of the dynamism of the systems to be governed is that these systems will continue to change and therefore any solutions reached are only an ongoing set of approximations or clumsy solutions (Verweij, Thompson, & Engel, 2006). Thus, there must be ongoing adaptive learning which takes into account changes in the systems, especially those changes which might appear 'not to fit' the present understanding of how things are working (Weick & Sutcliffe, 2007); there must also be adaptive capacities built into the creation and execution of plans developed as part of water governance.

Collaborative processes take time to build the capacity needed for their effective collaborative operation and therefore they may not appear as quick or timely as more structured, segmented or closed processes, but the results are likely to be more resilient and sustainable if the collaborative processes have been well conducted. The temptation for central government to intervene in collaborative governance processes which to the outside may appear messy and inconclusive will be strong but such intervention will come at the price of lost collaborative capital and also the loss of more sustainable and lasting solutions.

There is much to learn about whether there are regularities about how local context and governance processes interact to produce effective outcomes. To date, New Zealand has been experimenting. Can these experiments lead to a better understanding of the processes, and the micro-macro mechanisms generated, that reliably lead to effective water governance? There is not yet a history of successful collaborative governance in New Zealand and therefore the default of central government, the media and the public will be to compare what they see and experience with traditional, linear, top-down governance. For this reason alone the current experiments need to be documented and learned from. But they are also creating new knowledge of how successful sustainable and adaptive water governance is done and we need to systematically collect data from these exemplars and search for

the regularities that might lead to new understanding of the mechanisms through which effective governance of water occurs.

Figure 5: Proposed framework for managing fresh water (Ministry for the Environment, 2013)



Appendix 1: Some Actor and Institutions involved in Water Governance at National Level

Table1: Actors and institutional arrangements affecting the governance of fresh water

Some Recent History of Water Governance in New Zealand*	Actors	Institutions (Laws, rules, procedures, processes)
Labour Government 1987-1991		
	<p>Minister for the Environment shall have the following functions (inter alia):</p> <ul style="list-style-type: none"> • Recommendation of the issue of national policy statements • Recommendation of making of national environmental standards • May investigate the failure or omission by a local authority to exercise or perform any of its functions, powers or duties <p>Where the functions, powers or duties under the Act are not being performed to achieve the purpose of the Act, then the Minister may appoint one or more persons to perform all or any of these functions;</p> <p>Regional Councils shall establish, implement and review objectives, policies and methods to achieve the integrated management of natural and physical resources in its region; control the taking, use, damming, and diversion of water, and the control of the quantity, level, and flow of water in any water body; control the discharge of contaminants.</p> <p>Governor General by Order in Council may make regulations called environmental standards.</p>	<p>Resource Management Act (RMA) 1991</p> <p>The purpose of the RMA is to promote sustainable management of natural and physical resources. Sustainable management means managing the use, development and protection of natural and physical resources in a way, or at a rate, which enable people and communities to provide of their social, economic, and cultural well-being and for their health and safety while –</p> <p>sustaining the potential of the natural and physical resources to meet the reasonably foreseeable needs of future generations; and safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and avoiding, remedying, or mitigating any adverse effects of activities on the environment.</p> <p>Persons shall recognise matters of national importance (natural features, habitats, public access, Māori traditions; and have particular regard to ethic of stewardship, efficient use, intrinsic value of ecosystems, maintenance and enhancement of quality, and finite characteristics of natural resources; and shall take into account the principles of the Treaty of Waitangi.</p> <p>The RMA allows for:</p> <ul style="list-style-type: none"> • national and regional policy statements • regulations prescribing national environmental standards e.g. contaminants, water quality, level or flow; <p>National Environmental Standards may permit or restrict an activity.</p>
Labour-led Government 1999-2008		
2003	<p>Minister for Environment (Marian Hobbs) and Minister of Agriculture (Jim Sutton) initiate discussion about pressures on water resources and the different ways in which New Zealanders value water.</p> <p>Minister for the Environment (Marian Hobbs) set out the Labour Government’s Programme of Action for sustainable development: ‘It identifies eight key issues facing the country’s water management system and 13 actions to improve the water management system’.</p>	<p>Programme of Action for Sustainable Development calls for ‘strong partnerships between local government, central government agencies, industry, Māori, and the community to create innovative and enduring approaches to managing our water resources’</p>

	<p>Ministry for the Environment noted in Sustainable Development for New Zealand: Programme of Action that 'fresh water allocation and use, water quality issues, and water bodies of national importance are fundamental elements for New Zealand's sustainable development ... a number of water-resource-management issues ... must be addressed ... to sustain our economic growth, natural environment and heritage, and the health and wellbeing of our people'.</p>	<p>Programme of Action for Sustainable Development was positioned as a 'first step in a nationwide consultation programme, which is part of the sustainable Water Programme of Action'.</p>
2003-2008	<p>Ministry for the Environment (MfE) gave effect to the Labour Government's Sustainable Water Programme of Action (2003 – 2008). Through 2004 and 2005, MfE officials consulted with local government, landowners, businesses, industry groups, sector groups, iwi, community organisations and individuals on issues facing fresh water management. The aim was to identify possible solutions and opportunities for the future.</p> <p>Some of the initiatives under this programme have continue under the National Government's strategy New Start for Fresh Water, June 2009.</p>	<p>The Sustainable Water Programme of Action was established in 2003 with a set of outcomes.</p> <p>From consultation some common themes emerged about ways to improve fresh water management:</p> <ul style="list-style-type: none"> • Greater strategic planning for water, nationally and regionally. • Clearer direction and guidance from central government. • Greater consistency in the way increasing demands on water resources are managed across the country. • A better framework for deciding between conflicting demands for water. • More effective Māori participation in water management. • Better management of the impacts of diffuse discharges on water quality.
2003	<p>Against the backdrop of a 'Dirty Dairying' campaign by environmental advocates, particularly Fish and Game New Zealand, a Dairy and Clean Streams Accord (2003) was negotiated between Fonterra as the co-operative company supplied by 96% of New Zealand's dairy farmers, Local Government New Zealand representing the regional councils, and the Ministry for the Environment, and Ministry of Agriculture and Forestry (later merged into the Ministry of Primary Industries). The idea of a voluntary agreement was initiated by the Chief Executive of Environment Waikato (Barry Harris) and the Chairman of Fonterra (Sir Henry van der Hayden) who saw it as a 'strategic, cohesive, partnership approach' although the final agreement excluded Federated Farmers and the other dairy companies operating at the time.</p>	<p>More dairy farmers were being penalised in the district courts for breaches of effluent consents under the Resource Management Act.</p> <p>Dairy and Clean Streams Accord (2003) set targets to exclude cattle from waterways, control the release of effluent and reduce the run-off of fertilizers and other agricultural nutrients into lakes and streams.</p> <p>The pace of 'dairy conversions' from other farming uses (e.g. sheep, beef, other) was accelerating, and new large scale farms were appearing.</p> <p>Education programmes and other initiatives were run by Fonterra to assist farmers to meet the Accord targets.</p>
2004	<p>Associate Minister for Environment (David Benson-Pope) introduced amendments to the Resource Management Act 1991 'to improve the quality of decisions and processes while not compromising environmental outcomes or sacrificing public participation ... increase certainty, reduce delays and costs, and ensure consistency of processes'.</p>	<p>Parliament made changes to Resource Management Act (RMA) 1991 following review.</p>
2005	<p>Auditor-General examined how two regional councils, Horizons and Otago manage competing priorities to both use and protect our fresh water resources. The A-G notes that</p>	<p>Horizons and Otago Regional Councils 'have made good progress in some areas, such as planning and implementing water allocation frameworks, but improvements need to be</p>

