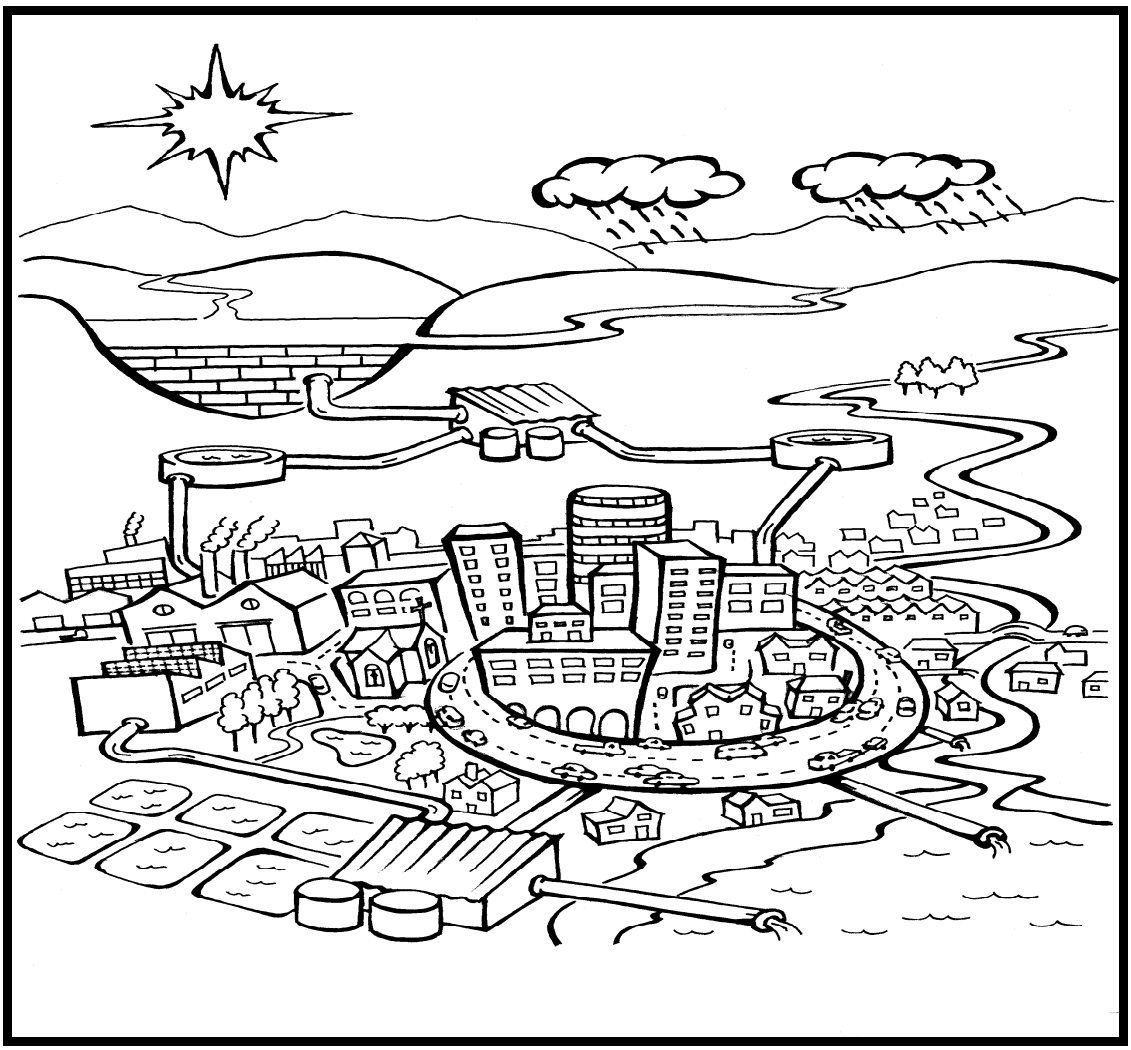
WHOSE WATER IS IT?

The Sustainability Of Urban Water Systems On The Kapiti Coast



Office of the
Parliamentary Commissioner for the Environment
Te Kaitiaki Taiao a Te Whare Pāremata

May 2001

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P r e f a c e

Fresh water is fundamental to life – all terrestrial life. Maintaining access to clean water is crucial to the survival and development of all communities, towns and nations – in agriculture, industry and urban contexts. Because fresh water is so important there is a major worldwide focus on its supply and quality. This is being driven by what many communities, agencies and nations are calling the "impending water crisis". So what is the relevance of international concerns to New Zealand and specifically the Kapiti Coast? Isn't New Zealand water rich? Isn't any local shortage simply a matter of reaching out to new sources? Unfortunately the reality is not quite that simple. Yes, parts of our country have an abundance of water but other areas have a limited supply. With climate change the extremes of abundance and scarcity are predicted to be amplified.

It is local scarcity, greater variability in supply (rainfall), more people needing water, and high usage that has created the Kapiti Coast's own water crisis; and that is a microcosm of what is being played out around the world. Different drivers, different constraints but a common need to treat water as a precious limited resource and to manage it more efficiently for food supply, economic, public health and environmental imperatives.

This investigation arose out of concerns about a proposal to augment the southern Kapiti Coast's water supply via a pipeline from a wellfield in the Otaki River. My team and I have investigated the concerns from the perspective of how a community (the whole of the Kapiti Coast) manages its water needs and wants within an ecologically sustainable management framework. That is approaching water supply, wastewater disposal and stormwater management as part of a highly integrated whole that involves landuse planning, community participation, public health needs, innovative technology, infrastructure capital implications, valuing, pricing and charging for water, the ecological health of supplying, and receiving environments and so on. I recently discussed this perspective in a New Zealand-wide context in two reports on investigations into urban water systems: *Ageing Pipes and Murky Waters Urban Water System Issues for the 21st Century (June 2000) and Beyond Ageing Pipes Urban Water Systems for the 21st Century (April 2001)*.

How communities manage water, and most other resources is ultimately governed by how they "see" the needs and issues and in what timeframe. For me this study has become one of grappling with how the various players see the "water issue". Parts of the community (Maori and pakeha) are intensely interested in various dimensions of the sustainability of water supply, impact on river ecologies and even who water belongs to. The focus is longer term but there are real inconsistencies – such as a desire for a more sustainable water system but no desire to pay in a transparent, fair way for that supply. This dichotomy of interests in turn appears to have constrained the capacity of successive councils to improve security of supply via a whole suite of measures (more efficient use, conservation, reuse) including new sources of supply.

Of real concern to me is a culture within the Kapiti Coast District Council (KCDC) that appears to be a fundamental constraint to enhancing the sustainability of urban water systems on the Kapiti Coast. This is a culture that seems to focus more on why something might not be possible rather than on the art of the possible. In saying this I fully acknowledge there are legislative and political barriers to some sustainable water management options, but nothing that should deter an innovative council from working closely with its community and collectively building a vision and goals for sustainable urban water systems. This is not specific criticism of the incumbent team at KCDC. Rather, I suspect it is a product of a decade of rapid growth and development, a short electoral cycle, and the lack of a clear central government focus on water as a national strategic asset. (Note: we have a Minister of Energy and Transport but not water). The result is a plethora of water "components" such as public health requirements, fire fighting needs and environmental bottom lines (minimum flows) driving actions in a tension-laden way. In this tough socio/political/legislative environment it is hard to take a holistic, fully integrated, long-term approach to water management. Hard but not impossible, as Auckland has shown with its growth strategy and Waitakere City with its urban development efforts. KCDC has made a start on a 50-year water strategy. The challenge now is for all players to focus on the long-term needs and solutions, to focus on the art of the possible - not the barriers, with community and KCDC investing heavily in consensus building and fully understanding process issues. Community members need to

appreciate that there are both environmental and financial bottom lines in the waters' world. In turn, councils need to focus on empowering their citizens to help deliver solutions that meet both realities – recognising that, in the end, environmental realities are where the ultimate "bottom line" lies.

In my view all parties need to recognise that, for a number of reasons the southern Kapiti Coast probably does need to augment its water supply from another source. However, this augmentation must be imbedded in a long-term water/wastewater strategy as proposed; a strategy that has a short, medium and long-term commitment to increasing the efficiency of all water use. This has to include rapid implementation of flow-based charging systems, local "topping up" of building code requirements (pending changes in national legislation – a chance for Kapiti to be a leader) and exploration and implementation over time of all local catchment/reuse options. Options such as reuse should not be sidelined because of public health challenges; such challenges must and can be addressed – many other communities around the world are doing so.

Finally, I wish to thank all who have contributed to this study. My team and I acknowledge that KCDC feels it is the "meat in the sandwich" but we trust that the views and recommendations drawn together in this report, plus those in our two other recent nationwide water studies, provide some small building blocks on which iwi, the wider community and KCDC can advance the sustainable development of the Kapiti Coast and specifically the sustainable management of its precious waters.

Dr J Morgan Williams
Parliamentary Commissioner for the Environment

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Introduction

The provision and management of water supply and management of water consumption has been a significant issue on the Kapiti Coast for many years now. Demand exceeds capacity in peak demand periods, leading to demands both for increased water supply and for increased efficiency of the water use. In this context, there has been a strong focus on providing a supplementary water supply for Waikanae, Paraparaumu and Raumati culminating in the Kapiti Coast District Council (KCDC) choosing the Otaki Wellfield and Pipeline proposal as the preferred option.

Acting on this decision, KCDC has applied to the Wellington Regional Council (WRC) and KCDC for resource consent for a "Supplementary Water Supply Project" (SWSP). This is also known as the Otaki Wellfield and Pipeline proposal and will involve taking limited amounts of water at limited times from bores beside the lower Otaki River and piping it to Waikanae for treatment and distribution to Waikanae, Paraparaumu and Raumati. The SWSP is planned to operate when the maximum consented take set by the WRC is not available from the Waikanae River, because of restrictions due to low flows, other special circumstances such as contamination, or when demand exceeds the maximum consented take. The resource consent application is for a gradually increasing water-take matched to population and usage over a period of 35 years. The water will be abstracted from six production bores on the south side of the Otaki River and piped to the Waikanae Water Treatment Plant. The proposed water-take is well within the allocation and minimum sustainable flows for the Otaki River, set by the WRC in the Regional Freshwater Plan.

Tangata whenua and some parts of the Kapiti community are opposed to the Otaki Wellfield and Pipeline proposal proceeding. As a result, in September 2000 prior to the resource consent applications being lodged, the Parliamentary Commissioner for the Environment (PCE) received a letter from Te Runanga O Raukawa (TROR) expressing concerns about KCDC's proposal to go ahead with the Otaki River wellfield and pipeline proposal to supplement the water supply of Paraparaumu, Waikanae and Raumati (see Appendix 1). The concerns include the following:

- the lack of an integrated approach to water management in Kapiti;
- the need to examine water conservation and metering in more detail;
- uncertainty over the future of the Otaki River and the potential for negative impacts on the mauri of the river;
- the potential for ecological impacts if the water-take keeps increasing; and
- the mixing of waters between catchments.

TROR requested that the PCE *"initiate an inquiry under section 16(1)(b) of the Environment Act into the water management issues in the Kapiti Coast as they relate to water supply, water conservation, water allocation and the ecological protection of the Otaki River and environs"*. TROR considered that the purpose of the inquiry should be to *"advise KCDC and WRC on how an integrated ecosystem based water management regime can be established for water supply and environmental protection purposes with effective participation from tangata whenua and the communities of interest in the affected Council area"*.

After an initial review of the TROR representations and additional material provided by KCDC, it was decided to undertake an investigation at the strategic level into the management of sustainable urban water systems on the Kapiti Coast in the light of the criteria set out in the recently released PCE report "Aging Pipes and Murky Waters: Urban water system issues for the 21st Century".

This report sets out the findings of that investigation.

Background

Purpose of PCE Investigation

In carrying out this sort of investigation under the Environment Act 1986, the focus is on the performance of the system of agencies and processes established by the Government for managing the allocation, use and preservation of natural and physical resources. The PCE's interest in the system is not in securing compliance with the law for its own sake but in ensuring that the legislative system and the practice of public authorities benefits the environment.

The functions given to the PCE under the Environment Act 1986 enable investigation of matters in dispute between correspondents and public authorities when there are grounds for suspecting that environmental harm has occurred or is likely to occur. The outcome of an investigation is a report providing assessments and advice on the effectiveness of statutory processes and the performance of administering authorities. The PCE has no power to overturn any decision of a public authority or to direct a public authority to act in any particular way. For this reason, investigations into citizens' concerns are unlikely to achieve the specific outcomes sought by correspondents.

However, by investigating the concern, or by gathering information about similar concerns or about the performance of particular public authority, the PCE may identify a wider issue with significant environmental implications. In this case, the wider issue, the sustainability of urban water systems is already an area of strategic interest for the PCE and this concern is a practical example of the issues raised.

In addition to investigating the wider environmental issues raised by the initial concern, the PCE also, wherever possible, seeks to act as an information provider and facilitator. The aim is to raise issues, disseminate information on environmental management, facilitate greater levels of understanding and ensure that interested parties can access relevant information.

Pursuant to section 16(1)(b) of the Environment Act, the purpose of this investigation is to **assess the effectiveness of environmental planning and management carried out by KCDC in respect of the sustainability of the urban water systems in the Kapiti District.**

Terms of Reference

The terms of reference are:

1. To identify the key issues with respect to the sustainability of urban water systems on the Kapiti Coast and assess the effectiveness of planning thus far;
2. To facilitate a dialogue between tangata whenua, community groups and councils on the sustainability of urban water systems on the Kapiti Coast; and
3. To report the outcomes of the investigation to the stakeholder groups by 31 March 2001.

The investigation will focus on a practical application of the principles, outcomes and criteria outlined in the Ageing Pipes report in the context of the sustainability of urban water systems in the Kapiti District.

What this Investigation is NOT

The investigation is not intended to be a review of the SWSP itself. The focus of the investigation is the strategic context of water management on the Kapiti Coast, which is considerably broader than a specific project such as the SWSP. As a matter of policy, the PCE does not express judgements on matters while they are subject to investigation and review by other authorities, be it under the Resource Management Act 1991 (RMA) or any other Act. The PCE does not have any statutory powers which would allow him to instruct KCDC as to whether or not it should proceed with the Otaki Wellfield and pipeline proposal. The PCE's role in the context of the current resource consent application process is essentially independent.

This investigation is also not an audit of the consideration of options for the SWSP. Consequently no analysis of the adequacy of the investigations into the alternate options has been carried out. In addition, given that this investigation is not an audit of the consideration of alternate options, there has been no analysis of the alternate options proposed by tangata whenua and the various community groups.

Finally this investigation is not an in-depth assessment of KCDC's fulfilment of its obligations to tangata whenua under sections 6, 7 and 8 of the RMA. Nor is it an in-depth assessment of the effectiveness and approach taken by KCDC to its interactions and relationships with other parts of the Kapiti community.

Previous PCE Investigations

The PCE has carried out two previous investigations into the effectiveness of the environmental planning and management undertaken by KCDC which also touch upon water supply issues (PCE 1991 and PCE 1995). This investigation is not directly comparable to those investigations because its focus is on an approach to the sustainability of urban water systems that was not under consideration at that time. However, some of the findings made at that time are still relevant.

The 1991 report included an examination of the environmental outcomes of KCDC actions and decisions in respect of water supply/conservation with the aim of identifying constraints to the effectiveness of the management and planning and offering advice on remedial actions. That report discussed the need for a supplementary water supply for Waikanae, Paraparaumu and Raumati and, made recommendations related to developing a strategy for meeting present and future urban water demand and to allocating sufficient resources to ensure water conservation programmes. Progress has certainly been made since that report but some of the issues are not entirely resolved and are therefore the subject of this report as well.

The 1995 report reviewed the progress made by KCDC on water supply and sewage treatment since 1991. It noted that KCDC had accepted and implemented many of the recommendations made by the PCE in the 1991 report and made some recommendations suggesting further refinements.