	<p>'management of fresh water resources is not a simple task'.</p> <p>This report looks at how the Resource Management Act 1991 framework has been implemented by the Horizons Regional Council and the Otago Regional Council for the management of fresh water in their regions.</p>	<p>made in other areas – particularly compliance and effectiveness and efficiency monitoring'¹⁴</p> <p>'Planning documents can be significantly improved by the inclusion of simply worded, measurable objectives that clearly set out what the plan intends to achieve, and specifically outline the environmental state sought. When planning documents are being prepared, more thought needs to be given to the drafting of Environmental Results Anticipated (ERAs). Well-crafted ERAs that state what is intended to be achieved within the life of the plan can provide a solid basis for designing procedures for monitoring the effectiveness and efficiency of policies and methods.'</p> <p>Office of the Auditor General. (2005). <i>Horizons and Otago Regional Councils: Management of fresh water resources</i>. Wellington: Office of the Auditor General.</p> <p>Best practice guidelines for developing regional fresh water plans were placed on the Quality Planning website.</p> <p>The Ministry for the Environment, New Zealand Planning Institute and the Resource Management Law Association jointly ran workshops for developing second generation district and regional plans around the country.</p> <p>OAG identified key areas that both central and local government need to focus on:</p> <ul style="list-style-type: none"> • Developing effective solutions to manage diffuse discharges to water bodies • Improving strategic planning for water • Determining the appropriate level of central government direction, support and guidance for regional councils in their management of fresh water and • Obtaining accurate information for making decisions about water
2006		<p>Cabinet approved a package of actions which included three instruments for fresh water management:</p> <ul style="list-style-type: none"> • A National Policy Statement for Freshwater Management • A National Environmental Standard for Measurement of Water Takes • A National Environmental Standard on Ecological Flows and Water Levels [CAB Min (06) 11/11 refers] <p>An agreed joint Māori work programme was also set up, to enhance Māori participation in fresh water management.</p>
2007	<p>Auditor-General (A-G) saw 'an opportunity to assess how well the government's Programme of Action was implemented and also to identify any implications for other complex cross-agency work'¹⁵ p. 5.</p>	<p>A-G said that the Programme of Action sought a different way of working by requiring central government to work more collaboratively on complex issues, to better integrate existing initiatives and to learn from new processes.</p> <p>A-G identified implications for cross-agency work and for projects involving both central and local government within three broad themes: leadership, co-ordination, and governance; project management and planning; and accountability through reporting, monitoring, and evaluation.</p>
2008	<p>Minister for the Environment (Trevor Mallard) appointed a four-person Board of Inquiry to lead public consultation on the proposed National Policy Statement for Freshwater</p>	<p>The Sustainable Water Programme of Action (developed under the auspices of the RMA) and was to have a suite of national environmental standards that act like regulations and a National Policy Statement for Freshwater</p>

¹⁴ Controller and Auditor-General. (2005). *Horizons and Otago Regional Councils: Management of freshwater resources*. Wellington: Office of the Auditor-General, p. 3.

¹⁵ Controller and Auditor-General. (2007). *Sustainable development: Implementation of the Programme of Action*. Wellington: Office of the Auditor-General.

	Management: Judge David Sheppard (chairperson), Kevin Prime, Jenni Vernon and Dr Jon Harding as board members.	Management that will be the overarching framework for water management in New Zealand. Minister for the Environment (Trevor Mallard) said that 'some of these national environmental standards are already being enforced, others are going through consultation. A drinking water standard came into effect last month which will protect the sources of human drinking-water. It does this by requiring regional councils to consider the effects of activities on drinking-water sources in their decision making'.
September 2008	Minister for the Environment (Trevor Mallard) noted significant management challenge for Environment Canterbury (ECan) because of over-allocation of ground water.	In recognition of the challenges ahead for a nationally consistent approach to water management under the Sustainable Water Programme of Action, the Minister for the Environment set out options on: <ul style="list-style-type: none"> • How to move water to its highest-value use and how to determine what highest-value is. • How to deal with catchments where more water than should be allocated has been allocated. • Alternatives to the current first-in-first-served common allocation method, where water is allocated to people in the order in which they apply for it. • Alternatives explored would include models such as the Waitaki Catchment Water Allocation Regional Plan, which took a considered approach to allocation, based on allocations to activities (such as agriculture, tourism, and energy) rather than based simply on when an application was made. • The potential to separate take for use. • How to ensure the appropriate participation of certain stakeholders in decisions. • The possible role of central boards/commissions (which could range from advisory to actual decision-making bodies).
National-led Government 2008-current		
2008	Minister for Environment , Nick Smith states that 'streamlining and simplifying the Resource Management Act is an important part of the new Government's programme.... The Government wants to provide for more efficient decision making on infrastructure, reduce the costs and delays of consenting, speed up planning making processes, and restrict trade competition and vexatious and frivolous objections.'	An RMA Technical Advisory Group was formed as part of the National - ACT confidence and supply agreement .
	Minister for Environment , appointed a RMA Technical Advisory Group to support the Government's programme of reform of the Resource Management Act . It was chaired by barrister Alan Dormer and included environmental consultant Guy Salmon, Rodney Mayor Penny Webster, barrister Paul Majuery, Tasman District Council Environment and Planning Manager Dennis Bush-King, barrister Michael Holm, planning consultant Michael Forster, and businessman and former Deputy Prime Minister Rt Hon Wyatt Creech.	
October 2009	Minister for the Environment , Dr Nick Smith and Minister for Local Government , Rodney	Environment Canterbury performed poorly in the 2007/08 Resource Management Act survey, processing only 29% of