A third PCE report, "Kaitiakitanga and Local Government: Tangata Whenua Participation in Environmental Management" (PCE 1998), is also relevant to some of the issues covered in this report. In particular it relates to the concerns expressed by Te Ati Awa ki Whakarongotai from Waikanae about the impact of various KCDC initiatives on the environment including the

Otaki wellfield and pipeline proposal and also to the difficulties experienced in establishing a working relationship with KCDC.[1]

Methodology

The methodology used to carry out this investigation comprised the following:

- a review of a substantial amount of relevant literature including information and reports provided by KCDC, WRC, TROR, Te Ati Awa ki Whakarongotai and various interested parties;

- consultation and interviews with a wide range of interested parties and representatives of KCDC and WRC; and finally

- comparison of the existing situation on the Kapiti Coast with planning for the future using the principles for sustainability of urban water systems set out in the Ageing Pipes and Murky Waters report (PCE 2000) and the Beyond Ageing Pipes report (PCE 2001).

From the outset, the investigation team was aware that many community groups were interested in water supply on the Kapiti Coast and in the proposed Otaki River wellfield and pipeline. Meetings were held with as many of these groups as was logistically feasible. There was also extensive consultation with tangata whenua. KCDC provided a list of groups that had indicated an interest in water supply so these were the groups that were initially contacted. Once the team had met with these groups, other people/groups were recommended for consultation. Most of the meetings were conducted during November and December 2000 with some in January 2001. A list of the groups consulted can be found in Appendix 2.

A draft report was initially released on 27 February 2001 to TROR, Te Ati Awa ki Whakarongotai, KCDC and WRC for their consideration and subsequently to the wider group of people consulted with on 14 March 2001. Feedback on the draft report was received from:

- KCDC;
- WRC;
- Kapakapanui of Te Ati Awa Ki Whakarongotai;
- Regional Public Health;
- Lowell Manning;
- Kapiti Environmental Action; and
- The Waikanae Progressive and Ratepayers Association.

The issues raised in the various submissions on the draft were considered carefully and incorporated where considered appropriate.

[1] Page 57 PCE 1998.

Management of Sustainable Urban Water Systems

Over the last twelve months, the PCE has carried out an investigation into the sustainability issues and significant risks affecting the management of urban water systems in New Zealand. The investigation has consisted of three phases: a discussion paper "Ageing Pipes and Murky Waters: Urban water system issues for the 21st Century" (PCE 2000); an analysis of submissions on that paper; and the final report "Beyond Ageing Pipes: Urban water systems for the 21st Century" (PCE 2001) which sets out findings and recommendations. The findings of this investigation establish the framework used to analyse and evaluate the current situation with regard to the management of urban water systems on the Kapiti Coast.

Urban water systems are defined as "the natural, modified and built water systems that exist in towns and cities".[2] These systems are interconnected and interact in both positive and negative ways. The functions provided by the built system of water supply, wastewater and stormwater infrastructure are commonly referred to as water services.

Water is central to all life and access to water is a basic human right. Natural water systems provide ecosystem services, maintain the 'health' of streams and rivers, provide habitat for flora and fauna, water for urban water supplies, wastewater assimilation, amenity values, and are used for a range of recreational purposes. Built water systems supply potable water, safeguard life and property from flooding, and remove, treat and dispose of waste.

An important but often unrecognised dimension of the urban water cycle is the provision of ecosystem services. Ecosystem services are the functions carried out by nature that maintain, for example, water, carbon, and oxygen cycles, which in combination with a vast array of other ecological functions, support life. Towns and cities directly and indirectly benefit from ecosystem services such as water supply and waste assimilation. Increased recognition and understanding of the role of the many ecosystem services is required and the value of these services needs to be factored into decision-making.

All members of the community value water for its practical usefulness, for drinking, food production, transportation, recreational activities and its spiritual and cultural significance.

For Mäori, water is also a taonga for its spiritual and metaphysical properties, and is central in ritual and healing processes. These levels, the practical and the spiritual, are bound together within the mauri or life-force, which empowers all living things and is integral to the mana and lifeblood of iwi, hapu and whanau. Water bodies have their own mauri as ancestors of the tribe. Their metaphysical significance, and their physical presence and special character, are key elements in establishing and maintaining the identity, mana, whakapapa and turangawaewae of iwi, hapu and whanau. The close identification of tangata whenua with their rivers, lakes, streams and wetlands is reflected in the words of waiata, whaikorero and whakatauki.[3] Such practices as diverting and combining waters from different sources or catchments, or discharging water that contains or has contained human, animal, toxic or industrial wastes into another body of water, both degrade and damage the mauri of the water, and are offensive to tangata whenua.

[2] Summary of PCE 2000.
[3] Page 11 PCE 2000.

The PCE urban water investigation highlighted a range of issues related to urban water systems. The importance of water to human health, community well-being, economic development and ecological systems ensures that management of this resource is very complex and of major strategic importance. In New Zealand we think of ourselves as water rich. At a national level we are, with some areas of very high rainfall and extensive ground water reserves. But often water is not super abundant in our urban areas. Shifts in rainfall patterns indicate greater variability of supply in the future, and our per capita demands tend to still be rising, stressing supply and delivery systems, and taxing treatment capacity.

While the management of water resources is extremely complex in terms of ecology and the water cycle, institutional arrangements, and associated legislative regulations, local government has, for decades, kept existing systems going, expanding where necessary and cautiously innovating. However, until recently, there was a widespread tendency to under-invest in the main parts of the systems - the pipes and treatment plants. Rising demand, higher potable water standards and stricter discharge conditions are now forcing the pace for more investment in water systems. There has also been a tendency to see water supply and water borne waste disposal systems as distinct entities rather than as part of an integrated system.

How to fairly generate the needed capital to maintain and further develop delivery and treatment systems and to address urban stormwater, is now an essential part of the debate about how to meet community and industry needs in coming decades. From this overarching question of how best to fund water supply and treatment systems, proceeds a whole host of very vexing issues that, unless substantially addressed, will cripple water management in coming years. The suite of issues includes matters of ownership, pricing, equity, business models, legislative impediments, design imperatives (i.e. meeting health and fire requirements) and adequacy of integration of water services.

Progressing water management, (defining progress as the use and treatment of all waters in a more ecologically sustainable manner, with the true value of supply and treatment reflected in prices), now necessitates leadership, community engagement and ongoing provision of information and innovation. Some deep-seated beliefs and ideologies about the management of urban waters need to be unpicked if security of supply is to be assured. As the water investigation identifies, the debate on what sustainable urban water systems will look like in New Zealand is just starting.

One way of illustrating what sustainable urban water systems might look like, is to make a comparison between the characteristics of traditional urban water systems (which by and large is what currently exists) and the characteristics of more sustainable urban water systems.

Traditional urban water systems[4] have the following characteristics:

- meet increasing water demand by building more dams and pipelines;
- provide few incentives to reduce water use;
- utilise large pipe networks and treatment systems to meet increasing waste water and stormwater loading from urban growth;
- depend on ecosystem services always having spare capacity to absorb stormwater and effluent discharges from pipe and treatment plant systems;
- do not maximise opportunities for water recycling and reuse; and

[4] PCE 2000.

- give highest priority to the views and values of designers, builders, owners and operators of pipe network and treatment systems.

More sustainable urban water systems[5], in ecological, social and economic terms, have the following characteristics:

- They are developed and operated in harmony with natural water cycles and water catchments.
- Integrated management and life-cycle approaches are used to manage these complex systems: they
  - aim to increase the efficiency of water use thereby reducing the need for new dams, pipelines, and treatment plants;
  - reduce wastewater by decreasing total potable water supply, reusing greywater and recycling biosolids from wastewater treatment plants; and
  - reduce stormwater through better site design, with reduction in proportion of impervious surfaces, onsite collection use, and retention of natural streams and waterways.
- Sufficient water flows are allocated to natural and modified systems to maintain ecosystem health.
- Water management and planning involves consultation with the whole community of interest including residential users, industry, agencies, tangata whenua, agriculture, and recreational users.
- Residents are guaranteed access to a minimum supply of potable water to maintain basic human health.

Beyond Ageing Pipes (PCE 2001) also sets out a set of **principles for guiding the management of sustainable urban water systems**. Sustainable urban water systems will require management that:

- adheres to the principles of sustainable development, ie ecologically sound, socially acceptable and economically viable;
- enables meeting the needs of present generations without compromising the needs of future generations to meet their own needs;
- Iis based on boundaries defined by natural water systems and natural hydrology with full recognition of the role and value of ecosystem services;
- takes into account water quantity, water quality, and the use and delivery of water in the most efficient manner while maintaining flexibility for future changes;
- assesses the public health, environmental and economic costs to the nation of a failure of the systems and recommends appropriate mitigation mechanisms;
- fosters use of innovative technologies that increases the efficiency of water use and creates opportunities to reduce, reuse and recycle;
- recognises and provides for the values of water, waterways and water bodies to tangata whenua, while fostering the involvement of kaitiaki through partnership, co-management and other practical approaches;
- recognises and incorporates the principles of the Treaty of Waitangi;
- co-ordinates the needs, goals and objectives of individuals, the community, and economic development while sustaining ecosystem requirements;
- takes into account land uses as they relate to water resources; and

[5] Page 2 PCE 2001.

- has well designed, yet flexible monitoring systems, that can detect cumulative effects and long term changes. [6]

While the debate may just be starting on what sustainable urban water systems will look like in New Zealand, a number of other countries are further ahead. There is a growing body of knowledge and experience in such countries as Australia and America[7] about how to actually implement sustainable urban water systems and about the benefits which can accrue from doing so.[8]

[6] Page 15 PCE 2001.
[7] An example is "California Water 2020: A Sustainable Vision".
[8] See Chapter 3 of PCE 2000 for further information.

Urban Water Systems On The Kapiti Coast

This chapter sets out the investigation's findings with respect to the current situation with urban water systems on the Kapiti Coast. Our analysis of the issues surrounding management of urban water systems on the Kapiti Coast compares and contrasts the current situation with the concepts and principles proposed in "Beyond Ageing Pipes: Urban water systems for the 21st Century"(PCE 2001). Refer to Chapter 3 for more information.

The Environment

The Kapiti Coast environment encompasses some 40 kilometres of coastal plain which rises steeply in the east to the Tararua Ranges. The Tasman Sea forms the western boundary. There are five main townships on the Kapiti Coast: Paekakariki, Raumati, Paraparaumu, Waikanae and Otaki. In a comparatively short space of time, Kapiti has changed from a series of holiday settlements and farming areas into a rapidly urbanised and popular district. Kapiti is the fastest growing district in the Wellington Region.

Water on the Kapiti Coast is sourced primarily from two key catchments, the Otaki River and catchment and the Waikanae River and catchment.

The Otaki catchment drains over 400km^2 of the western slopes of the Tararua Ranges, and extends from Mt Ashton in the south, along the southern ridgeline of the Tararuas to Mt Pukematawai in the north. Department of Conservation (DOC) manages much of the upper catchment within the Tararua Forest Park. The Otaki river is joined at Otaki Forks by two major tributaries, the Waitatapia and the Waitauru, and then downstream by a third tributary, the Pukeatua. On leaving the gorge the river flows over a coastal plain first within a flood plain defined by terraces and then through open pastoral land. It drains into the Tasman Sea through a shifting river mouth.[9]

Over the last 100 years the landscape of the Otaki River and catchment has changed significantly, largely due to extensive lowland native forest clearance on the surrounding hills and coastal plain between 1886 and the 1930s. The river has eroded its unprotected banks and reverted to its pre-forestation braided channel morphology.[10] The river is now prone to flooding which is managed by the WRC under the Otaki Floodplain Management Plan. Gravel extraction has also changed the nature of the river.

The Waikanae River flows from the western foothills of the Tararua Ranges. The upper catchment to the water treatment plant covers 125km^2 and is about 60% regenerating native vegetation and about 40% pasture. The river meanders through a diverse landscape that has changed considerably over time. Today it cuts through alluvial gravel before moving down through coastal dunes and sand at Otaihanga and the estuary to the sea. Over the last 100 years the landscape has changed significantly due to forest clearance on the coastal floodplain and in the upper catchment.[11]

[9] Page 11 of the WRC Otaki Floodplain Management Plan.
[10] Page 11 of the WRC Otaki Floodplain Management Plan.
[11] Page 12 of the WRC Waikanae Floodplain Management Plan.

The Legislative Framework

The management of water services i.e., water supply, water use, and wastewater and stormwater treatment and disposal is affected by various legislation. Generally this has been enacted to remedy or control specific problems and their effect on the urban water system is not co-ordinated.

The main pieces of legislation that affect water services are the:

- Health Act 1956 and Water Supplies Protection Regulations 1961;
- Local Government Act 1974;
- Conservation Act 1987;
- Rating Powers Act 1988;
- Resource Management Act 1991;
- Building Act 1991 and Building Regulations 1992 (The Building Code); and
- Health and Safety in Employment Act 1992 and Health and Safety in Employment Regulations 1995.[12]

Management of Urban Water Systems

On the Kapiti Coast, the two key agencies with statutory responsibilities that affect the management of urban water systems are the WRC and the KCDC.

Wellington Regional Council

The WRC has a number of roles which affect the management of sustainable urban water systems; in particular, regulator of overall integrated management of natural and physical resources including water and service provider for flood protection. WRC's approach to carrying out these roles is set out in a number of documents and implemented in a variety of ways. Relevant WRC planning documents include:

- Regional Policy Statement (operative May 1995). Produced under the RMA, the RPS sets out the significant resource management issues for the Wellington Region including objectives, policies and methods of implementation. It notes that the WRC has the primary role for managing the use of water and resolving conflicts that arise for water use. The key issues identified for freshwater include: poor water quality, expectations of tangata whenua, competing uses and values, demands of sustainable management, needs of future generations, loss of freshwater habitats and increasing use of water. The main method for managing use and allocation issues is the preparation of a Regional Freshwater Plan. Methods for managing efficiency and conservation of water use include placing conditions on resource consents and investigating consumption targets for uses such as irrigation, residential supply and leakage from closed pipe reticulation systems, in order to encourage the efficient use of water.[13]

- Regional Freshwater Plan (operative 17 December 1999). The WRC is responsible under the RMA for the sustainable management of freshwater, a function it carries out under the Regional Freshwater Plan. The Regional Freshwater Plan applies to all types of activities

[12] See page 5-9 of PCE 2000 for further information on what each piece of legislation does.
[13] Chapter 5 Freshwater of the RPS.

that use freshwater or that are in the beds of rivers and lakes. Activities covered by the plan include:

- discharges to fresh water
- the taking, using, damming, or diverting of fresh water
- building and modifying structures in river and lake beds
- disturbing river and lake beds
- introducing plants to river and lake beds
- depositing substances on river and lake beds
- reclaiming or draining river and lake beds
- development on the flood plain
- flood mitigation

The Freshwater Plan sets out the relevant objectives, policies and rules for the management of these activities including the minimum flows[14] for both the Otaki and Waikanae Rivers and prescribes restrictions on the quantity of water that can be taken. Implementation of the plans has been on-going on the Kapiti Coast as resource consents for water takes come up for renewal. The new environmental standards encompassed in the plans have been gradually introduced.