	<p>Hide announced an investigation into Environment Canterbury :</p> <p>'The Government is not satisfied with Environment Canterbury's performance in efficiently processing resource consents, developing a proper framework for managing Canterbury's natural resources, nor with its management of relationships with Canterbury's territorial local authorities. We believe an external review is necessary to fix these issues. The first component of the review is under Section 24A of the Resource Management Act, looking into Environment Canterbury's resource management functions. It is the first time these provisions have been used. The second is a non-statutory assessment of Environment Canterbury's governance and policy functions under the Local Government Act.'</p> <p>Mr Hide said he had received strong submissions from Canterbury's Mayors about the performance of Environment Canterbury. 'Recent issues around Environment Canterbury's governance and divisions among Councillors do not give the Government confidence the Council can resolve the problems.'</p>	<p>consents on time - the worst of all 84 councils - was subjected to review. Terms of reference were:</p> <p>1. Preamble</p> <p>1.1. Following the results of the 2007/2008 RMA Survey of Local Authorities, the Minister for the Environment has decided to undertake an investigation of resource consent processing practices in Environment Canterbury (ECan) and a broader review of ECan's performance under the Resource Management Act 1991 (RMA). The Minister of Local Government has also expressed an intention to review ECan's wider performance under the Local Government Act 2002 (LGA02) in response to concerns raised by Canterbury Mayors. The Ministers have agreed to conduct a joint review of ECan's performance under both the RMA and LGA02.</p> <p>2. Nature of Review</p> <p>2.1. This review has two components. The first component is a statutory investigation under section 24A of the RMA that seeks to identify what has led to ECan's poor performance record over the last survey period and performance subsequently in resource consent processing. It also aims to identify any broader planning, policy and governance matters that may have contributed to the poor performance record of Environment Canterbury during the period of the 2007/2008 survey period in meeting statutory requirements under the RMA.</p> <p>2.2. The second component is a non-statutory assessment of whether there are wider issues with ECan's governance, policies or implementation that are contributing to perceived poor performance under the LGA02 or other statutes.</p> <p>3. Scope of the Review</p> <p>Investigation of Environment Canterbury's performance under the RMA and identify possible solutions</p> <p>3.1. The investigation will cover the following factors:</p> <ul style="list-style-type: none"> • Guidance for applicants and use of Section 88 • Use of Section 92 • Analysis of consent processing systems and practices • Staffing and use of resources • Administrative systems and tools • Internal audits and monitoring • Relationships between applicants and submitters and ECan • Relationship of timeframes to quality of decisions • Other contextual matters, including: • The management of sustainability limits and cumulative effects • Adequacy of current planning framework for delivering the vision and objectives of the Canterbury Water Management Strategy in an effective and efficient manner • Assessment of Environment Canterbury's wider performance under the LGA02 or other legislation and identify possible solutions. <p>3.2. The non-statutory assessment will cover the following factors:</p> <p>The approach of ECan to meeting its legal obligations</p> <p>Adequacy of ECan's governance</p> <p>Adequacy of ECan's management and decision making processes</p> <p>Financial management of ECan</p>
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		6.2. Any final recommendations on ways to improve council performance will be reported to ECan following officials briefing the Ministers on the final report. This is expected to be in early 2010.
2009	Minister for the Environment (Dr Nick Smith) led changes to the Resource Management Act to 'improve the Act by removing costs, uncertainties and delays that have frustrated New Zealand homeowners, small businesses and farmers for years'	Resource Management Act (RMA) 1991 amended According to the Minister, key changes included: 'Removing frivolous, vexatious and anti-competitive objections that can add tens of thousands of dollars to consent applicants; Streamlining processes for projects of national significance Creating an Environmental Protection Authority Improved resource consent processes Streamlined decision making Strengthening compliance by increasing penalties and providing for a wider range of enforcement Improvements to national instruments'
2009	Minister for the Environment and Minister for Primary Industries agree to the establishment of the Land and Water Forum .	Terms of reference for the Forum included: <ul style="list-style-type: none"> • To conduct a stakeholder –led collaborative governance process to recommend reform of New Zealand's fresh water management • Using a consensus process, identify shared outcomes and goals for fresh water • In relation to the outcomes and goals, identify option to achieve them • Produce a written report which recommends shared outcomes, goals and long-term strategies for fresh water in New Zealand
2009	Minister for the Environment (Dr Nick Smith) released the 2008/09 Update on Freshwater Recreational Water Quality and the baseline report on Water Quality in Selected Dairy Farming Catchments and government's intention to improve water quality monitoring: 'we manage what we measure, and there has been insufficient consistent data collection on fresh water quality despite it being one of New Zealand's most valuable and important resources. This deficiency was exposed in the 2007 New Zealand State of the Environment Report ... Government is determined to have the work done to enable more accurate reporting for the next State of the Environment report. The data from the last two summaries show that 58% of monitored fresh water swimming spots met the guidelines over 95% of the time where as 8% of sites breached the guidelines more than 25% of the time. This level of non-compliance is not acceptable and highlights the need for a concerted effort to improve recreational water quality. There is a significant water quality issue emerging in areas of intensive farming, particularly dairying.'	The baseline report on water quality in farming catchments acts as a tool in monitoring the effectiveness of programmes like the Clean Streams Accord to tackle water quality impacts. The report identifies degraded water quality in these areas and reinforces the need for further Government initiatives.
2009	New Start for Fresh Water: The previous Labour government had determined to issue a national policy statement on fresh water management. The National Government Minister for the Environment, Nick Smith, having sought and considered comments from the relevant iwi	The Minister appointed a board of inquiry to: <ul style="list-style-type: none"> • inquire into the proposed NPS; • consider all submissions made and all evidence given on the proposed NPS; and • report to the Minister on the contents and subject matter of the proposed NPS, including making recommendations about

	<p>authorities and the persons and organisations that he considered appropriate, prepared a national policy statement (NPS) on management of fresh water and chose to use the process set out in sections 47 to 52 of the Resource Management Act 1991.</p>	<p>amendments to the content of the proposed NPS so that it will more fully serve its purpose and the purpose of the RMA.</p>
June 2010	<p>Minister for the Environment Nick Smith announced the establishment of a new standalone Environmental Protection Authority to perform environmental regulatory functions: 'New Zealand needs a strong, independent regulatory authority to ensure the protection of our environment at a national level ... bringing under one roof a wide range of environmental regulatory functions and providing stronger national direction to the environment roles of regional and district councils.</p> <p>The Minister may not direct the EPA</p>	<p>The Environmental Protection Authority (EPA) is Crown Agent, with the Board accountable to the Minister for the Environment.</p> <p>The EPA receives and processes applications for proposals of national significance under the Resource Management Act 1991, regulates the introduction and use of hazardous substances and new organisms under the Hazardous Substances and New Organisms Act administers the Emissions Trading Scheme and New Zealand Emission Registry under the Climate Change Response Act and manages the environmental impact of activities in the EEZ, including prospecting for petroleum and minerals, seismic surveying and scientific research.</p>
2010	<p>The Review Group headed by the Rt Hon Wyatt Creech, set up to review the performance of Environment Canterbury was struck by the 'gap' between 'what needs to be done' to appropriately manage water and 'ECan's capability to do so'.</p> <p>Their reasoning included:</p> <ul style="list-style-type: none"> • Around 70% of New Zealand's fresh water resource is in the Canterbury Region, much of which is under demand from competing interests. Unresolved water quality issues persist in the Region in the minds of many stakeholders. <p>The Canterbury Region contributes a significant percentage of the nation's renewable hydro electricity generation capacity, and is important in terms of agricultural and horticultural production. All of these activities depend critically on water.</p> <ul style="list-style-type: none"> • There are significant issues in relation to the Crown's Treaty obligations, with Ngāi Tahu expressing a very strong interest in the management of water as a Treaty partner. • Resolving water resource issues is complex and involves controversial and difficult judgments to achieve the appropriate balance between the environmental, economic, social and cultural considerations that must be taken into account. Experience to date indicates that Environment Canterbury has not managed these competing demands and interests effectively. All too frequently, the outcome has been undue delays rather than progress and frustration levels on all sides are high. 	<p>The ECan Review Group ¹⁶ has concluded that ECan's performance on water policy and management issues (allocation and quality) fell well short of what is essential and required comprehensive and rapid intervention on the part of central government to protect and enhance both regional and national well-being. "Failure to intervene will lead to continued lack of progress in water management in Canterbury ... a profound change in approach is required to existing institutional frameworks to address this matter properly.</p> <p>The Review Group acknowledged that Environment Canterbury had made 'significant efforts to improve the situation both at a Council and officer level' which while this commendable, would 'not of itself be sufficient to satisfactorily resolve water management issues in the Region'. 'The most recent initiative to progress the resolution of water management issues in the Region is the Canterbury Water Management Strategy (CWMS). This Strategy has been vigorously promoted by the Canterbury Mayor's Forum, ECan and territorial authorities. ECan has constructively aligned itself to this initiative and played a leading role in the development of the Strategy and its intended institutional framework. ECan took this approach after forming the view that a collaboratively developed Canterbury Water Management Strategy is the only realistic pathway with any reasonable chance of success for developing a solution to these complex and controversial issues.' The Review Group also noted ECan's advice that the Canterbury Water Management Strategy needed legislative change to make it workable.</p>

¹⁶ Creech, W., MartinJenkins, Hill, G. C., & Morrison Low. (2010). *Investigation of the performance of Environment Canterbury under the Resource Management Act & Local Government Act*. Wellington: Ministry for the Environment <http://www.mfe.govt.nz/publications/rma/investigation-performance-environment-canterbury/investigation-performance-environment-canterbury.pdf>.

	<ul style="list-style-type: none"> • Despite the passage of more than 18 years since the enactment of the Resource Management Act, Canterbury does not have an operative region-wide planning framework. The absence of an over-arching planning and policy framework for the Region has resulted in a piecemeal, fragmented and inefficient approach to the management of fresh water. • It is a matter of record that, in the absence of a planning framework, the Crown was forced to intervene and establish the Waitaki Water Allocation Board to manage the allocation of water rights in the Waitaki Catchment following competing claims to water from rural interests and electricity generators. • Most stakeholders spoken with expressed considerable frustration with the long delays in the resource consent approval process and associated very high processing costs. • Territorial authorities (TA's) within the Canterbury Region unquestionably believe that Environment Canterbury has failed to effectively and efficiently manage fresh water. TA's view this as institutional failure. 	
March 2010	Minister for the Environment (Nick Smith) introduced legislation to appoint Temporary Commissioners to replace the elected Environment Canterbury regional councillors.	The Commissioners appointed by the Minister would take on the responsibilities of the elected Canterbury regional councillors.
April 2010	<p>Minister for the Environment (Nick Smith) and Minister for Local Government (Rodney Hide) appointed Commissioners to oversee Environment Canterbury (ECan) and 'fix Canterbury's significant water issues. The Government's objective is to see an urgent improvement in fresh water management around water quality, water allocation and opportunities for water storage.'</p> <p>The ECan Commissioners are: Dame Margaret Bazley (Chair), Hon. David Caygill (Deputy Chair), David Bedford, Donald Couch, Tom Lambie, Professor Peter Skelton, Rex Williams.</p> <p>'.... experienced and capable commissioners with first-class public service, governance, judicial and business skills.... ensured a balance of agricultural, environmental and electricity expertise to match the challenges facing ECan... endeavoured to maximise the number of Commissioners from Canterbury and ensured representation from both North and South Canterbury communities'.</p> <p>Government's concern 'has been the lack of a resource management plan for water in Canterbury and that is why completing a plan has been made an urgent priority in the terms of reference.'</p>	The Commissioners are required to improve relations with Canterbury's 10 territorial councils, to build on the work of the Canterbury Water Management Strategy and to meet all the statutory obligations of the Resource Management and Local Government Acts to consult with the Canterbury community.
2010	Minister for the Environment (Nick Smith) said he was reluctant to make a decision on the NPS until the Land and Water Forum processes	The Board of Inquiry set up under the Labour Government reported on the proposed National Policy Statement (NPS) .