- Floodplain Management Plans for the Otaki and Waikanae Rivers. The WRC also carries out flood protection and environmental management works on both the Otaki and Waikanae Rivers within the framework of the relevant floodplain management plan.[15]

Kapiti Coast District Council

KCDC also has a number of roles in managing urban water systems and water services including: infrastructure owner, customer representative, regulator and service provider. KCDC's approach to managing urban water systems on the Kapiti Coast is set out in a number of documents and implemented in a variety of ways. Relevant KCDC planning documents include:

- The Strategic Plan adopted by KCDC on 26 June 2000. The Strategic Plan sets out a long-term vision for the Kapiti Coast and puts in place strategies to achieve that vision. The Strategic Plan indicates that KCDC is giving priority to the development of its infrastructural assets including water supply, wastewater disposal and stormwater over the next five years.[16] The Strategic Plan notes that the availability of water is a restriction on the continued growth of the Kapiti Coast and indicates that KCDC has decided that piping from

[14] The minimum flow is a guide that provides an indication of flows in the river or stream that will safeguard the life-supporting capacity of ecosystems, meet the needs of future generations, and provide for adequate water quality.
[15] WRC 1997 and WRC 1998.
[16] Page 3 of the KCDC Strategic Plan.

the Otaki River will provide a supplementary supply of water for Waikanae, Paraparaumu and Raumati.[17]

- The Long Term Financial Strategy and Funding (LTFS) revised by KCDC in April 2000. The LTFS sets out the financial blue print for the period 2000-2020. It indicates that the major expenditure on water systems will include: the supplementary water supply for Waikanae, Paraparaumu and Raumati (piping from the Otaki River); universal water metering; improvements to the Waikanae Beach and Otaihanga systems; and increased maintenance requirements.[18]

- The Annual Plan sets out the budget and work programme KCDC is intending to undertake for each financial year. The 2000/01 Annual Plan notes that applications will be lodged for the Otaki River pipeline, that KCDC is preparing a 50 Year Water Strategy to cover the whole District and that there will be an investigation into Ministry of Health water supply compliance issues for the Paekakariki water supply.[19]

- The Kapiti Coast Urban Growth Strategy sets out KCDC's preferred approach for managing urban growth. It notes that the Kapiti Coast is experiencing rapid urban development which has been on-going for a number of years. This strategy builds on the urban form principles set out in the Strategic Plan and identifies a number of areas around the District which will be suitable for rezoning for urban areas. All proposals for rezoning will be required to produce a structure plan. It also identifies areas which would be suitable for increased in-fill housing. This strategy is not being actively promoted by KCDC while water supply issues remain unresolved.[20]

- The Kapiti Coast District Plan (operative 1999) prepared under the RMA, seeks to promote the sustainable management of natural and physical resources. District Plan objectives, policies and zones will affect the demand for water and vice versa. The Code for Subdivision and Development[21] is a key component of the implementation of the District Plan setting the standards for water supply to new developments. KCDC is responsible for the sustainable management of the effects of land use in the catchments around the rivers under the KCDC District Plan.

- The Kapiti Coast State of the Environment Report 1999. The State of the Environment report includes monitoring information on water supply and sewage disposal services amongst other things.

[17] Page 40 of the KCDC Strategic Plan.
[18] Page 10 of the KCDC LTFS.
[19] Page 23 of the 2000/01 KCDC Annual Plan.
[20] Pers comm Andrew Guerin, District Planner, KCDC.
[21] The code is currently being revised.

Urban Water Supply Infrastructure

KCDC currently operates water supply systems in the four main urban areas, Otaki, Waikanae, Paraparaumu and Raumati, and also in Paekakariki. The systems comprise three surface water intakes, eight groundwater bores, eight treatment plants and eight pumping stations, ten service reservoirs, trunk mains and distribution reticulation.[22] Otaki has three sources of water, two bores for the town system and the Waitohu Stream for the Plateau area. Waikanae, Paraparaumu and Raumati water supply is abstracted from the Waikanae River. Paekakariki is supplied from a separate supply abstracted from the Wainui Stream. A growing number of people also have independent water supplies from rainwater tanks or bores which are for external use such as watering the garden. There are also some private water schemes with which KCDC has no involvement. The rural area largely draws on independent supply from bores or rainwater tanks. However, KCDC also runs a water supply system for the Hautere/Te Horo rural area.

In terms of the concepts and principles proposed in the Ageing Pipes and Murky Waters report (refer Chapter 3), analysis suggests that urban water systems on the Kapiti coast are still primarily 'traditional'.

Characteristics of a'traditional' system	Kapiti situation
Meet increasing water demand by building more dams and pipelines.	Emphasis has been on selecting an infrastructure solution for increasing water supply and guaranteeing surety of water supply. Focus has been on choosing one project which KCDC considers will achieve economies of scale, be cost effective, and utilise existing infrastructure rather than a package of small projects.
Provide few incentives to reduce water use. Do not maximise opportunities for water recycling and reuse.	System is linear. The infrastructure does not appear to provide any opportunities for reuse. There do not appear to be any feedback loops. Decision not to introduce universal water metering because it is cheaper (because not all costs, including environmental costs, have been incorporated) in the short term to provide the infrastructure which increases water supply.[23] KCDC considers that surety of supply needed to come before demand management.
Utilise large pipe networks and treatment systems to meet increasing waste water and stormwater loading from urban growth.	Sewage systems and treatment plants are being extensively upgraded to meet new environmental standards imposed via resource consents under the relevant regional plans. Stormwater management is identified in the Strategic Plan as a future priority for infrastructure investment.

[22] Page 40 of the KCDC Strategic Plan.

[23] Works Consultancy Services reports "Study of Universal Water Metering, February 1995" and "Review of Water Metering Impacts, February 1997".

Depend on ecosystem services always having spare capacity to absorb stormwater and sewage discharges from pipe and treatment plant systems.	Currently systems discharge into the environment. No apparent focus on seeking alternatives to discharge to the environment, such as reuse, with the exception of some provision of irrigation water to parks.
Give highest priority to the views and values of designers, builders, owners and operators of pipe network and treatment systems.	Evident in the number and focus of technical reports commissioned by KCDC with respect to water supply on the Kapiti Coast.
Characteristics of a 'sustainable' system	**Kapiti situation**
Integrated management and life-cycle approaches are used to manage these complex systems: ▪ They aim to increase the efficiency of water use thereby reducing the need for new dams, pipelines, and treatment plants; ▪ They reduce wastewater by decreasing total potable water supply, reusing greywater and recycling biosolids from wastewater treatment plants; and ▪ They reduce stormwater through better site design, with reduction in proportion of impervious surfaces, onsite collection use, and retention of natural streams and waterways.	The demand management programme has focussed on reducing demand when supply is low over the summer months. The focus is on reducing demand but not on reusing or recycling. A range of management actions contribute to an increased efficiency of water use, for example, the leak detection programme and encouragement for the independent use of rainwater tanks. There are no programmes in place which focus on reusing grey water or recycling biosolids with the exception of a proposal to vitrify biosolid wastes from the Waikanae/Paraparaumu/Raumati sewage treatment plant. KCDC has identified stormwater as an issue which will require increased focus and resourcing in future (refer Strategic Plan and LTFS). Current initiatives in this area include a contract with Te Ati Awa to investigate how major drains can be designed to achieve environmental outcomes while coping with floodwater.
Developed and operated in harmony with natural water cycles and water catchments.	Is not a strong feature of water services on the Kapiti Coast with the exception of limits imposed under resource consents required by various regional plans.
Sufficient water flows are allocated to natural and modified systems to maintain ecosystem health.	Managed by the WRC under the Regional Freshwater Plan. Conditions increasingly stringent as it becomes evident that previous practice was not maintaining ecosystem health.
Water management and planning involves consultation with the whole community of interest including residential users, industry, agencies, tangata whenua, agriculture, and recreational users.	Consultation is carried out but at a project level rather than a strategic level leading to dissatisfaction in parts of the community.
Residents are guaranteed access to a minimum supply of potable water to maintain basic human health.	Current situation provides this.

The overall impression is that the Kapiti water system is strongly traditional with some components that are moving slowly towards a more sustainable system.

There are a number of key challenges for the management of urban water systems common to all towns and cities in New Zealand and evident on the Kapiti Coast. One of the biggest challenges will be reaching a reasonable degree of consensus (this does not mean unanimity) between the various stakeholders on the environmental, social and economic goals and values of urban water systems. Without much more extensive community input, and greater understanding of water management options, improving the sustainability of current systems will be very difficult and painfully slow.

Water Consumption

The Kapiti Coast's water resources, primarily rivers and groundwater bores, provide a limited supply of water that diminishes over summer months due to lack of rain and limited storage facilities.[24]

Water usage on the Kapiti Coast for the years 1996/97 to 1999/00 is set out in the table[25] below:

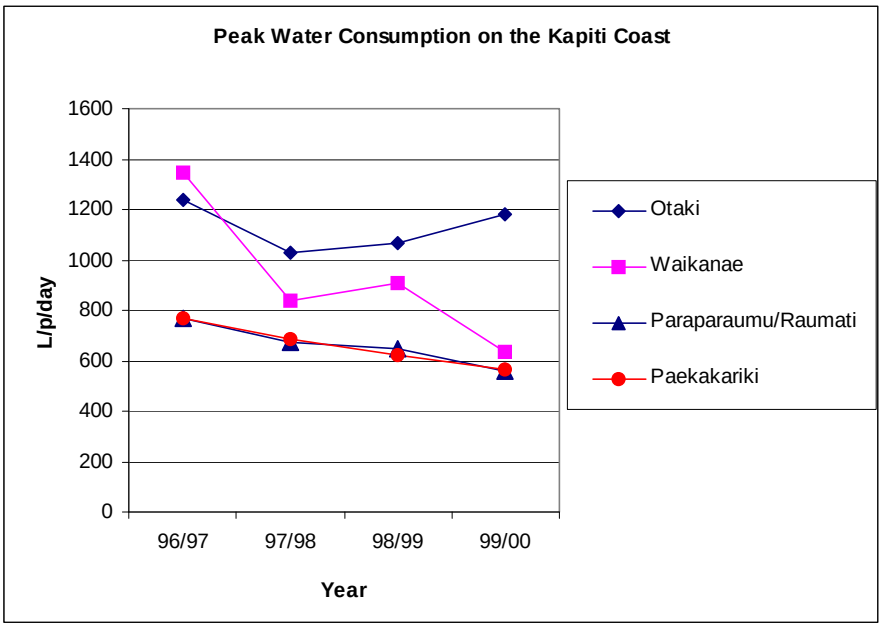
Reticulated Supply System (l/p/day)[26]	96/97 peak	96/97 average	97/98 peak	97/98 average
Otaki	1236	580	1029	581
Waikanae	1349	564	837	548
Paraparaumu/Raumati	770	470	676	478
Paekakariki	767	483	685	453

Reticulated Supply System (l/p/day)	98/99 peak	98/99 average	99/00 peak	99/00 average
Otaki	1067	688	1178	837
Waikanae	906	575	636	484
Paraparaumu/Raumati	645	449	561	398
Paekakariki	623	400	562	438

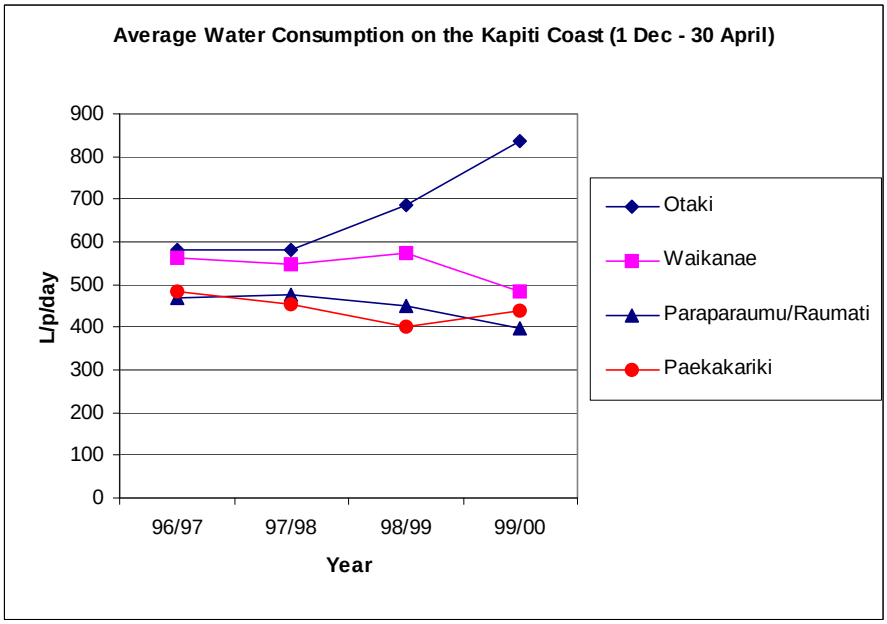
Note: Average flow is measured for the period 1 December to 30 April inclusive. Peak flow is for 24 hours measured from reservoir outlet meters; midnight to midnight.

The graph below shows the trends in peak consumption using the data in the table above. KCDC's target peak consumption for the district is 650 Litres/capita (person)/day.[27]

[24] Page 2 of KCDC report Water Watch 1998/99.
[25] Page 11 of KCDC report Summer Water Conservation Campaign: Evaluation Report 1999/00.
[26] Page 11 of KCDC report Summer Water Conservation Campaign: Evaluation Report 1999/00.
[27] Section 2 page 12 of the KCDC Supplementary Water Supply Project Resource Consent Applications and AEE.



The graph below shows the trends in average water consumption using the data in the table above.



It should be noted that the average water consumption figures above are derived from data collected during periods when water restrictions are in place and may therefore be lower than if they were derived from data taken over a whole year.

Average water consumption in 1999/00, while lower than previous years, appears high compared with the average range for New Zealand. By way of comparison, domestic water use[28] in New Zealand, Australia and England runs in the order of:

Country	**Average range**	**Kapiti Coast (L/p/d)[29]**	**1999/00 average**
New Zealand	180 – 300 L/p/d. Christchurch ~ 250 L/p/d (150 L/p/d for internal use) Waitakere City ~ 200 L/p/d Auckland City ~ 190 L/p/d	Otaki Waikanae Paraparaumu/ Raumati Paekakariki	837 484 398 438
Australia[30]	~ 270 litres per person per day (294 m^3/year per household). Sydney ~ 215 L/p/d (237 m^3/year per household) Melbourne ~ 200 L/p/d (m^3/year per household) Brisbane ~ 310 L/p/d (340 m^3/year per household)		
England[31]	~ 380 litres per person per day Anglian Region ~ 211 L/p/d for one person households ~ 130 L/p/d for a three person households (total of 390 L/d per household)		

It should be noted that the Kapiti averages are not directly comparable with the other average ranges because the Kapiti averages are derived from consumption figures which are not restricted to domestic water use but include all consumption and the Kapiti averages are not annual averages. However, these comparisons suggest that the Kapiti Coast still has some way to go in reducing water consumption to levels that are consistent with elsewhere even in New Zealand. Water consumption in Kapiti has been reducing over recent years to approximately the target peak consumption of 650 litres per person per day but this peak is still high in comparison with other areas around New Zealand. For example, Wellington's peak is 465 litres per day and Auckland's peak is 450 litres per day.[32] This in itself offers considerable opportunities for managing water supply through increased efficiency.

[28] Page 6 PCE 2000
[29] Page 11 of KCDC report Summer Water Conservation Campaign: Evaluation Report 1999/00.
[30] Australian Bureau of Statistics 2000.
[31] Department of the Environment, Transport and the Regions 2000 and Anglian Water annual survey reported in Parliamentary Office of Science and Technology 2000.
[32] Page 2 Duffill Watts & Tse Ltd November 2000.

However, it remains unclear whether this target peak consumption of 650 litres per person per day is sustainable in the sense it can be provided for the foreseeable future without damage to the environment, in particular those of the Waikanae and Otaki Rivers. It is certainly not sustainable in times of peak demand when water from the Waikanae River is not available because of low flow.

Management of the Demand for Water

KCDC runs a number of programmes aimed at reducing water consumption. These programmes are particularly targeted at Waikanae, Paraparaumu and Raumati where demand has the potential to exceed supply most acutely during peak demand periods.