	<p>finished. He also asked the Forum to consider the Board's recommendations on the NPS.</p>	
<p>2010-2012</p>	<p>Land and Water Forum was made up of a range of industry groups, environmental and recreational NGOs, iwi, scientists and other organisations with a stake in fresh water and land management.</p> <p>The Forum produced three consensus reports which were widely consulted on. In September 2010, the Forum recommended that:</p> <p>The government should:</p> <ul style="list-style-type: none"> • promulgate a National Policy Statement for fresh water quickly. The current draft as recommended by the Board of Inquiry is a basis to work from. • consider changes in the following areas of the current draft – <ul style="list-style-type: none"> – the references to Tangata Whenua roles and Māori values and interests – drafting changes to policy C1 to include reference to "mitigate" in achieving prescribed standards – policy E2 to clarify what contamination means in relation to the objectives – drafting changes to the transitional measures to correct a perceived vires problem. • consider promptly a set of issues which need further work. They include – <ul style="list-style-type: none"> – specific measures dealing with use and development – recognising the benefits of significant infrastructure – making environmental values more specific by adding an objective which protects the values of fishing, swimming and mahinga kai – providing for allocation efficiency. • deal with these issues through collaborative processes that consider a suite of national instruments (note: some Forum members think these issues should be addressed in the current NPS; others think they should be dealt with separately). <p>Minister for the Environment and Minister for Primary Industries said: 'progress on fresh water reform stalled for a decade because of highly polarised positions. The Land and Water Forum has done a great job bringing together farmers, environmentalists, industry and iwi to develop an agreed way forward. We are engaging the Forum to do further work on the complex issue of setting water limits and improving systems for allocation....There is broad agreement on the need to improve fresh water management as evidenced by the consensus on the 53 recommendations in the Forum's Fresh Start for Freshwater report. This next phase of work will help underpin the newly</p>	<p>A National Policy Statement on Freshwater was put in place on 1 July 2011 requiring Regional Councils to set limits on both water quality and quantity. New funds have been established to support sustainable irrigation projects and the clean-up of polluted rivers and lakes.</p> <p>The Land and Water Forum was engaged by the Government to progress the next stage of policy work on setting limits on water quality, quantity and allocation. '...national level collaboration under the Forum has also helped drive community initiatives in Rotorua, Manawatu, the Mackenzie and in Selwyn to improve water management.</p> <p>The Government agreed to provide an additional \$1.1 million to advance the next stage of work. The Forum is to report to Government by May 2012 on methods, tools and governance arrangements for setting limits for water quality and quantity and by November 2012 on methods and tools on allocation.</p> <p>In March 2012: Nearly \$8 million in funding made available for cleaning up polluted water bodies: 'New Zealand generally has clean rivers and lakes, but poor management over many years in a number of lowland catchments needs to be addressed. The Manawatu is New Zealand's most polluted river, and the Wairarapa lakes, Waituna and Wainono Lagoons are among our most contaminated from excessive nutrients. These are nationally-significant water bodies where the resources to clean them up are beyond the capacity of local councils. Government is prepared to help where rules have been put in place to prevent ongoing pollution and where there is the local commitment and co-operation to restore the river, lake or lagoon. The Government contribution of nearly \$8 million represents 21 percent of the total \$38 million being invested</p>

	<p>adopted National Policy Statement on Freshwater and progress the important details on the Forum's earlier recommendations.'</p> <p>'The Fresh Start for Fresh Water fund is enabling a nationwide increased investment in cleaning up rivers and lakes ... The commitments from this Government for our first four years on these clean-ups total \$101.3 million and compares to \$17.7 million in the preceding four years. This is a more than fivefold increase and indicates the importance the Government puts on improving fresh water. The Government's approach of cross sector collaboration, greater involvement of iwi, clearer rules and increased funding is delivering real gains in improving New Zealand's fresh water management'</p>	<p>in cleaning up these four water bodies. These clean-ups are part of the Government's broader Fresh Start for Fresh Water programme of work to improve New Zealand's fresh water management, involving the Land and Water Forum and the Iwi Leaders Group. Other work includes a new National Policy Statement under the Resource Management Act on fresh water that requires councils to set limits on pollution and water extraction and a fund to support sustainable irrigation projects.'</p>
2011	<p>Controller and Auditor-General: Managing fresh water quality: Challenges for regional councils¹⁷</p> <p><i>'how fresh water should be managed is characterised by many strongly held and potentially conflicting opinions ... we have reasons to be concerned about fresh water quality in some parts of the country, particularly in lowland areas that are mainly used for farming ... the cumulative effects of "non-point source" discharges are now the most difficult challenge for regional councils in managing fresh water quality. Non-point source discharges include nutrients, chemical pollutants, sediment, and bacteria'</i></p>	<p>Recommendation that:</p> <p>All regional councils and unitary authorities:</p> <ol style="list-style-type: none"> 1. Review methods for reporting results of fresh water monitoring to ensure that the methods: <ul style="list-style-type: none"> - compare the fresh water quality monitoring results with (ideally, specific, measurable, achievable, relevant, and time-bound) plan objectives, limits, and standards where possible and with guidelines where necessary; - say whether fresh water quality is getting better or worse; outline probable reasons why fresh water quality is in the condition that it is; and - discuss what the council and the community are doing, or can do, to remedy any problems; 2. Set up stronger links between fresh water quality monitoring results and how they measure the effectiveness of their policies for maintaining and enhancing fresh water quality; and 3. Meet the requirements of sections 35(2)(b) and 35(2A) of the Resource Management Act 1991 to monitor the effectiveness and efficiency of the policies, rules, or methods in their policy statements and plans, and to compile and make the results of this monitoring available to the public at least every five years. <p>And that the Ministry for the Environment:</p> <ol style="list-style-type: none"> 4. Provide guidance on what is expected from regional councils to meet the requirements of sections 35(2)(b) and 35(2A) of the Resource Management Act 1991.
2011	<p>Auditor-General reviewed the proposed governance arrangements for the provision of fresh water to New Zealand's largest city. The Auditor-General noted that the governance arrangements established between the newly amalgamated Auckland City Council and Watercare are likely to meet the AG's expectations.</p>	<p>Auckland City Council's letter of expectations was intended to guide Watercare's strategic direction. It ranges broadly from high-level expectations (such as the "one Council" and "no surprises" policies, transparency, and fiscal prudence) that define the relationship with the Council and the behaviour required of a public entity to more operational matters and detailed expectations for the Statement of Corporate Intent. It sets out the parts of the draft Annual Plan with which Watercare must act consistently – a list of key strategic projects relevant to Watercare – and identifies strategic priorities that support the Mayor's vision for Auckland:</p>

¹⁷ Controller and Auditor-General. (2011). *Managing freshwater quality: Challenges for regional councils*. Wellington: Office of the Controller and Auditor-General.