Annual Water Conservation Programme

KCDC has been running an annual water conservation programme since 1991 aimed at reducing water usage through increasing public awareness. It consists primarily of garden watering restrictions which are imposed under bylaw and become increasingly restrictive as water supply declines. It also includes public education/information components both in terms of publicising the restrictions but also in terms of offering the public ideas on how to use water more efficiently. The implementation of this programme is supervised by the Water Conservation Management Team (KCDC staff).

The annual water conservation campaign run by KCDC is one of the more comprehensive, proactive and robust programmes of its kind. KCDC is rightly proud of it. However, despite the evidence provided by KCDC[33] that monitoring and enforcement is carried out, there seems to be a common perception in the community that the watering restrictions are not enforced and that it's easy to get away with non-compliance. It is noted that while warnings and infringement notices are issued as required, no prosecutions have been taken and this seems to be perceived as a weakness. The recent situation in Waikanae where someone was flouting the water restrictions and KCDC decided not to take any action against them is a case in point.[34]

A further concern raised in consultation about the annual water conservation programme is that the number of exemptions to the watering restrictions granted by KCDC undermines the effectiveness of the whole programme. During 1999/00 KCDC granted 13 exemptions[35] to the water restrictions (for grass laying/weed spraying businesses, animal groomers, a school, and water blasting businesses) so the evidence (only 13 exemptions) does not seem to support this contention.

Leak Detection Programme

A second arm to the demand management programme is aimed at reducing water leakage from within the pipe reticulation system. KCDC employs a full-time pipe leakage detection officer to identify leakages and implement procedures for repairs and replacement.[36] The current aim for the leak detection programme is to reduce leaks to less than 10 litres/property/hour.[37] The leak detection programme is commonly perceived to be ineffective. This investigation did not seek to verify or refute this perception. It may, however, be appropriate for KCDC to commission an

[33] Page 16 of KCDC report Summer Water Conservation Campaign: Evaluation Report 1999/00.
[34] Dominion Wednesday 31 January 2001.
[35] Page 14 of KCDC report Summer Water Conservation Campaign: Evaluation Report 1999/00.
[36] Section 2 page 12 of the KCDC Supplementary Water Supply Project Resource Consent Applications and AEE.
[37] 2000/2001 KCDC Annual Plan and Budget.

independent audit of the programme to assess its effectiveness and provide the community with some assurance on this aspect. This is particularly important because some parts of the community believe that the high rates of water consumption are due to leakage rather than actual usage by Kaptiti residents.

Other Measures

In addition to the annual conservation and leak detection programmes, KCDC has implemented a range of other actions which contribute to either managing supply or improving efficiency of water usage including:

- installation of emergency groundwater bores to supplement the main supply for Waikanae, Paraparaumu and Raumati;
- amending the General Bylaw (supply of water) in December 1997 to provide KCDC's General Manager with greater powers to impose water use restrictions to manage the fluctuations in supply and demand. The bylaw also provides KCDC with the ability to impose fines, install usage meters or restrictors on a property, and disconnect supply under certain circumstances such as wasteful usage;
- installing meter capable manifolds whenever a toby has to be repaired or replaced;
- installing meters in all non-residential properties;
- refurbishing storage facilities;
- reviewing rural supply systems; and
- upgrading supply systems.[38]

Population and development pressures lead to increased demand for water use. The rate of growth on the Kapiti Coast and how it is managed is therefore relevant. The Urban Growth Strategy sets out the anticipated quantity of growth and identifies areas where it may be appropriately accommodated. This strategy is supply side oriented in as much as it seeks to forecast the amount of growth and then locate it in areas which are considered appropriate. It is not oriented towards establishing the carrying capacity of the ecosystems on the Kapiti Coast and managing growth within those critical thresholds.

Universal Water Metering

KCDC has investigated the merits of introducing universal water metering.[39] The investigations conclude that demand for water will decline if water metering is introduced but that the cost of metering to the community will be higher than the cost of meeting the growth in demand for water in the short term. This conclusion does not appear to account for costs to the environment of increasing, or at least not constraining, water consumption and thus waste disposal. KCDC also considers it necessary to focus on security of supply before introducing water metering. Consequently KCDC has decided not to implement universal water metering at this stage but notes, in its Strategic Plan, that it expects to do so within the next 20 years.[40] Provision for the installation of universal water metering has been made in the LTFS commencing from 2008/9 at an approximate cost of $5.1 million.[41] In the meantime progress is being made towards universal water metering. Water meters have been installed for some commercial activities and some charging on a usage basis has been introduced. New developments are required to put in place infrastructure which will smooth the way for the installation of water meters in the future.

[38] Page 4 of KCDC report Summer Water Conservation Campaign: Evaluation Report 1999/00.
[39] Works Consultancy Services reports "Study of Universal Water Metering, February 1995" and "Review of Water Metering Impacts, Feb 1997".
[40] Page 40 of the KCDC Strategic Plan.
[41] Page 11 of the KCDC LTFS and Funding.

Supplementary Water Supply Project

KCDC considers that a supplementary water supply for Waikanae, Paraparaumu and Raumati is required because:

- The Wellington Regional Council has restricted the volume of water that can be taken from the Waikanae River by the year 2003;
- The existing water supply does not meet the needs of the district and will not meet the needs of the future population growth; and
- The district is vulnerable in the event of contamination of the bulk water supply from the Waikanae River.

KCDC has accepted the need to find an alternate water supply for Waikanae, Paraparaumu and Raumati for a number of years. The investigation of options started in 1991. The issue gained greater impetus in 1995/96 when the resource consents for the current Waikanae water supply came up for renewal. The resource consent for water take[42] that was eventually granted by the WRC imposed a maximum on the water take from the Waikanae River of 23,000 cubic metres per day with a step down regime as the river flows drop. From 2003, under this consent, when the Waikanae River drops to or below 750 litres per second, no water take will be allowed at all. Low flow analyses indicate that a low flow in the Waikanae River of less than 750L/s can be expected: one day in every five years; seven days in every 10 years; 14 days in every 20 years; and 28 days in every 50 years.[43] Under these circumstances and given the current levels of water usage, either KCDC will be in breach of the conditions of the resource consent or Waikanae, Paraparaumu and Raumati will not have a water supply unless an alternative is in place by that time. Emergency bores are available which can be used to supplement the supply if need be. However, the quantity available is not sufficient for the whole supply, the unpleasant taste of water from the bores is considered to be an issue and the fluctuating chemistry of bore water when it mixes with treated water in the reticulation network causes copper corrosion which leads to leaks in copper pipes used in older domestic plumbing.

Where the supplementary supply will come from, how much and when it will be used, is the subject of considerable work by KCDC and much disagreement in the community. The Kapiti community is fairly clear that a supplementary supply is required but there is very little, if any, agreement on where it should come from.

Over the years, twelve options for providing the supplementary water supply have been investigated by KCDC including a number of dams, groundwater options and the pipeline from the Otaki River[44] (see Appendix 3 for a list of relevant background reports available from KCDC).

Four of these options have been investigated in detail:

- Waikanae Water Treatment Plant Dam;
- Kapakapanui Dam;
- Waikanae Groundwater; and
- Otaki River Wellfield and Pipeline.

[42] WGN 980163(01)
[43] Section 2 page 4 of the KCDC Supplementary Water Supply Project Resource Consent Applications and AEE.
[44] Section 4 page 4 of the KCDC Supplementary Water Supply Project Resource Consent Applications and AEE.

During April 2000, KCDC selected the Otaki River wellfield and pipeline as the preferred option for providing the supplementary water supply to Waikanae, Paraparaumu and Raumati. A draft Assessment of Environment Effects was released in September 2000 for consultation and applications for the necessary resource consents were lodged with the WRC and KCDC during December 2000. The applications will be notified in January 2001 and submissions will close on 12 March 2001.

It is fairly clear that the capacity of the Waikanae River to supply water to Waikanae, Paraparaumu and Raumati is at its limits given the current and projected levels of water consumption. The demand for water is nearly in excess of capacity now during summer months even after water restrictions have been imposed[45] and will in time exceed it, taking into account population growth. There are risks (particularly post 2003) to the continuity of water supply for Waikanae, Paraparaumu and Raumati which are well recognised. **However, there are a number of ways this risk can be managed: water consumption can be reduced; or an alternate supply can be put in place; or storage capacity in the system can be improved; or a combination of all three can be implemented.**

Water Supply for Otaki

During the course of consultation for this investigation, it came to light that the water supply for Otaki Township is likely to become a significant issue in the future. The Otaki water supply has been graded 'D – unsatisfactory, high level of risk'.[46] A substantial part of the Otaki supply is drawn from groundwater and the issue is, not that the Otaki supply is contaminated as such, but that there is risk of contamination. The Government is currently reviewing the Water Supplies Protection Regulations 1961 and developing new regulations,[47] which will look at introducing new mandatory drinking water standards. If adopted, the Otaki supply with a rating of 'D' will require some form of upgrade, improved treatment or alternate raw water supply. This could involve significant expenditure, some of which has been budgeted for in the LTFS in approximately 20006/07. However, under the current ward-funding scheme, the burden of repayment would fall on the Otaki community.

Building Act Issues

Another issue that came up through consultation is that the provisions of the Building Act 1991 prevent councils from requiring the installation of water efficient fixtures and fittings in new buildings (for example, low flow showerheads, dual-flush toilets and on-site storage). The Building Act sets a code of minimum standards which have to be met and there is no legal requirement to do more than that. This leaves councils without the regulatory capacity to introduce a range of water efficiency/conservation methods which would help control demand for water. Councils can, of course, encourage and offer incentives; for example, KCDC is developing a proposal to set up a model water efficient house which can be used as an education tool for the community.

[45] KCDC press releases during January 2001 state that water consumption is up at 22,000 cubic metres a day approaching the limit of 23,000 cubic metres per day.
[46] Register of Community Drinking Water Supplies 2000.
[47] Page 42 of PCE 2000

Tangata Whenua Concerns and Aspirations

This chapter seeks to summarise the main issues that tangata whenua raised during the course of this investigation. However, it is by no means an exhaustive list of concerns held by tangata whenua on environmental issues on the Kapiti Coast.

Te Runanga o Raukawa (Ngati Raukawa)

The rohe of Ngati Raukawa includes the Otaki River and catchment. As the kaitiaki, their concerns and priorities focus on the Otaki River, its well-being and ecology. It is from the basis of their responsibilities as kaitiaki to both the ancestors and future generations that Ngati Raukawa opposes the Otaki River wellfield and pipeline proposal and lodged the complaint with the PCE. Ngati Raukawa have offered to comment on the broader issues of KCDC's environmental management, development of plans, strategies and relationships in the community but these concerns are oriented within the essential focus on the Otaki River and catchment.

Ngati Raukawa do not feel that they have been adequately consulted over the management of the Otaki River and the water supply in the district, citing an on-going pattern of communication failures and lack of respect both for iwi concerns and perspectives and for individuals, kaumatua and kuia. The structures in place for consultation with Ngati Raukawa do not seem to be working satisfactorily from the point of view of Ngati Raukawa. Thus Ngati Raukawa feel that, despite taking a proactive stance, they have been prevented from fulfilling their duties as kaitiaki due to a lack of involvement and constraints on their role in managing the river. Ngati Raukawa see the Otaki River well-field and pipeline project as a symptom of KCDC's failure to engage effectively and meaningfully with tangata whenua and the wider community, and as an indicator of the lack of integrated management on the Kapiti Coast both in an environmental sense and a governance sense.

Ngati Raukawa appear to distrust KCDC, a situation which has evolved over a number of years, regarding water supply and environmental management. They do not think KCDC has given adequate attention to all the options available for a supplementary water supply. They believe KCDC intends to continue on a course of promoting unchecked development for the district and thus in future will require a greater quantity of water than the currently proposed take from the pipeline. Ngati Raukawa recommend that as an initial step KCDC should implement the guiding principles of the PCE 'Aging Pipes and Murky Waters' report (refer Chapter 3).

Otaki River and Catchment Iwi Management Plan

A key issue for Ngati Raukawa is the implementation of the Proposed Ngati Raukawa Otaki River and Catchment Iwi Management Plan 2000 (IMP). The IMP was prepared by Nga Hapu o Otaki on behalf of Ngati Raukawa during 1999/2000. It establishes a vision for Ngati Raukawa exercise of

kaitiakitanga in respect of the Otaki River and its catchments for the 21st century. The IMP seeks to:

- document Ngati Raukawa relationship with the Otaki River and catchment.
- establish a vision for future management of the Otaki River and under a Treaty partnership.
- establish an action plan for Ngati Raukawa for achieving that vision.
- provide a base framework for advancing Ngati Raukawa participation in the management of natural and physical resources.[48]

Specific objectives, policies and methods are established for a range of practical matters and matters of principle, including:

- restoring and revitalising the mauri of the Otaki river and its people;
- governance, the Treaty partnership, and collaborative management processes;
- Raukawa involvement in processes for identifying and shaping management options, planning, and decision-making;
- capacity building, and a Raukawa kaitiakitanga education strategy;
- restoring and enhancing the mauri and the ecology of the river and wider environment;
- establishing a set of Raukawa environmental principles;
- monitoring, indicators, and the monitoring role and responsibilities of Nga Hapu o Otaki;
- development to be of direct benefit to Otaki communities; and
- active protection of the development rights of Ngati Raukawa.

Submissions were called for in the later half of 2000 and a number received. KCDC, DOC and WRC expressed cautious support for the IMP. KCDC agreed with some points while differing on others. The WRC indicated it intends to address the implementation of the IMP through the work of its various departments rather than providing an overall response. A submission was also made by the Department of Conservation.

The RMA provides legal status to the IMP through sections 66 and 74 which state that planning documents recognised by iwi (such as the IMP) are matters to be considered when preparing and/or changing regional plans and district plans.

Co-management, as the appropriate method of implementation, is a key theme in the IMP. Policy 4.2.3.2 of the IMP reads:
"(a) to adopt a Collaborative Management approach, fully consistent with the Treaty of Waitangi, to all aspects of environmental/resource management related to the Otaki River and catchment.
(b) to request that all agencies empowered by legislation with management responsibilities in regard to the Otaki River and catchment adopt a Collaborative Management approach, fully consistent with the Treaty of Waitangi, to decision-making, implementation and monitoring of Otaki River management." [49]

Ngati Raukawa promotes the "Raukawa Model" as a primary tool for implementing this policy.[50] In Raukawa terms, implementation of the IMP should be undertaken within the context of a co-management regime as should consideration of the Otaki wellfield and pipeline proposal.

[48] Page 12 of the Proposed Ngati Raukawa Otaki River and Catchment Iwi Management Plan.
[49] Page 49 of the Proposed Ngati Raukawa Otaki River and Catchment Iwi Management Plan.
[50] Page 122 of the Proposed Ngati Raukawa Otaki River and Catchment Iwi Management Plan.

With regard to the Otaki River, Ngati Raukawa believes that KCDC should assist with the implementation of the IMP and through it allow Ngati Raukawa to fulfil their kaitiaki role for the river. Ngati Raukawa suggests that a possible source of funding for IMP implementation could be royalties from gravel extracted from the Otaki River.[51]

Ngati Raukawa proposes a working party for talks between themselves, KCDC, WRC, and DOC to discuss and negotiate how co-management for the Otaki River and catchment might be implemented. The representatives from all parties would require sufficient status or mana for negotiations to be successful and appropriate (mana equalising). Ngati Raukawa consider that co-management should be based on the Treaty of Waitangi and is therefore bilateral between tangata whenua and the Crown (with KCDC and WRC being agents of the Crown with their powers and functions established under various statutes including the RMA). Ngati Raukawa suggested that the PCE might convene and facilitate an initial round table meeting of the parties to advance the implementation of the IMP. They believe that the management of the Otaki River offers very positive opportunities for the development of a practical co-management mechanism that could be used as an example for other areas.