		<ul style="list-style-type: none"> • Focusing on demand management, conservation, environmental quality, and sustainability initiatives, including reducing pollution in harbours; • reviewing options for wastewater treatment in outlying communities; and • "working with people" about unpaid accounts, rather than taking punitive action. <p>Auckland City Council has set up the following institutional arrangements:</p> <ul style="list-style-type: none"> •The Accountability and Performance Committee (a committee comprising all councillors) reviews the performance of Watercare and the CCOs quarterly. •The CCO Strategy Review Sub-committee, chaired by the Mayor, is a sub-committee of the Accountability and Performance Committee and is responsible for reviewing and commenting on CCOs' draft SCIs and Statements of Intent (SOIs). •A panel for appointing directors to the Watercare board, comprising the Chairperson of the Watercare board, two councillors and the chief executive of the Council, makes recommendations to the CCO Strategy Review Sub-committee. •There are bi-monthly meetings between the Mayor and the Chairperson and chief executive of Watercare (and each CCO). <p>The Auditor-General expects a framework for governance and accountability that:</p> <ul style="list-style-type: none"> •Reflects the importance of Watercare to Auckland and to the Council; •enables councillors to pursue their political interest in the Watercare business openly and transparently; •offers opportunity for genuine engagement between the Council and Watercare, at appropriate intervals and at the appropriate level of seniority, on the Council's strategy and priorities and on Watercare's business performance and risks; •enables adequate consideration of Watercare's draft SCI and its draft asset management and funding plans; •complies with the relevant legislation; and •does not impose a "compliance burden."
9 May 2011	<p>Minister for the Environment (Nick Smith) promulgated a National Policy Statement for Fresh Water Management 'giving clear direction to councils on the importance of improving New Zealand's fresh water management. It requires councils to set limits on fresh water quality and the amount of water that can be abstracted from our rivers, lakes and aquifers. New Zealand's fresh water resources are among the cleanest and most abundant of anywhere in the world but problems are developing in our quality and quantity in some areas. We need to get better rules in place so we don't end up having to fund major clean ups on rivers like the Waikato and lakes like Rotorua and make more efficient use of water for irrigation and electricity. The development of this policy involved extensive public submissions in 2009, the report of the Board on Inquiry in 2010 and the final report of the Land and Water Forum in April 2011. There is a broad consensus from all water stake-</p>	<p>The National Policy Statement for Fresh Water Management was Gazetted on 12 May and took effect on 1 July 2011. It is designed to impact upon all decisions on policies, plans and individual resource consents by councils and the Environment Court by recognising the value of fresh water to New Zealand and giving stronger national direction to councils.</p> <p>The NPS contains objectives and policies to provide direction on water quality, water quantity, integrated management and tāngata whenua interests. Its major thrust, the setting of limits for both water quantity and quality.</p> <p>Cabinet agreed in June 2009 that most water bodies will provide for most 'public values' and some level of use, which may impose constraints on economic development and land use; relatively few water bodies being highly protected in a natural state; and very few water bodies being degraded if it is agreed that the economic benefits are sufficient to outweigh the other costs.</p> <p>The NPS includes objectives that set a bottom line for water quality: that water quality should be maintained or improved within a region, while providing for economic growth, social</p>

	<p>holders of the urgent need for this NPS. The final policy reflects the Bluegreen emphasis of this Government balancing economic growth with improved environmental management. The Government acknowledges this policy announcement is just a first step in the complex process of improving fresh water management. We want to build on the constructive co-operation that has been developed with the Land and Water Forum on the additional measures to support its implementation. We are also committed to monitoring improvements in fresh water management from the NPS and reviewing its effectiveness within five years as the complete package of reforms is rolled out.</p>	<p>and cultural well-being. The objective recognises that there are a small number of outstanding water bodies that should be protected. It recognises that degraded water bodies should be enhanced, although the quantum of enhancement and the timeframe involved will vary. This will be identified by regional councils in a target setting process at a catchment scale. The objective also recognises that a bottom line of at least maintaining water quality everywhere is not possible. It allows for some variability in terms of water quality as long as the overall water quality is maintained in a region. Essentially it allows for offsets within a region, including between catchments.</p>
31 May 2012	<p>Parliamentary Commissioner for the Environment Jan Wright released a report titled: Hydroelectricity or wild rivers? Climate change versus natural heritage.</p> <p>Minister of Conservation (Kate Wilkinson) and Minister for the Environment (Amy Adams) said that they will consider the challenges this report makes to law makers to think about issues such as the trade-offs between renewable energy and wild and scenic rivers but ‘sometimes it is two positive environmental priorities – like conservation values and the obvious benefits of renewable energy – that can be in conflict’.</p> <p>http://www.beehive.govt.nz/release/ministers-consider-pce-report</p>	
September 2012	<p>Minister for Local Government (David Carter) and Minister for the Environment (Amy Adams) confirmed that Environment Canterbury Commissioners would continue to govern Environment Canterbury beyond the 2013 local authority elections.</p> <p>‘In the interests of Canterbury’s progress, and to protect the gains the Commissioners have made, the Government has decided the best option is to continue with the current governance arrangement ... In the face of enormous challenges, the Commissioners have done a great job of managing Canterbury’s vital fresh water and natural resources. We look forward to further progress for Cantabrians and the continued growth of the region’.</p> <p>http://www.beehive.govt.nz/release/environment-canterbury-commissioners-stay</p>	<p>A Bill will be introduced amending the Environment Canterbury (Temporary Commissioners and Improved Water Management) Act 2010, to extend Commissioner governance until the 2016 local authority elections, with a ministerial review in 2014.</p>
November 2012	<p>Minister for the Environment (Amy Adams) welcomed the effective start of new regulations that require for the first time significant water takes to be metered, as part of a wider programme to improve fresh water management. “We cannot manage what we do not measure. There is a major gap in our knowledge and it affects our ability to make good decisions and to effectively manage water”.</p>	<p>All significant water takes (more than 20 litres per second) must now be metered. Smaller water takes down to five litres per second will gradually be covered by the regulations so that by 2016, about 98 per cent of consented water will be measured.</p> <p>Consent holders will be able to use information on how much water they are using to identify costly inefficiencies in their systems, such as poorly-performing pumps, intakes and wells. This information is expected to enable savings in terms of water used, and energy costs, and may help avoid costly issues</p>

	<p>The regulations will be monitored and enforced by regional councils.</p> <p>http://www.beehive.govt.nz/release/water-measuring-allow-more-efficient-management</p>	<p>down the track by allowing problems to be identified and addressed before any serious difficulties with system performance occur.</p>
December 2012	<p>Fresh Start for Freshwater</p> <p>Minister for the Environment Amy Adams: ‘LAWF’s significant work over the last four years has provided a strong basis for improving New Zealand’s fresh water management system. The Government is now at the point of being able to advance fresh water reforms that have wide buy-in, consider the long-term impacts of the way we manage our fresh water resource and provide greater certainty for those that need reliable access to water. These reforms are about the Government supporting communities to make decisions, plan and set fresh water objectives and limits, and then meet the challenges over time of managing our land and water use within those limits. They are also about ensuring we recognise the rights and interests of iwi in fresh water.’</p>	<p>A key element of the immediate proposals is the introduction of a National Objectives Framework. Among other things, this means the Government would require that, for the first time, New Zealand waterways would need to meet a national bottom line to ensure they are a healthy place for fish and plant life, and that they are safe for recreational activities.</p> <p>The framework would ensure that councils have access to the best science, iwi values are understood and considered appropriately and fresh water objectives and limits are set in a consistent and well-targeted way.</p>
December 2012	<p>Resource Management Act review undertaken by Minister for the Environment, Amy Adams: Despite the fact that the Act has been tweaked at the rate of about one amendment bill a year since its creation, the Government continues to hear concerns that resource management processes are cumbersome, costly and time-consuming, and that the system is uncertain, difficult to predict and highly litigious. The system is difficult for many to understand and use, and in many cases, that lack of clarity is actively discouraging investment and innovation. Frustration with RMA processes is rife and time and time again I hear that they are failing to meet New Zealanders’ expectations. The costs and time of drawn out processes has real consequences. It is money and opportunities that New Zealand families and businesses are missing out on.</p> <p>The Government has already delivered significant improvements to the resource management system. Our first stage of reform involved 150 amendments to simplify and streamline the RMA and further reforms are currently before Parliament. However, to address the core issues with the resource management system, a more systemic review and programme of reform is needed.</p> <p>Last week, I released a discussion document that contains a comprehensive package of resource management reforms. Fundamentally, the reforms are about providing greater confidence for businesses to grow and create jobs, greater certainty for communities to plan for their area’s needs, and</p>	<p>Resource Reform Management Bill 2012, introduced in December 2012, is proposing reforms that would improve the resource management system by (inter alia):</p> <ul style="list-style-type: none"> • making the process that enables applications to bypass council decision-making and be directly referred to the Environment Court – known as ‘direct referral’ – more readily available for major regional projects • improving the evaluations of objectives, policies and rules in achieving the overall sustainable management purpose of the RMA, carried out under section 32 of the RMA. • improving national-level environment reporting.

	<p>strong environmental outcomes as our communities grow and change.</p> <p>The reforms within the package are divided into six core objectives:</p> <ul style="list-style-type: none"> •Greater national consistency and guidance •Fewer, better resource management plans •An effective and efficient consenting system •Better natural hazard management •Effective and meaningful Māori participation; and •Working with councils to improve their RMA service performance <p>Taken as a package, these reforms are intended to deliver a clearer, better, faster and lower cost resource management system for New Zealanders that meets our needs environmentally, socially and economically, now and into the future.</p>	
9 December 2012	<p>Minister for the Environment, Amy Adams</p> <p>‘It is time to get serious about how we use water in this country. It is a replenishable resource but a finite resource at a given time and place. We cannot manage what we do not measure. There is a major gap in our knowledge and it affects our ability to make good decisions and to effectively manage water. Studies suggest that water supports economic activity worth up to \$28 billion per year in New Zealand, and only a small improvement in efficiency makes an investment in improved information worthwhile. It has been estimated that a five per cent gain in efficiency would achieve a \$100 million benefit for the country.’</p>	<p>New regulations require for the first time that significant water takes be metered, as part of a wider programme to improve fresh water management. All significant water takes (more than 20 litres per second) need to be metered. Smaller water takes down to five litres per second will gradually be covered by the regulations so that by 2016, about 98 per cent of consented water will be measured.</p> <p>Consent holders will be able to use information on how much water they are using to identify costly inefficiencies in their systems, such as poorly-performing pumps, intakes and wells.</p> <p>The regulations are to be monitored and enforced by regional councils.</p>
March 2013	<p>Minister for the Environment (Amy Adams) and Minister for Primary Industries (Nathan Guy) today released the document <i>Freshwater reform 2013 and beyond</i>¹⁸ which outlines the Government’s proposed plan of action for improving water quality and the way fresh water is managed.</p> <p>‘The Government is now at the point of being able to advance fresh water reforms that have wide buy-in, consider the long-term impacts of the way we manage our fresh water resource and provide greater certainty for those that need reliable access to water. These reforms are about the Government supporting communities to make decisions, plan and set fresh water objectives and limits, and then meet the challenges over time of managing our land and water use within those limits. They are also about ensuring we recognise the rights and interests of iwi in fresh water. The key tenet of the Government’s proposals is that improving</p>	<p><i>Freshwater reform 2013 and beyond</i> outlines a clear path of reform ahead that will be addressed through a comprehensive and measured approach, starting in 2013. Immediate steps provide a suite of changes to strengthen and enhance the foundations of the fresh water management system.</p> <p>The proposals are portrayed by Ministers as consistent with and based on the Land and Water Forum’s (LAWF) recommended approach and gives effect to their core recommendations.</p> <p>A key element of the immediate proposals is the introduction of a National Objectives Framework. Among other things, this means the Government would require that, for the first time, New Zealand waterways would need to meet a national bottom line to ensure they are a healthy place for fish and plant life, and that they are safe for recreational activities. The framework would ensure that councils have access to the best science, iwi values are understood and considered appropriately and fresh water objectives and limits are set in a consistent and well-targeted way.</p>

¹⁸ Ministry for the Environment. (2013). *Freshwater reform 2013 and beyond*. Wellington: Ministry for the Environment.

	<p>our water management system will require solutions that start now and build over the long-term. There is no quick fix. Issues with our waterways have been building over a number of generations, and it is going to take a similarly long time to fully realise solutions for these issues.'</p> <p>Minister for Primary Industries said 'managing water more efficiently through irrigation has the potential to increase our agricultural exports by \$4 billion per year by 2026. To deliver this we need to allocate existing water more efficiently, and develop schemes that will store and distribute water for the benefit of both the economy and the environment.' http://www.beehive.govt.nz/release/government-releases-freshwater-proposals</p> <p>Parliamentary Commissioner for the Environment (Dr Jan Wright) said that proposed changes to fresh water management are much needed, but only if they are implemented properly. 'One thing I disagree with is the plan to allow Water Conservation Orders to be bound by regional plans. Water Conservation Orders exist to create a network of nationally protected rivers – regional councils should not be put in the position of deciding whether or not particular rivers are nationally outstanding.' http://www.beehive.govt.nz/release/ministers-consider-pce-report</p>	
May 2013	<p>Conservation Minister (Dr Nick Smith) and Environment Minister (Amy Adams) welcomed a report proposing a way to manage the contentious land intensification, water, landscape, and biodiversity issues in the Mackenzie Basin: 'The focus has been on investigating ways the biodiversity and special character of the land can be enhanced, while ensuring tourism and farming continue to develop.' http://www.beehive.govt.nz/release/shared-vision-mackenzie-basin-welcomed</p>	According to Ministers of Conservation and Environment, the Mackenzie Basin collaborative process was initiated in preference over protracted court proceedings for development proposals in the district.
26 June 2003	<p>A Bill that will help deliver a system that supports better planning decisions and creates a streamlined process for the first Auckland Unitary Plan has passed its second reading in Parliament tonight.</p> <p>Minister for the Environment (Amy Adams) says the Resource Management Reform Bill 2012 is part of a resource management reform package that will see further reforms introduced later this year. Her aim is to avoid the costs, uncertainties and delays of the current resource management system are affecting New Zealand jobs, infrastructure and productivity, and place an unfair burden on communities. 'There is too much uncertainty in the outcome of the process, and the impact of this is real.</p>	<p>Resource Management Act amended TBC to allow for:</p> <ul style="list-style-type: none"> •A six-month time limit on the council processing of medium-sized consents •A streamlined process for Auckland's first Unitary Plan •A stronger requirement for councils to base their planning decisions on robust cost-benefit analysis •Consent applications for major regional projects can be directly referred to the Environment Court more easily