The key issues for Ngati Raukawa appear to be:

- implementation of the IMP including co-management;
- recognition of Ngati Raukawa as Kaitiaki of the Otaki River, and provision for the fulfilment of their responsibilities and relationships with this taonga; and
- establishment of processes of dialogue and engagement such as roundtable meetings with the relevant agencies.

Te Runanga o Te Ati Awa ki Whakarongotai Inc

The Te Ati Awa rohe encompasses the Waikanae River and thus their concerns are focused in this area. The Kapakapanui environment and heritage group is a business arm of Te Runanga o Te Ati Awa ki Whakarongotai established to address a range of environmental management issues with KCDC and other agencies. They feel that the iwi has not been consulted adequately over the water supply issue. When consultation has occurred, timeframes have not been adequate for the Kapakapanui group to consider the issue and review relevant material. Like Ngati Raukawa, Te Ati Awa feels disenfranchised from their kaitiakitanga role by the lack of input into environmental management within their rohe. They are extremely concerned about the health of the Waikanae River and catchment and are strongly committed to a process of healing and restoration.

In regard to the proposal to take water from the Otaki River and pipe it south, Te Ati Awa sees their position as grounded first in their relationship with Ngati Raukawa, and the tikanga and proprieties of the dynamics between iwi. As Ngati Raukawa is firmly objecting to the extraction of water from its rohe at Otaki, it would be inappropriate for Te Ati Awa to even contemplate receiving such water. The KCDC proposal is seen to cut across the often-delicate interface between respective iwi. It also cuts across the natural water catchment boundaries in the proposed mixing of waters from separate catchments.

[51] The gravel from the Otaki River and royalties associated with it are subject to a claim to the Waitangi tribunal by Ngati Raukawa.

Te Ati Awa are concerned at the pace of development in the Kapiti district overall, as promoted in the KCDC Urban Growth Strategy, and believe it to be unsustainable. They do not think that alternative water supply options have been seriously contemplated. Possible uses of bores have not been examined systematically yet they could play a crucial part in Kapiti's water supply. Te Ati Awa observe that it is not known if the increased use of bores is harming the aquifer or, alternatively, if they have no impact and could be used more extensively. A Te Ati Awa landowning family, party to the Kapakapanui dam proposal, does not believe the dam was given proper consideration and feel that KCDC has not yet given robust reasons for dropping the dam. The Runanga itself considers it was not consulted about the Kapakapanui dam proposal and they see the rejection of this alternative as an example of KCDC resisting tangata whenua involvement in environmental management.

Te Ati Awa's vision for the future is to fulfil their kaitiakitanga responsibilities. This will only be possible by having a strong working relationship with WRC, KCDC, other Crown agencies such as the Department of Conservation and the community. Kapakapanui are in the process of developing a policy statement on the water issue and this could be used as a starting point for co-management. They see potential for the Kapiti Coast becoming a 'green' area with organic crops and a sustainable approach to development, thus enticing 'like-minded' people to move there.

Kapakapanui suggested that increased levels of council resourcing for community participation would be a step in the right direction. Cleaning up the Waikanae River is a fundamental priority. Kapakapanui want increased riparian vegetation and decreased runoff and stormwater to the Waikanae. Te Ati Awa commissioned an ecological study in conjunction with WRC, and urge that its recommendations should be followed. Kapakapanui cannot abide the current pollution levels of the Waikanae River and suggested that if action is not taken, commissioners should replace KCDC.

The key issues for Te Ati Awa appear to be:

- acknowledgement and recognition of Te Ati Awa kaitiakitanga;
- the health of the Waikanae River and catchment;
- the lack of consultation and involvement in environmental management and policy development; and
- the need for fuller consideration of alternatives to the Otaki River wellfield and pipeline proposal.

Community Concerns and Aspirations

This chapter seeks to summarise the main issues that community groups raised during the course of this investigation. However, it is by no means an exhaustive list of concerns held by those community groups on environmental issues on the Kapiti Coast. It is also acknowledged that the range of views expressed here may not be representative of the Kapiti community as a whole. Nevertheless, the perspectives are useful indications of the value that large parts of the Kapiti community place on urban water resources.

Kapiti Environmental Action (KEA)

KEA is very concerned about a number of issues related to water and wastewater on the Kapiti Coast. Wasted water from pipe leakage is a key concern and KEA does not believe the KCDC programme to reduce leakage is effective. It also thinks that KCDC's water conservation effort in general is not good enough. Current water usage is considered to be too high and should be reduced through the introduction of universal water metering and flow based charging with higher charges as usage increases. KEA is critical of KCDC's approach to urban growth and development. They consider that no new areas should be zoned suburban and that infill housing should be encouraged. They believe the growth predictions used in the preparation of the Urban Growth Strategy are flawed and that the potential decrease in per household water consumption arising from infill housing has not been assessed adequately.

Like other groups, KEA does not feel KCDC has consulted sufficiently with the community. They give, as an example, the difficulties involved in setting up the community liaison group for the Paraparaumu Sewage Treatment Upgrade, which was established as a condition of the relevant resource consents.

KEA's vision for the future is for a cleaner Waikanae River and a sustainable water take. It wants to see a 50-year catchment regeneration plan with increased riparian and catchment planting to improve the flow of the Waikanae River. It does not believe the full range of alternatives for the supplementary water supply has been adequately investigated. KEA suggests recharging the Waikanae River with treated sewage directly below the water treatment station as a possible solution in the short-term. In the longer term, it recommends the establishment of small reservoirs, utilising windmill pumping, to increase storage. Water for discretionary use (e.g., garden watering) could be sourced from rainwater tanks and bores. A charge on treated water via metering would be an incentive to use untreated water for discretionary uses. KEA believes that under the current funding system of uniform annual charges, people who use a small amount of water are subsidising others so there is no incentive to conserve water.

The key issues for KEA appear to be:

- the need for improved demand management;
- the health of the Waikanae River; and
- consideration of additional alternatives for the supplementary water supply.

Waikanae Progressive and Ratepayers Association

The association raised a number for concerns about the approach taken by KCDC to community consultation, expressing considerable frustration and a degree of distrust. It is angry at the amount of money that has been paid to consultants attempting to address the Kapiti water supply problems. The association considers that the high water usage is due to leakage rather than actual use by residents. It thinks that the leak detection programme is not credible and should be improved. The group is also concerned at any increase in rates due to the need for new infrastructure and is opposed to universal water metering, as some ratepayers could not afford it.

The association believes that water for gardens is very important in Waikanae and should be freely available. From their perspective KCDC advertises the district as a wonderful place for gardens and this is often a deciding factor in people's decision to move to the area. For some retired people, gardening is their main recreation and their gardens are very significant to their lifestyle.

Suggested solutions focus on water storage and promoting sustainable growth in the district. The association believes development should be incremental and affordable as opposed to the current approach which requires large expenditures on new infrastructure which impact significantly on ratepayers. A cap on growth is a possibility. They also think that management of land use on the Waikanae River catchment is important and controls on activities should be increased. They see a dual reticulation system as a good way of supplying water to people's gardens without the expensive treatment. Another possibility is creating a separate water supply for Waikanae Beach drawn from bore water only. This group believes that potential bores exist for this additional supply. In summary, the association favours a package of measures that involve simple incremental solutions rather than the single proposal approach.

The key issues for the association appear to be:

- availability of water for garden watering;
- providing alternative sources of water for the Waikanae area;
- improving the leak detection unit;
- the financial impacts of new infrastructure on ratepayers; and
- resolving the water supply issues through a package of smaller measures.

Waikanae Environmental Groups[52]

These groups are disappointed with KCDC's approach to the sustainable management of the environment. The environmental groups think that, given the limited water resource, development should be restricted to ensure the sustainability of the environment on the Kapiti

[52] Waikanae Estuary Guardians, Friends of the Waikanae River, The Royal Forest and Bird Protection Society of New Zealand (local branch) and Otaihanga Residents Association.

Coast. They also think that water conservation efforts should be stepped up and, where appropriate prosecutions taken. They support further consideration of the recharge proposal for the Waikanae River in conjunction with the current upgrade of sewage treatment facilities. Measures such as using rainwater tanks and groundwater for discretionary water use (i.e. watering the garden) should be investigated. The environmental groups promote using a range of measures that include tanks, lowering the water pressure, reusing grey water and planting endemic species that require less water than other plants. An extensive riparian programme with a rates rebate to participating landowners has also been suggested. These groups did not favour the dam proposals but do support a dual-reticulation system. Metering could also work as long as some base amount of treated water was free and the system was not privatised.

Groundwater was also raised as an issue and the group alluded to saline intrusion in some bores in the area.

The key issues for the Waikanae Environmental Groups appear to be:

- environmental sustainability even if this means halting development; and
- addressing water supply issues through demand management, re-use and recycling and water conservation measures.

Friends of the Otaki River

This group was set up by the WRC to involve the Otaki community in the flood plain management of the Otaki River. Its membership encompasses a broad range of interests, including primary producers and fishing clubs.

A key issue this group raised about the Otaki River wellfield and pipeline proposal is that they have not seen any information or been party to any consultation which will allow them to assess the impacts the proposal will have on the river and on them. One of the main anxieties is the impact an increased take from the Otaki River may have on existing water abstraction, particularly for horticultural purposes. There is also concern about the impact of water take on bore users in the area. Some rural people rely on bores, because they are not connected to town supply, so any impact on the aquifer is very important to them. They note that the proposed water take would operate when the Waikanae River is low which is also when the Otaki River is low. They wonder what effect that will have on the Otaki River. The fishing groups are particularly concerned with the ecology of the mouth of the river and the lack of environmental studies to date.

There is a preference for resolving the water supply problems with reservoirs rather than piping water from the Otaki River. Water retention is considered the issue rather than actual capacity to access additional water. They note that Otaki has its own water supply problems and are concerned about how they will be solved. They fear that if water is taken south from the Otaki River there may not, in time, be enough left to meet Otaki's own needs.

Consultation was raised as an issue. Many people did not know much about the proposed pipeline and they saw this as a measure of poor consultation by KCDC in whom there is a lack of trust.

The key issues for the Friends of the Otaki River appear to be:

- the health of the Otaki River and the impact that a new water take could have on the current activities that rely on the river; and
- the lack of consultation and information from KCDC about the Otaki River wellfield and pipeline proposal.

Otaki Community Board

The majority of board members oppose the Otaki River pipeline proposal though some support it. The board believes that the majority of the Otaki community is opposed to the pipeline proposal. The majority of the board suspects the water take from the Otaki River will steadily increase and the water will fuel development in the southern part of the district. However, at least one of the board members thinks the Otaki community opposition to the pipeline proposal is selfish, and that the water belongs to 'everyone' and should be shared.

Otaki has a high rate of water usage because it is a horticultural area. Increased water use is projected. Otaki is also facing water supply issues and some of the community think these should be a priority. They are concerned about the health of the Otaki River, particularly the mouth as it has a fragile ecosystem. They do not wish to see the Otaki River degrade to the extent the Waikanae River has. The main water supply problem is considered to be limited storage capacity rather than limited supply. They have been disappointed with the small amount of consultation and with KCDC's apparent disregard for the IMP. In terms of resolving the water supply issues in the southern part of the district, the board majority favours the dam option as an alternative water supply. Completely new options, such as desalination, could also be investigated. It also recommends a greater emphasis on water storage and water conservation but opposes universal water meters. Metering is seen as a tax on the poor. Funding for infrastructure should be district wide as opposed to ward based, and development should be restricted.

The key issues for the Otaki Community Board appear to be:

- opposition to the proposed Otaki River wellfield and pipeline;
- water supply for Otaki itself; and
- the health of the Otaki River, especially the mouth.

Waikanae Community Board

The Waikanae Community Board feels that it has been consulted fully by KCDC on water supply matters. It opposes the introduction of universal water meters. However, it is disappointed with the lack of conservation and water efficiency measures for new subdivisions and developments. The building of a new house provides many opportunities for improved water conservation but this is not being implemented. Instead, new houses have dishwashers, waste disposal units and hot water cylinders connected to mains water pressure, all of which increase water consumption. The board believes increased incentives for developers to build dwellings that utilise less water should be looked into.

The board considers that the Ngatiawa retention basin[53] should be re-examined by KCDC as a site for a dam. However, it notes that dams are problematic, depending on wet winters and a dry winter would result in a limited water supply in the following summer. The board believes the Kapakapanui dam would require construction materials to be brought in, making the project an expensive one.

[53] An early dam option which was not investigated as one of the final options.

The key issues for the Waikanae Community Board appear to be:

- providing Waikanae with a supplementary water supply; and
- increasing incentives to developers to build houses with appliances and fittings which use water efficiently and reduce consumption levels.

Key Issues

Management of Sustainable Urban Water Systems on the Kapiti Coast

The key issue for this investigation is the sustainability of urban water systems[54] on the Kapiti Coast over the long-term. Sustainability, in the context of this investigation, is being used in its broader sense: integrating environmental, social and economic goals; meeting the needs of present generations without compromising the needs of future generations to do the same; and living within the carrying capacity of the environment. Sustainability involves a process of evolutionary improvement resulting in reduced environmental impacts and greater efficiency in resource use while improving the quality of life, rather than a clearly defined goal.[55] In this investigation, sustainability is not synonymous with the definition of sustainable management under the RMA but can be seen as a more encompassing concept recognising the possibility of simultaneously improving social, economic and environmental outcomes.

Developing a more sustainable urban water system necessitates a clear community-owned vision for the future, a defining of what a more sustainable future might look like and what actions need to be taken to deliver that future. Envisioning what our future might hold – a preferred future – plays a very important part in making it happen. Without some overarching strategic vision, there is a danger of different parties getting locked into arguments over resource allocation, use and protection and over-reliance on RMA and other statutory processes. Meanwhile the quality of the environment and of ecosystem services may diminish.[56] In the Kapiti context, putting the sustainability of the urban water systems on a more secure footing requires wide "buy-in" to a long-term strategic vision.

KCDC is obviously aware of the importance of developing a strategic vision for the future development of urban water systems because it has already taken some steps in that direction[57] and it is planning to develop a new strategic water plan for the next 50 years. The proposed strategic water plan will provide a valuable opportunity for KCDC and the Kapiti community to develop a long term strategic vision for their water resources, plan a more sustainable urban water system for the future and set out a practical timetable for achieving it.

From the PCE's perspective, enhancing the sustainability of urban water systems means building on, but moving beyond the current traditional approach to delivery of water supply infrastructure. It involves recognising, incorporating and addressing the important linkages between the different water service components of water supply, treatment, use, and disposal of wastewater and stormwater. Recognition of the water cycle and integration of the components is vital. More sustainable urban water systems will necessitate closer integration of built and natural water systems plus a concerted effort to minimise consumption and inefficient usage. The approach currently being developed by Waitakere City Council may offer KCDC ideas and

[54] Urban water systems are defined as "the natural, modified and built water systems that exist in towns and cities".

[55] Page 3 of Pacific Rim Institute of Sustainable Management 2000.

[56] Parliamentary Commissioner for the Environment 2000: *Land Subdivision in the Waitakere Ranges: letter to groups and individuals regarding land subdivision in the Waitakere Ranges*. Parliamentary Commissioner for the Environment, 10 July 2000.

[57] KCDC 1996. "Bulk Water Supply: 50 Year Strategic Study for Waikanae, Paraparaumu and Raumati."

information on how another territorial authority is approaching the development of a more sustainable urban water system.[58]

Sustainability will also require a stronger integration of cultural/social and environmental components and goals than is apparent in the current KCDC approaches to managing urban water systems. Buy-in to a long-term strategic vision is vital and this means that tangata whenua and the community must be involved in the development of the vision from the very beginning. For example, metering and charging for water is likely to be an important tool for improving the efficiency of water use on the Kapiti Coast. Parts of the community, which are currently opposed, are likely to continue to resist metering unless they have the opportunity to participate in a debate about it and to understand how it will potentially benefit them as individuals and the community as a whole.

A fundamental premise of more sustainable urban water systems should be efficiency of use of the existing water resource. The availability of a resource does not in itself justify the use of it. Being sustainable means using what is currently available as efficiently as possible before investing in new sources of water. This reduces the long-term impacts on water dependent ecosystems, maintaining natural capital. It is acknowledged that KCDC and the Waikanae, Paraparaumu and Raumati communities have made considerable progress in reducing consumption by comparison with the early 1990s. This is to be applauded. The challenge now is how to continue the reductions in the interests of reducing infrastructure costs and long-term pressures on all water resources.

Finally, it is vital that the sustainable use and development of the urban water system is placed squarely within the overall context of the sustainability of ecosystems on the Kapiti Coast. The proposed 50 year strategy will offer the opportunity to incorporate innovative overseas and New Zealand experience with developing urban water systems which increase efficiency of use, emphasise recycling and reuse, and are ecologically sustainable within the limits of the ecosystems the raw water is drawn from and which wastewater is discharged into. The development of the plan will offer the opportunity for more community and stakeholder participation.

Ecological Sustainability

An underlying critical issue for urban water systems on the Kapiti Coast is the effect that current management is having on the environment. Three components of the Coast's natural systems seem to be the most affected or likely to be affected; the Otaki River and catchment; the Waikanae River and catchment; and the groundwater resource on the Kapiti Coast.

Through the Regional Freshwater Plan, policies have been adopted which define limits to the use of the natural water resource, both in terms of water abstraction and discharge of contaminants into the environment. The WRC is imposing these limitations through the administration of the Regional Freshwater Plan at the time resource consents are granted. The WRC considers this will ensure the sustainability of ecosystems over the long term.

Otaki River and Catchment

Ngati Raukawa has expressed concern about the health of the Otaki River and catchment:

[58] See www.waitakere.govt.nz/ecocity/waternet for more information.

> *"First the river margins were denuded, then the river was lowered and progressively straightened. Attempts have been made to re-clothe the banks with minimal strips of exotic species, referred to by DOC as plant pests. While this has greatly assisted the economic development of our fledgling nation it has been at the cost of increased flooding over our catchment and gross loss of biodiversity. Management of the key headwater catchments has been severely limited by the short-sighted introduction of exotic and invasive plants and animal species. The authorities responsible for this mismanagement have openly admitted their failure to provide for the health of the Otaki River and their inability to nurture it."* [59]

Parts of the Otaki community are equally concerned about the health of the river and catchment.[60]

The upper Otaki River and large parts of its catchment are public conservation lands (approximately 91%) and therefore unmodified and relatively pristine. Only about 10% of the actual river length is modified.[61] Use of the natural water resource in the Otaki River and catchment is currently well within the limits defined in the Regional Freshwater Plan. There are no consented discharges into the Otaki River at the present time. The lower Otaki River has been substantially modified for flood protection purposes and it is this part that seems to be the cause of tangata whenua and community concerns. Some in the community remember when the lower river was much less modified than it is now and are seeking to have it restored it its original ecology.

In the context of the Otaki River wellfield and pipeline proposal, Ngati Raukawa and the community have expressed concerns about the potential for further adverse environmental impacts on the Otaki River arising from the water take if the project is implemented. The proposed water take is well within the allocation and minimum sustainable flows set in the Regional Freshwater Plan so in theory there should be little or no impact.

WRC monitoring indicates the water quality in the Otaki River is generally good. However, the lower Otaki River has been significantly modified by flood protection works and some removal of vegetation for farming purposes. The WRC advises that although the flood protection works affect the physical appearance of the river, the water quality, flow and ecology remain strongly influenced by the unmodified habitat upstream.[62] The PCE sees enhancing the quality of that part of the ecosystem as important. There are opportunities which are only slowly being capitalised on, for example, riparian planting which will redress some of the damage done and contribute to long-term sustainability of that ecosystem. This is primarily the responsibility of the WRC and it is acknowledged that both the WRC and KCDC are taking steps towards improving the overall health of the Otaki River and catchment through the preparation and implementation of various strategies.[63] Maintaining and improving where necessary the ecosystem health of this river and its catchment is important in the context of the sustainability of urban water systems because experience elsewhere demonstrates that it will contribute to improved water quality and quantity.

[59] Page 18 of the Proposed Ngati Raukawa Otaki River and Catchment Iwi Management Plan.
[60] Friends of the Otaki River.
[61] WRC Resource Policy Group March 2001.
[62] WRC Resource Policy Group March 2001.
[63] Otaki River Environmental Strategy 1999.

Waikanae River and Catchment

There is considerable concern about the health of the Waikanae River arising from the current water take and from pollution. Te Ati Awa ki Whakarongotai, as kaitiaki of the river, consider that it is in a state of ecological decline.[64] Various groups in the Waikanae community[65] are also concerned and working to improve the situation. The Waikanae River is and has been under considerably more pressure than the Otaki River though again it is important to note that parts of its catchment are relatively unmodified. The sustainability of the ecosystem in those parts of the river that run through the urban areas is a real concern. However, the various resource consents granted for water abstraction and discharge of sewage since the Regional Freshwater Plan was proposed have been aimed at pulling the use of the natural water resource in that river back within the limits set by the freshwater plan and hence moving towards long-term sustainability. WRC monitoring reports indicate the water quality in the Waikanae River is generally satisfactory and improving for a river that goes through an urban area. In time, monitoring undertaken by the WRC will no doubt prove whether or not the limits set in the Regional Freshwater Plan are sufficient to provide for the long-term ecological sustainability of the Waikanae River and its catchment.

As with the Otaki River, parts of the Waikanae River have been significantly modified through flood protection works and deforestation. Again it is important to take opportunities to enhance the ecosystem. Both the WRC and KCDC are taking steps towards improving the overall health of the Waikanae River and catchment through the preparation of various strategies[66] and through the more stringent restrictions placed on KCDC's water take consents. However, Te Ati Awa ki Whakarongotai do not agree with core aspects of the WRC/KCDC Environment Strategy relating to process, ecology, terminology and cultural heritage issues[67] hence the development of another Ecological Strategy. Kapakapanui of Te Ati Awa ki Whakarongotai believe that a management plan needs to be prepared for the Waikanae River and have begun preparing their own plan for enhancing the Waikanae River and its catchment. Kapakapanui advises the plan will include working with the wider community on water and other environmental education projects, revegetation projects and on cleaning up pollution.[68] Te Ati Awa ki Whakarongotai see the Otaki pipeline proposal as a distraction from the real problem which is the health of the Waikanae River and catchment.[69]

As with the Otaki River, improving the ecosystem health of this river and its catchment is an important part of improving the sustainability of urban water systems.

The Groundwater Resource

A concern that came to light through consultation is the number of water bores that have been put in on the Kapiti Coast over the last few years and the cumulative impact they may be having on the groundwater of the Kapiti Coast. Many people in Waikanae, Paraparaumu and Raumati are putting in bores as a way of overcoming water restrictions during summer. This solution is, in fact, encouraged by KCDC.

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[64] Page 24 of the Waikane River Environmental Strategy 1999.
[65] KEA, Forest and Bird, Waikanae Estuary Guardians and Friends of the Waikanae River.
[66] Waikanae River Environmental Strategy 1999 and a Strategy for Restoring the Waikanae River Corridors Indigenous Ecological Values 1999.
[67] Page 24 of the Waikane River Environmental Strategy 1999.
[68] Kapakapanui comments on the draft PCE report into the sustainability of urban water systems on the Kapiti Coast, 4 April 2001.
[69] Kapakapanui submission to the draft AEE for the Supplementary Water Supply Project October 2000.

Under the Regional Freshwater Plan, shallow bores of less that 5 metres in depth do not require resource consent.[70] KCDC considers it has a reasonably accurate record of the number of bores because people are encouraged to register the bores with KCDC to avoid enforcement action when water restrictions are in place. This register indicates over 1000 bores have gone in either unconsented or as a permitted activity over that last few years. The WRC, however, does not appear to have an accurate record of how many bores now exist, even though Rule 10 of the Regional Freshwater Plan requires that the WRC is advised of the bores as a condition of being a permitted activity.

There are also some other issues with groundwater in specific parts of the Kapiti Coast which are cause for concern. On-going investigations by the WRC (1996 & June 1998) indicate that shallow groundwater throughout much of the Hautere Plain (Te Horo area) is affected by nitrate levels in excess of the current New Zealand Drinking Water Standard. Research is being carried out into the likely causes which encompass such land use practices as: land disposal of dairy and poultry effluent; horticultural and pastoral fertiliser application; and point sources such as septic tanks and silage pits.[71] In addition, groundwater at Te Horo Beach also appears to be compromised. WRC sampling indicates groundwater quality in the Te Horo beach township is degraded in parts by localised saline intrusion and the discharge of septic tank effluent (WRC May 1998).

Potential adverse effects from overuse of the shallow groundwater resource include interference between neighbouring bores, soil compaction and subsidence due to watering of organic rich sediments, seawater intrusion near the coast and draining of wetlands.[72] Some of the groups consulted suggested there was already salt-water intrusion in places. This information was anecdotal and requires further investigation.

From a sustainable water management perspective, the lack of information held by WRC (the agency responsible under the RMA) about the number of shallow bores, the quantity of water take from those bores and whether or not there is potential for adverse cumulative effects on the shallow groundwater resource are significant concerns. WRC acknowledges that it does not have adequate knowledge of the groundwater resource or of the numbers of bores that exist. The proposals for more in-depth investigations[73] in 2001/02 are noted and should be given priority.

Supplementary Water Supply for Waikanae, Paraparaumu and Raumati

In the exercise of its responsibilities related to the management of urban water systems on the Kapiti Coast, KCDC has decided that a supplementary water supply is required for Waikanae, Paraparaumu and Raumati. This raises a number of issues:

The Need for a Supplementary Supply

Waikanae, Paraparaumu and Raumati still have comparatively high rates of water consumption even though progress has been made in reducing it. This suggests that the underlying problem is not simply insufficient water but an inefficient and profligate use of the existing water resource. However, it is acknowledged that there may be times (low flow conditions in the

[70] Rule 10 Shallow Drilling (restricted) of the Regional Freshwater Plan.
[71] WRC 1998 Nitrate Management on the Hautere Plain.
[72] Page 1 of the Paraparaumu Shallow Groundwater Investigation 2000.
[73] Paraparaumu Shallow Groundwater Investigation 2000.

Waikanae River) when more efficiency of use and conservation measures will not be enough to meet the need. Changing weather patterns as a result of climate change are likely to mean that the predictions of low flows in the Waikanae River (refer page 21) will also be unreliable because they are based on historical data. With increased variability in rainfall patterns, droughts or flooding may become more frequent.

From the PCE's perspective the need for a supplementary supply for Waikanae, Paraparaumu and Raumati should be considered within the context of a comprehensive demand management programme. Efficient use of the existing water resource is the first priority. Within that framework there may be certain circumstances, such as drought or contamination of the raw water source, in which a supplementary supply is required.

Overseas experience demonstrates that there are considerable opportunities to be found in reducing demand for water through metering and charging, recycling and reusing wastewater, using alternative sources such as rainwater and using water efficient appliances and technologies. Reducing demand even further changes the picture in terms of the quantity of water that will be required to meet increased consumption due to population growth and restrictions on the quantity of water that can be taken from the Waikanae River.

Unfortunately, it is probably unrealistic to expect to have these sorts of measures in place before the 2003 deadline. In other circumstances and given more time, a range of alternative approaches may be sufficiently effective, for example a combination of demand management, water recycling and reusing technologies and improving water storage, so as to obviate the need for a supplementary supply or to make smaller alternative supplies such as the emergency bores feasible. In the longer term, an alternative for Kapiti Coast to focusing on increasing water supply is to first look at the development of a comprehensive demand management programme which makes better use of the existing water resource and reduces the need for additional supplies and new infrastructure. Consideration of the need for alternate supplies can then be placed within the context of the demand management programme.

Consideration of Alternatives

In traditional terms, KCDC has considered a full range of alternative options for the supplementary water supply. As noted in Chapter 2, this investigation is not an audit of that consideration of options nor was it ever intended to be. Consequently no analysis of the adequacy of the investigations into the alternate options has been carried out.

KCDC decision-making on the various options seems to have come down to a choice between two principal supply alternatives, the Otaki River wellfield and pipeline and the Kapakapanui Dam. Both projects are considered to be feasible and capable of meeting KCDC's objectives for the supplementary supply.[74] It appears that KCDC in the end chose the Otaki River wellfield and pipeline option because, leaving aside the considerable opposition from Ngati Raukawa and other parts of the community, the council considers it to have fewer risks than the Kapakapanui Dam. The pipeline also has the strategic benefit of potentially being able to form the basis of a reticulated infrastructure for the areas between Otaki and Waikanae, should that be required in future.

[74] Appendix 2 page 21 of the KCDC Supplementary Water Supply Project Resource Consent Applications and AEE.

In this consideration of options the PCE is concerned, firstly that the focus has been on finding a new water supply (seemingly at the expense of developing a comprehensive demand management programme), secondly about the criteria used by KCDC to weigh the options and to make choices and thirdly about the emphasis placed on finding a single solution. An officer's report[75] which appears to form the basis of the decision-making by KCDC used the following criteria to weigh the relative costs and benefits of the wellfield and dam options:

- quantity of water required
- security of supply
- water quality
- geotechnical
- seismicity
- environmental effects
- cultural issues
- community issues
- operational issues
- land & property
- other strategic benefits
- timescales
- cost
- exchange rate

These criteria, while relevant and necessary, do not include criteria that will promote more sustainable urban water systems consistent with the principles espoused in the Ageing Pipes report. For example, the criteria could have been expanded to include ones which:

- reflect the principles of sustainable development i.e. ecologically sound, socially acceptable and economically viable;
- maintain and enhance natural water systems and natural hydrology with full recognition of the role and value of ecosystem services;
- foster use of innovative technologies that increase the efficiency of water use and create opportunities to reduce, reuse and recycle; and
- recognise the value of water to Maori and foster involvement of kaitiaki through partnership, co-management and other approaches.

In addition, the relative weighting given to the various criteria is unclear. There is no indication of the method used. It is therefore not possible to know for example, how the needs of Ngati Raukawa were weighted in relation to the other criteria.

The focus in the KCDC consideration of alternatives has been on finding one source of water, which will provide the full quantity of water, at an appropriate quality with the necessary security of supply. This approach is consistent with a more 'traditional' approach to management of urban water systems, i.e., the emphasis is on increasing water supply where necessary by building more dams and pipelines with few incentives to reduce water use (refer Chapter 3). **A more sustainable approach may well have been to develop a package of alternatives which includes more than one additional water source and a number of projects focused on reusing and recycling water to assist in managing demand**. However, the lead-time for such an approach, assuming community and political mandate, is longer than the time available before the 2003 deadline when the risk to security of supply for Waikanae, Paraparaumu and Raumati becomes more acute. Unfortunately, this is a limitation borne out of the failure by successive councils to address the issues sooner.

Otaki River Wellfield and Pipeline Proposal

[75] Appendix 2 page 20 of the KCDC Supplementary Water Supply Project Resource Consent Applications and AEE.

The PCE's role is essentially that of an independent reviewer and advisor on remedial action for improving the effectiveness of environmental planning and management. Thus he has no powers to recommend any particular course of action.

If the Otaki River wellfield and pipeline proposal does proceed, the following matters need to be considered:

- Once the immediate pressure for water in Waikanae, Paraparaumu and Raumati is resolved, the incentive to use water efficiently may be reduced. Continued demand management would be essential to ensure the minimum water take from the Otaki River and efficient water use.
- Unless there is an on-going emphasis on efficiency of water use, the end result will be more wastewater generated and needing to be assimilated by the receiving environment.
- Once the infrastructure is in place, it is logical to assume there will be increased pressure to use it for any further increased demand for water supply in the areas between Otaki and Waikanae.
- The underlying issues of tangata whenua opposition and community opposition will remain unresolved and will in fact be exacerbated. This will impact negatively on the resolution of issues around the role of Ngati Raukawa as kaitiaki for the Otaki River and the role of Te Ati Awa ki Whakarongotai as kaitiaki for the Waikanae River.