	<p>Potential new jobs are not being created and communities are missing out on economic benefits. Resource management reform is a key part of the Government's Business Growth Agenda. We need a resource management system that provides good environmental outcomes, while still supporting economic growth, and is capable of adapting to changing values, pressures and technologies.'</p> <p>Minister for the Environment used Statistics New Zealand's Business Operations Survey to justify her concern that RMA processes are having a significant effect on business performance.</p> <p>According to the survey, businesses have blamed the RMA process for the cancellation of projects potentially worth more than \$800 million over the last two financial years.</p> <p>The uncertainty of the process had led to the cancellation of about two thirds of these projects.</p> <p>The survey also shows:</p> <ul style="list-style-type: none"> •Only 3 per cent of businesses said current RMA processes enhanced their business •430 businesses cancelled projects each worth more than \$100,000 due to RMA processes •Some businesses have spent up to 25 per cent of their total expenditure on applying for resource consents •More than half of resource consent applications are cancelled in the pre-application stage, mainly due to uncertainty and time delays •The vast majority of businesses feeling constrained by the RMA are small and medium enterprises <p>Ms Adams says the survey confirms what she had heard from businesses and communities during a series of RMA consultation meetings throughout the country.</p> <p>http://www.beehive.govt.nz/release/survey-backs-resource-management-act-reforms</p>	
9 July	<p>The Prime Minister (John Key) and Minister for Primary Industries (Nathan Guy) launched the dairy industry's new <i>Strategy for Sustainable Dairying 2013-2020: Making Dairying work for everyone</i>.</p> <p>Dairy NZ (Chairman John Luxton) said that 'Making Dairy Farming Work for Everyone' is aimed at enabling farmers to build economically sustainable businesses alongside a strong focus on environmental actions. 'The size and scale of our industry demands that we have a new plan for farming competitively and responsibly. And that is what this new strategy is all about.'</p>	<p><i>Sustainable Dairying 2013-2020: Making Dairying work for everyone</i> was developed by industry body DairyNZ, in partnership with the Dairy Companies Association of New Zealand (DCANZ), the Federated Farmers of New Zealand dairy section and the Dairy Women's Network. It sets out 10 objectives including proactive environmental stewardship and wise use of natural resources, providing a world-class on-farm work environment and ensuring talented people are attracted to the industry.</p> <p>Milk production in New Zealand has grown 47 percent in the last ten years and reached 1.7 billion kilograms of milksolids in 2012. Twenty-one percent of New Zealand's grasslands are now used for dairy farming. With over \$13 billion in dairy</p>

		<p>exports in 2012 and a \$5 billion contribution to national Gross Domestic Product, the dairy industry employs 45,000 people.</p> <p>The Sustainable Dairying: Water Accord is a new, broader and more comprehensive commitment than the previous Clean Streams Accord that ended in 2012. It includes commitments to targeted riparian planting plans, effluent management, comprehensive standards for new dairy farms and measures to improve the efficiency of water and nutrient use on farms. It contains a new set of national good management practice benchmarks aimed at lifting environmental performance on dairy farms has been agreed between DairyNZ and dairy companies, with the support and input from a wide range of industry stakeholders including Federated Farmers.</p>
10 July	<p>Minister for the Environment (Amy Adams) and Minister for Primary Industries (Nathan Guy) finalise first stage of an action plan to improve water quality and the way fresh water is managed. Ministers hope that ‘getting agreement upfront in the planning process will mean fewer debates and less litigation further down the track, which will ultimately save time and money, and lead to better overall outcomes.... improving our water management system will require solutions that start now and build over the long-term. There is no quick fix.’ Ministers decided not to progress plans to review how Water Conservation Orders work with regional planning.</p> <p>The Government has also decided to improve the way in which iwi/Māori engage in fresh water planning, no matter whether councils decide to choose the collaborative option or the existing process. Government will work closely with regional councils to provide guidance and other support to help them implement the changes.</p>	<p>The Freshwater reform 2013 and beyond policy confirmed by Cabinet, following more than 50 meetings throughout the country with councils, iwi, environment groups, businesses and the public and hundreds of submissions creates ‘a new fresh water collaborative planning option which will give communities and iwi a greater say in planning what they want for their local waterways and how they should be managed’. This means that rather than a council drafting a plan and then asking for comment, a representative group of stakeholders drawn from the community will be able to work together on a plan. Councils will not be completed to choose a collaborative approach, however feedback on the fresh water proposals.</p> <p>Other parts of the immediate steps for the fresh water reforms include the creation of a National Objectives Framework (NOF) and better water accounting. Legislative amendments are planned to facilitate the introduction of the NOF. Detailed scientific work on populating the NOF is continuing and a further period of consultation will be carried out before final decisions on the design and detail of the NOF are made.</p> <p>Still to come over the next few years:</p> <ul style="list-style-type: none"> •Rules and tools to support the improved planning system and the National Objectives Framework •A review of the Water Research Strategy across the whole of Government •National direction and guidance on accounting for sources of contaminants and the use of models for nutrient budgeting •National guidance on dealing with over-allocation, transition issues, and compliance and enforcement; and •More work on allocation of water on expiry of permits, the transfer and trade of water, and incentives for efficient water use
7 November 2013	<p>Minister for the Environment (Amy Adams) and Minister for Primary Industries (Nathan Guy) released national water standards as part of their ongoing reform of fresh water policy. ‘Ensuring an on-going and reliable supply of healthy water is one of the most important environmental and economic issues facing New Zealand today. It is critical that we protect and improve the water quality that we all care so much about.’</p>	<p>A discussion document seeks feedback on the Government’s proposals for:</p> <ul style="list-style-type: none"> •a national framework to support communities setting fresh water objectives •explicit recognition of tangata whenua values for fresh water •ecosystem and human health as compulsory values in regional plans •bottom lines for ecosystem and human health that apply everywhere, and restricted grounds for exceptions to bottom lines; and

		<ul style="list-style-type: none"> •requiring councils to account for all water takes and contaminant discharges <p>More than 60 fresh water scientists from public, private and academic sectors across New Zealand have come up with numeric values proposed for national bottom lines for fresh water.</p>
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* Except where specifically referenced otherwise, all information contained in this table is extracted from Beehive press releases and speeches found at www.beehive.govt.nz

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