Other Options

A consistent theme from the consultation with the various parts of the Kapiti Coast community (refer Chapters 5 and 6) is that there are other options for providing the supplementary water supply or managing water consumption which either have not been considered or have not been considered in sufficient depth. These alternatives include:

- various options for recharging the Waikanae River, for example, using treated effluent and/or groundwater (KEA and others);
- development of a dual reticulated water supply, i.e., delivery of potable water through the existing system and a second system for external use using groundwater/rain water tanks;
- greater investigation of groundwater sources;
- promotion of alternate sources of water for external use such as rainwater tanks and groundwater;
- promotion of water efficiency measures such as lower water pressure, grey water usage, and planting drought resistant native plants;
- planning for new patterns of urban growth;
- putting Waikanae Beach on an independent supply using groundwater thus reducing the demand on Waikanae River (Waikanae Progressive and Ratepayers Association);
- development of a number of reservoirs incrementally over a number of years in the Waikanae River catchment (KEA); and
- development of a Waikanae River catchment regeneration plan.

As noted in Chapter 2 this investigation has not reviewed the appropriateness of these alternatives. Some of them may well warrant further investigation in the context of the development of a strategic plan for water services in the future but, equally, some of them may prove to be totally inappropriate. Some of these options would take longer than two years to implement and therefore will not alleviate the short-term risks associated with restrictions to Waikanae River water supply from 2003.

Integration of Planning and Infrastructure Delivery

In considering the issues surrounding the management of urban water systems on the Kapiti Coast, a number of concerns related to planning the delivery of services were identified.

The strategic planning (for example, the Strategic Plan, LTFS and proposed 50 Year Water Strategy) carried out by KCDC tends to be separated into sectors. For example, planning for water supply is carried out separately to planning for wastewater. The integration between sectors seems to be poor. Funding for water supply infrastructure delivery is obtained on a ward basis rather than district wide basis making it difficult to fund in some cases.

The approach to decision-making on the supplementary water supply appears to have been adhoc and characterised by switching from option to option. As a result, progress over the last 10 years has beentoo slow which has effectively limited, and will further limit, options.

The Urban Growth Strategy for the district is demand driven rather than carrying capacity driven. It seems to be predicated on the principle that all growth must be accommodated and in fact encouraged. However, the fundamental research into the carrying capacity of the environment to support growth has not been carried out.

In addition to internal integration between KCDC functions, greater levels of integration between the principal management agencies, WRC and KCDC, are also required. Both the WRC and KCDC have roles to play in the management of the urban water systems on the Kapiti Coast. Each agency appears to work to its own statutory responsibilities and not enough effort goes into capitalising on synergies or partnerships. For example, KCDC's consideration of alternative sources of water supply has been carried out largely in isolation from the WRC even though the WRC has an overall statutory responsibility for the water resource.

At the national level, there are some legislative impediments which impact upon KCDC's ability to integrate the management of urban water systems on the Kapiti Coast.[76] The Building Act 1991 does not provide territorial authorities with the power to enforce some options for improving efficiency of water use when new homes are being built or existing homes are renovated. The broader PCE water investigation addresses these issues in more detail because they are common to all territorial authorities to some extent.

Relationships between Tangata Whenua and KCDC

Tangata whenua, both Ngati Raukawa and Te Ati Awa, described their relationship with KCDC as lacking trust and characterised by a failure to recognise and take seriously their culture, values and status. For example, Ngati Raukawa see that 'engineering' values were given a greater weighting than their values in the process of choosing the Otaki pipeline as the preferred option for the supplementary water supply. Consultation is seen by tangata whenua to be 'top down' and surrounded by a feeling of failure. The Otaki wellfield and pipeline proposal highlights for Ngati Raukawa the overall inability of tangata whenua to be proactively involved in the management of the Otaki River and its catchment.[77] The shift to the sustainable urban water systems will need to involve the active and positive participation of tangata whenua. The current situation is likely to make this more difficult to achieve.

[76] Page 14 PCE 2001.
[77] Page 12 of the Proposed Ngati Raukawa Otaki River and Catchment Iwi Management Plan.

Relationships between KCDC and the Kapiti Community

The Kapiti community (or parts of it) also seem to find it difficult to access KCDC planning and decision-making processes. In general, the groups consulted tend to feel disenfranchised and frustrated. Community groups often expressed the same sorts of concerns as tangata whenua.

Access to information is an issue. Taking the supplementary water supply project as an example, there is no doubt that there is a lot of background information available but it is not presented in a form that is easily understood by non-professionals and the sheer quantity is daunting. The community tends to feel that the presentation of the information is inconsistent and lacks transparency. Particular aspects of an issue may be emphasised at the expense of other equally important issues. As with tangata whenua, the shift to sustainable urban water systems will need to involve the active and positive participation of the community. The current situation is likely to make this more difficult to achieve.

Public Health Issues

Water is vital for health, of both people and the natural environment. The provision of a sufficient quantity of good quality water that can be simply treated to meet community drinking water requirements and other needs such as toilet flushing, bathing, clothes washing and cooking/food preparation is critical. The key management agency tasked with protecting and improving public health is the Regional Public Health (RPH). RPH has been involved in urban water supply issues on the Kapiti Coast for a number of years and is responsible for administering various relevant statutory requirements such as the Ministry of Health Drinking Water Strategy.

Key concerns for public health in terms of water supply centre around the management of risk to the water supply, for example from contamination or as a result of discontinuity of supply. The Ministry of Health Drinking Water Strategy defines water supply requirements based on acceptable levels of risks. Within that context RPH is open to incorporating alternate forms of delivering water supplies provided the acceptable level of health protection is achieved. This may lead to delays in implementing some proposals but certainly does not preclude consideration of other options.[78]

[78] Regional Public Health submission dated 5 April 2001, on the draft report into the sustainability of urban water systems on the Kapiti Coast.

A Way Forward

The purpose of this investigation is to assess the effectiveness of environmental planning and management carried out by KCDC in respect of the sustainability of the urban water systems on the Kapiti Coast. As part of the investigation, the **conclusions reached and recommendations made** are designed to contribute to the management of sustainable urban water systems on the Kapiti Coast.

As discussed in Chapter 7, sustainability, in the context of this investigation, is used in its broader sense: integrating environmental, social and economic goals; meeting the needs of present generations without compromising the needs of future generations to do the same; and living within the carrying capacity of the environment. Sustainability is a process of evolutionary improvement resulting in reduced environmental impacts and greater efficiency in resource use while improving the quality of life, rather than a clearly defined initial goal. The recommendations are placed in the context of contributing to that process of evolutionary improvement.

Ecological Sustainability

Environmental Limits

An essential component of sustainability for communities revolves around 'trying to live within their means' in an environmental sense. This encompasses ensuring there is sufficient water to maintain the health of ecosystems and that human actions will not impair the long-term renewability of freshwater stocks and flows. While the WRC is responsible for the overall management of ecosystem health under the RMA, within that context and within the context of urban water systems, one of the key issues for the Kapiti Coast communities is reducing water consumption. Water consumption needs to be managed to ensure it allows long-term maintenance of the ecological health of the catchments it is being taken from. It needs to be managed with this in mind throughout the whole water cycle from the water take at the beginning through to the capacity of the environment to absorb wastes at the other end of the cycle.

There are also other aspects of living within environmental means. This may mean, for example, that catchment based solutions are preferable wherever possible. Water from the Waikanae River catchment should be used for purposes within that catchment and water from the Otaki River catchment should be used for purposes within that catchment. In reality, of course, this may not always be possible, for example, in cases of extreme drought or raw water contamination or where catchments are very small.

Water consumption on the Kapiti Coast continues to be comparatively high and this is particularly affecting the Waikanae River. To alleviate this effect, KCDC must further reduce water consumption even further than it already has. In order to do this, KCDC will need to develop a more comprehensive demand management programme which builds on the current annual water conservation programme and moves beyond it to set new goals and incorporate additional techniques. The key next step is, of course, implementing universal water metering and introducing flow-based charging for water. Better pricing and charging for water is essential for improved demand management.

It is therefore concluded that KCDC should develop and implement a comprehensive water demand management programme. In the interim, the current water conservation programme needs to continue. The monitoring and compliance programme may need to be enhanced to overcome public perceptions that non-compliance is acceptable, i.e. easy to get away with or that some sectors of the community need not make a contribution.

Catchment Management Planning

It is generally recognised that the health of the catchment from which raw water is directly taken impacts on the quality and quantity of that water and therefore on the costs associated with water treatment and supply. Good environmental health in the catchment also has a myriad of other benefits for environmental sustainability.

RPH has a strong interest in ecosystem sustainability and recognises that healthy ecosystems are essential for supporting healthy communities.[79] RPH notes the potentially integral connection between good catchment management and raw water protection and the proposed new requirement for drinking water supplies set out in the proposed Health (Water Supply) Regulations. This will require the preparation of risk management plans to address how a community is going to manage the risk to its water supply right from the collection of raw water through to treatment, distribution and storage. RPH recognises that the quality of the catchment health directly connects to the quality of the water.

Greater emphasis needs to be placed on managing the catchments of the Otaki and Waikanae Rivers for water catchment purposes. This is of particular concern for those parts of the catchments which are not held in the conservation estate. More resources need to go into identifying the opportunities for: reducing the adverse environmental effects of land use on the catchments; integrating land use planning with river management; and rehabilitating the streams and rivers wherever possible, for example, with riparian planting.

WRC and KCDC need to collaborate on this because both organisations have responsibilities under the RMA which impact upon management of the catchments. The collaboration will need to include tangata whenua as kaitiaki for their respective rohe and the community as stakeholders. The IMP for the Otaki River and catchment provides clear guidance and opportunities as to how Ngati Raukawa wish to carry out this role. Te Ati Awa have also clearly expressed their concerns and aims for the Waikanae River. KCDC and WRC are encouraged to investigate the opportunities for enhancing the health of the Otaki and Waikanae River catchments in collaboration with tangata whenua and the community.

Rehabilitation of Lower Reaches of the Otaki and Waikanae Rivers

The lower reaches of the Otaki and Waikanae Rivers have been significantly modified over time by flood protection works. Rehabilitation of the lower reaches of the Otaki and Waikanae Rivers is very important not only for the ecosystems themselves but also for tangata whenua and the communities living around the rivers. The actions being taken by WRC and KCDC, including setting up the Friends of the Otaki River and the Friends of the Waikanae River and developing strategies aimed at improving the river environments, are supported. In conclusion, KCDC and WRC are encouraged to provide on-going resourcing for the rehabilitation and restoration of the lower reaches of the Otaki and Waikanae Rivers.

[79] Regional Public Health submission dated 5 April 2001, on the draft report into the sustainability of urban water systems on the Kapiti Coast.

Within this context, ways of recognising and providing for the role of tangata whenua as kaitiaki for these rivers need to be more fully developed. Again, the IMP for the Otaki River and catchment provides clear guidance and opportunities as to how Ngati Raukawa wish to carry out this role. Te Ati Awa have also clearly expressed their concerns and aims for the Waikanae River. However, there are many more opportunities for significant environmental improvements to be achieved through building on the commitment, knowledge and goodwill of tangata whenua. The role of tangata whenua as kaitiaki and their relationships with the Otaki and Waikanae River needs to be recognised in a more robust manner and provided for in accordance with section 6(e) of the RMA. KCDC and WRC have responsibilities under the RMA to work with Ngati Raukawa and Te Ati Awa to explore and give practical implementation to the opportunities for tangata whenua to be proactively involved as kaitiaki within their respective rohe for the Otaki and Waikanae Rivers and catchments.

Research

Better information is needed on groundwater and surface water resources on the Kapiti Coast. Greater understanding of local ecosystems, natural water cycles, and ecosystem services is required. The total water resource on the Kapiti Coast is finite but the limits of that resource have not been defined sufficiently. Both KCDC and WRC have responsibilities that affect the water resource. A more integrated outcome will be achieved if both parties develop a partnership to carry out this research. It is considered that KCDC and WRC should jointly develop and fund a programme of research into the water resource on the Kapiti Coast.

Groundwater Resource

Of particular concern is the current proliferation of shallow ground water bores and the potential for adverse cumulative environmental effects on the groundwater resource. The WRC is responsible for the overall integrated management of the water resource on the Kapiti Coast and has initiated moves to establish the current and potential range of adverse environmental effects of the shallow groundwater bores. This work is supported and needs to be continued. A greater investment of resources may be required. Depending on the outcome of the investigations, changes to the Regional Freshwater Plan may be required (including limiting the rate/number of new bores installed in the district).

Social and Cultural Sustainability

Relationship between Tangata Whenua and KCDC

A key theme of the consultation undertaken for this investigation was dissatisfaction and frustration with the capacity of tangata whenua to access KCDC's decision-making processes. Tangata whenua (and the majority of the community groups) are not happy with the way consultation is carried out. The nub of the issue seems to be:

1. Respect for and recognition of tangata whenua;
2. Tangata whenua want to be involved from the beginning of dialogue about what the possibilities are, rather than at the end when the options have been narrowed down to one or two; and
3. Tangata whenua want their concerns, values and views clearly heeded and reflected in KCDC decision-making.

Various initiatives aimed at establishing a working relationship between KCDC and tangata whenua, such as the 1994 Memorandum of Partnership and a Mäori advisory committee,

unfortunately do not seem to have led in practice to an effective and meaningful partnership. Clearly this is a challenge for all the parties involved. On-going dialogue is required and both sides need to look for a more constructive way of carrying out this dialogue.

The 1998 PCE report "Kaitiakitanga and Local Government: Tangata Whenua Participation in Environmental Management" offers a wide range of information on ways of developing constructive working relationship with tangata whenua which may be useful.

IMP for the Otaki River and Catchment

The key issues for Ngati Raukawa in respect of the Otaki River and catchment are the implementation of the IMP and the development of a co-management regime for the Otaki River and catchment in conjunction with the relevant management agencies, KCDC, WRC, and DOC.

At the meeting with the PCE investigation team on 29 November 2000, Ngati Raukawa suggested that these issues might be most efficiently addressed through a "round table" discussion process between themselves and the relevant management agencies. Ngati Raukawa also suggested that the PCE, as an independent party, would be appropriate to convene and facilitate such a process. It was noted that the PCE has in the past undertaken a similar role to advance discussion amongst different stakeholders in regard to such environmental issues as the Wellington Airport and the Marsden Point Port expansions.

Given that the IMP and its implementation covers a related but different range of matters than those covered by this investigation, it would seem more productive to address the issues raised by the IMP separately. The PCE is currently undertaking a scoping exercise to explore the concept of a Treaty based environmental audit framework and how such a framework might be developed. The PCE will further investigate the requirements and opportunities with the implementation of the IMP within the context of the Treaty based environmental audit framework investigation.

This by no means precludes the relevant management agencies, KCDC, WRC, and DOC from working with Ngati Raukawa and developing other initiatives aimed at implementing the IMP.

KCDC's Relationship with the Kapiti Community

Most of the groups consulted expressed very similar concerns to tangata whenua in terms of gaining access to KCDC's decision-making process. Both the 1991 and 1995 PCE reports have canvassed this issue. The findings in the 1995 report are particularly pertinent:

- *The complex nature of the issues surrounding water supply and sewage treatment and disposal, plus the increase in information available, have resulted in changes to former assumptions and made it difficult for the public to follow and contribute to strategic issues.*
- *The council has made an adequate effort to consult with the community on both the strategic and operational aspects of water and wastewater management.*
- *There is scope to improve public participation, particularly in regard to the strategic issues facing the council.*[80]

[80] Page 37 of PCE 1995.

The recommendations of the 1995 report are still relevant. KCDC is encouraged to develop ways of facilitating early consultation and input with the Kapiti community on the strategic infrastructure issues facing the district.

Community Concerns about Water Management

As the Beyond Ageing Pipes report[81] identifies, one of the biggest challenges on Kapiti Coast and New Zealand-wide will be reaching consensus between stakeholders on environmental, social and economic goals for urban water systems. There is a range of community and political tensions surrounding how water services are currently managed which are evident on the Kapiti Coast as elsewhere and expressed by some of the community groups consulted in the course of this investigation. These tensions include ownership of water services, management and pricing and charging for water.

As discussed above, the development of a comprehensive demand management programme that includes universal metering and flow-based charging is critical for Kapiti if it is to make progress towards a sustainable urban water system. However, the introduction of flow-based charging will be a sensitive political and community issue for Kapiti. Sometimes flow-based charging is seen as a precursor to privatisation. The effect on low-income households is often a concern and there is usually anxiety about whether non-payments of bills will result in water supply being cut off. Experience shows that there is no direct connection between metering and flow-based charging and these concerns. All of these concerns are resolvable depending upon the management choices to be made. These are important issues that KCDC, the Kapiti community and tangata whenua will need to acknowledge, debate and resolve.[82]

Economic Sustainability

Valuing, Pricing and Charging for Water Services

There are problems with the continuing use of property rates for the payment of water services, particularly for water supply and wastewater services. There is a weak relationship between the value of a property and the actual use of water services. The increasing use of uniform annual charges is not a suitable replacement for property rates. As with charges based on property rates, uniform annual charges result in all properties being charged the same amount regardless of use of water services. Uniform annual charges penalise small or efficient water users and subsidise high and inefficient users. With uniform annual charges and charges based on property rates, there is no economic incentive for consumers to reduce their water consumption through efficiency measures. Where meters and flow based charges have been introduced, both in New Zealand and overseas, there has been a significant change in behaviours and a decrease in demand on a per capita basis.[83]

Water consumption on the Kapiti Coast continues to be comparatively high. Increasing supply as a response to the mismatch between demand and supply is not necessarily cheaper financially than reducing consumption. The next logical step beyond the current range of measures taken by KCDC to manage the demand for water is the introduction of universal water metering and flow-based charging for water. Better pricing and charging for water is essential for an improved management of urban water systems on the Kapiti Coast. Metering will also assist with leak detection and provide water service managers with information on

[81] Page 16 of PCE 2001.
[82] Page 17 of PCE 2001.
[83] Page 16 and 17 of PCE 2001.

consumption patterns which is very useful in assessing peak demand and the demand for new infrastructure.

KCDC has made provision for the installation of universal water meters in the LTFS commencing from 2008/9. However, it is suggested that given the on-going difficulties with matching supply to demand, installation of universal water meters should be brought forward and started in the next financial year.

An additional issue for Kapiti is that infrastructure for water supply is currently funded on a ward basis rather than a district basis. In areas like Otaki this makes it difficult to fund new infrastructure and may lead to deferrals and short-term decision-making which will not contribute to the long-term sustainability of the urban water systems. The merit of this approach needs to be reviewed within the overall context of improving the valuing, pricing and charging for water services on the Kapiti Coast.

Continuity of Water Supply

It is acknowledged that currently Kapiti Coast does have a potential risk of losing continuity of water supply for the Waikanae, Paraparaumu and Raumati communities, particularly post 2003, if supplementary sources of supply are not brought on stream in time. This could be the result of either drought conditions or contamination of the raw water source. Loss of supply would have a range of economic effects (for example, loss of irrigation for farming businesses) in addition to the obvious public health concerns. Despite the size (probability) of this risk, increasing alternative supplies is not the only way to manage the risk. Therefore, it would be prudent for KCDC to develop a forward risk management strategy to assist residents to cope with reduced or disrupted supplies while demand management and supply security initiatives are under development and/or alternate supplies are sourced.

This issue does need to be addressed within the context of the overall picture of water supply and management.

Water Supply for Otaki

As discussed in Chapter 4 of this report, the water supply for Otaki Township is likely to become a significant issue in the future both in terms of water quality but potentially also in terms of quantity if Otaki keeps growing as a desirable horticultural and residential area. This could involve significant expenditure, some of which has been budgeted for in the LTFS in approximately 20006/07. However, under the current ward-funding scheme, the burden of repayment would fall on the Otaki community. These issues will need to be incorporated into the long-term planning for water services on the Kapiti Coast.

Urban Growth Strategy

The capacity of the Urban Growth Strategy to effectively manage urban growth along the Kapiti Coast is a concern. At one level the strategy is not broad enough. The focus is on the Kapiti district when in fact it needs to take into account integral connections both with Wellington and with the Horowhenua through to Palmerston North. The Auckland Regional Growth Strategy shows the sort of approach that is likely to be more effective. At another level, the environmental effects of the Growth Management Strategy should be reviewed and integrated with the 50-year water strategy and with integrated catchment management planning. It needs to be more clearly established that growth can be accommodated without significant environmental effects. This in turn may lead to changes to the District Plan and the Code of

Urban Subdivision in order to more effectively avoid, remedy or mitigate a range of adverse effects.

Integration

The traditional approach to the management of urban water systems which splits the various parts and manages each separately is outdated. A more integrated, life-cycle approach is required. One mechanism for introducing holistic, integrated management is the preparation of an overarching water services strategic plan.

Water Services Strategic Plan

KCDC has undertaken a wide range of planning related to the management of urban water systems which appear to be comparable with that produced by many other local authorities of a similar size and resource base. Taking findings in earlier PCE reports as a benchmark, KCDC has made considerable progress over the last 10 years in addressing the issues surrounding water management on the Kapiti Coast.

However, the fundamental problem that the PCE sees with the KCDC approach, is that it firstly, lacks strategic vision inclusive of an emphasis on principles to promote sustainable urban water systems and secondly, to some degree, it lacks integration across the full range of functions that affect the management of urban water systems. A shift in philosophy and emphasis on developing the whole system so that it is more ecologically sustainable, economically efficient and socially just is now required. This can be approached by building on progress already made.

It is noted that KCDC is committed to the preparation of a 50-year water strategy.[84] From the PCE's point of view, this is a very important decision and one that offers considerable opportunities for moving towards the management of more sustainable urban water systems on the Kapiti Coast.

Within a sustainability framework, the process of preparing a water services strategic plan is as important as the final product.[85] For Kapiti Coast to make real progress in terms of managing its water issues, KCDC must prepare this strategic plan, from the very beginning, in partnership with tangata whenua and the community. A process including community workshops (charettes) is recommended for the development of the strategic plan. This will enable tangata whenua and the community to fully understand the issues involved, to contribute their values, priorities and concerns, and to be committed to the solutions that are developed for the long term.

In addition, the preparation of a water services strategic plan will provide opportunity for integration between this strategy and related council functions, plans and policies such as the Urban Growth Strategy. It will also provide an opportunity for partnership between the WRC and KCDC which both have roles to play in the management of urban water systems on the Kapiti Coast. For example, a steering group could be established to manage the process which includes representatives of WRC, tangata whenua and the community as well as KCDC. Such a

[84] KCDC Annual Plan 2000/01.

[85] MFE and LGNZ have recently produced a guide to strategic planning in local government, "The Local Government Strategic Planners' Guide", available via www.lgnz.co.nz. which sets out information about good practice for strategic planning in local government.

strategic plan should bring to the picture of water services delivery the integration and coherence which are currently missing.

SCENARIO: KAPITI COAST WATER 2020

A vision for how sustainable urban water systems on the Kapiti Coast might look in 2020 noting that visions are a desirable possibility rather than a prediction.

By 2020 the way urban water systems are managed on the Kapiti Coast has fundamentally changed. Between 2002 and 2003 KCDC worked extensively with tangata whenua and the Kapiti community and developed a visionary Water Services Strategic Plan, the fruits of which are now being seen in major improvements to the environmental quality and lifestyles on the Kapiti Coast.

Water consumption has dropped dramatically due to changes in technology, community values, lifestyle and economic drivers. Universal water metering and flow-based charges introduced between 2004 and 2006 are accepted as fair and equitable. All residents are guaranteed access to a minimum of 100 litres of water per day. Above that minimum, water for domestic use is charged in increasing block rates so that low and efficient users pay modest water charges and very high users pay considerably more. All residences have water efficient fixtures thanks to a replacement programme (shower heads and toilets) funding by KCDC from 2006 to 2010. New Building Act requirements ensure this happens as a matter of course in new buildings. Most residents have rainwater tanks and/or grey water recycling capacity which they use for garden watering, car washing and/or toilet flushing. The Kapiti Coast is leading the rest of New Zealand in showing how to develop dramatically stylish gardens using drought tolerant New Zealand native plant species. Reclaimed grey water is used for irrigating public parks and commercial landscaping. The combination of reduced consumption, grey water reclamation, and multiple sources of supply ensure that the Kapiti communities draw water from the catchments they are located in.

By 2020 the catchments of the Otaki River and Waikanae Rivers are transformed. Fully established riparian planting of native species, funded by joint WRC/KCDC incentive programmes and community action, lines the tributaries in the catchments. These landscapes are valued as water catchment areas and land use is closely managed to reduce adverse effects on water quality. Everybody understands and values the kaitiaki role of tangata whenua in relation to these catchments. Inanga are abundant in the Otaki River. Kereru are common throughout the Otaki area now that areas of native bush are more wide spread. Bird life is abundant in the river estuaries. The lower reaches of the Waikanae River and the Otaki River are fully restored to their former glory while still mitigating flooding effectively. The quantity and quality of the water from these catchments has improved over the years.

The dry long hot summers are no longer the problem they used to be because the community accepts the need and has the capacity to live within the limitations of the available water resource.

On-Going Monitoring

With environmental issues as significant as those highlighted in this investigation, it is considered important that the PCE monitor on-going progress with the management of urban water systems on the Kapiti Coast.

Should KCDC prepare a water services strategic plan (which is anticipated because KCDC has already committed to the preparation of a 50-year water strategy), the PCE will undertake an audit of the strategy and the process used to prepare it using the sustainability principles set out in this report. This audit will be undertaken in the year following the adoption by KCDC of the water services strategic plan.

Recommendations

From the above conclusions, two key recommendations arise which encompass the range of issues discussed.

Recommendation to the Kapiti Coast District Council:

1) To develop and implement a long-term water services strategic plan in consultation with tangata whenua, the Kapiti community and other stakeholders such as the Wellington Regional Council and the Regional Public Health Service.

Explanatory Note

This recommendation is intended to reinforce the commitment of KCDC to preparing a 50-year strategy. A water services strategic plan is an opportunity to balance and integrate demand and supply, to move beyond the conflicts and tensions evident on the Kapiti Coast and agree as a community on a way forward.

This water services strategic plan should:

- set out the Kapiti community's vision for the long-term management of sustainable urban water systems on the Kapiti Coast (see scenario below);
- incorporate the principles set out in the Beyond Ageing Pipes report for management of sustainable urban water systems (refer chapter 3);
- recognise and provide for the role of tangata whenua as kaitiaki of the natural taonga of the coast, rivers and water itself;
- take a life-cycle approach and integrate water supply, wastewater removal and stormwater management;
- encompass the development of a comprehensive demand management programme which includes the implementation of universal water metering and flow-based charging for water;
- integrate future development into the framework set by sustainable urban water systems;
- encompass public health issues such as the likely requirement for a risk management plan for drinking water supplies;
- if the Otaki wellfield and pipeline proposal proceeds, integrate it into the water services strategic plan in order to ensure it does not preclude or compromise the range of options available for promoting the sustainability of the urban water systems on the Kapiti Coast;
- integrate the water supply requirements of the small settlements between Otaki and Waikanae into the overall framework; and
- promote innovative solutions which increase efficiency of water use, emphasise recycling and reuse and address ecological sustainability.

Recommendation to the Wellington Regional Council and Kapiti Coast District Council:

2) To investigate the opportunities for improving integrated water catchment management planning in both the Otaki and Waikanae Rivers and catchments.

Explanatory Note

Internationally, integrated management of land uses in catchment areas is becoming fundamental to ensuring high quality water systems. The RMA sets the statutory framework in which integrated management can take place. As defined in the RPS for the Wellington Region, integrated management involves:

- *"ensuring that the relationship between different resources and environmental systems is taken into account. It is a holistic approach which recognises that one resource cannot be managed in isolation from others; resources, and the effects of human activities on these resources, are inextricably linked;*
- *interagency co-operation and co-ordination, whereby all agencies, including adjacent regional councils, territorial authorities, iwi authorities, special interest groups, the commercial sector, and community groups, work together to meet agreed resource management objectives;*
- *consistency and co-ordination between the internal structures of organisations, particularly local authority departments;*
- *appreciating the full range of effects that might arise from decisions and considering a full range of ways to achieve desired results (s. 32). The effects may be positive or adverse, temporary or permanent, past, present or future, and cumulative effects. Effects may also be potential effects (s. 3);*
- *recognising the iwi environmental management system (see section 3.3 of the RPS); and*
- *recognising that natural and physical resources are better managed by taking social, economic and cultural factors into account. Integrated management must recognise differing community values, interests and aspirations."*[86]

Given the critical importance of the Otaki and Waikanae Rivers to the Kapiti Coast, it is important to keep a focus on management of the catchment specifically for water protection purposes and to seek non-statutory as well as statutory opportunities for enhancing integration.

[86] Page 27 WRC 1995

Glossary

Technical Terms

L/d/p	litres (of water) per day per person

Maori Definitions

hapu	family or district groups, communities
iwi	tribal groups
kaitiaki	iwi, hapu or whanau group with the responsibilities of kaitiakitanga
kaitiakitanga	the responsibilities and kaupapa, passed down from the ancestors, for tangata whenua to take care of the places, natural resources and other taonga in their rohe, and the mauri of those places, resources and taonga
kaumatua	elders, decision-makers for the iwi or hapu
kereru	wood pigeon
mana	respect, dignity, status, influence, power
mauri	essential life force, the spiritual power and distinctiveness that enables each thing to exist as itself
rohe	geographical territory of an iwi or hapu
tangata whenua	people of the land, Maori people
tikanga	Customary correct ways of doing things, traditions
turangawaewae	home, ancestral area or marae, literally “a place to stand”
waiata	songs, lyrics
whaikorero	oratory, speeches
whakapapa	genealogy, ancestry, identify with place, hapu and iwi
whakatauki	proverbs, sayings
whanau	family groups

Acronyms

DOC	Department of Conservation
IMP	Proposed Ngati Raukawa Otaki River and Catchment Iwi Management Plan 2000
KCDC	Kapiti Coast District Council
KEA	Kapiti Environmental Action
LGNZ	Local Government New Zealand
LTFS	Long Term Financial Strategy and Funding
PCE	Parliamentary Commissioner for the Environment
RMA	Resource Management Act 1991
RPH	Regional Public Health
RPS	Regional Policy Statement
SWSP	Supplementary Water Supply Project
TROR	Te Runanga O Raukawa
WRC	Wellington Regional Council

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Appendix I
Request for Investigation from Ngati Raukawa

Appendix II
Groups Consulted With During Investigation

Stakeholder Group	When
Kapiti Environmental Action	13.11.00
Kapiti Coast District Council	25.10.00 16.11.00
Waikanae Progressive & Ratepayers Assn	20.11.00
Otaki Community Board	21.11.00
Wellington Regional Council ▪ Resource Consents team ▪ Flood Management team	 28.11.00 23.1.01
Ngati Raukawa	29.11.00
Waikanae Community Board	30.11.00
Te Ati Awa	5.12.00
Guardians of the Waikanae Estuary Friends of the Waikanae River Forest and Bird	6.12.00
Friends of the Otaki River	31.1.01

A p p e n d i x I I I
Reports Available from KCDC