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THE WATER GROUP

REPORT OF BUSINESS ACTIVITY 2000/2001

A UNIT OF THE WELLINGTON REGIONAL COUNCIL

THE REGIONAL COUNCIL

caring about you & your environment

CONTENTS

This is a celebration of Wellington – a place that 350,000 of us call home. It's a unique region that inspires great loyalty. The things its citizens most enjoy about the Wellington environment and lifestyle are a finely balanced blend of luck and geography, vision and good management. In this report we'll meet some people, from very different backgrounds, who call metropolitan Wellington 'home' – and we'll find out what an important and sometimes surprising part water plays in creating the special Wellington blend they have chosen. We discover how the Water Group's management of our water supply contributes to the quality of life here – and get a little insight into how different 'home' could be without it.

WHAT WE DO Wellington Regional Council (the Council) collects, treats and delivers high quality water to our Group is the arm of the Council responsible for day-to-day supply operations and for forecasting and planning by ensuring a constant supply of safe, potable water • The Water Group has a clear commitment to sustainable on the environment • We have specific measurable standards for water quality, security of supply, efficiency, interlinked. In this report, we have divided them into five broad sections: Water Quality, Security of Supply,

Actively targeting an 'A' grade standard for our treated water. Meeting the water needs of 350,000

Committed to environmentally responsible use of resources.

stations and 183 kilometres of pipeline.

Managing assets valued at $250 million. Every week the Water Group supplies enough

The Water Group is part of the Wellington Regional Council. The Regional Council's statutory reporting requirements are fulfilled by its Annual Report. This report documents the Water Group's 2000/2001 business year. It is supplementary to the Annual Report and is intended to provide the Water Group's territorial authority customers and the public of metropolitan Wellington with a more detailed account of the Group's operations.

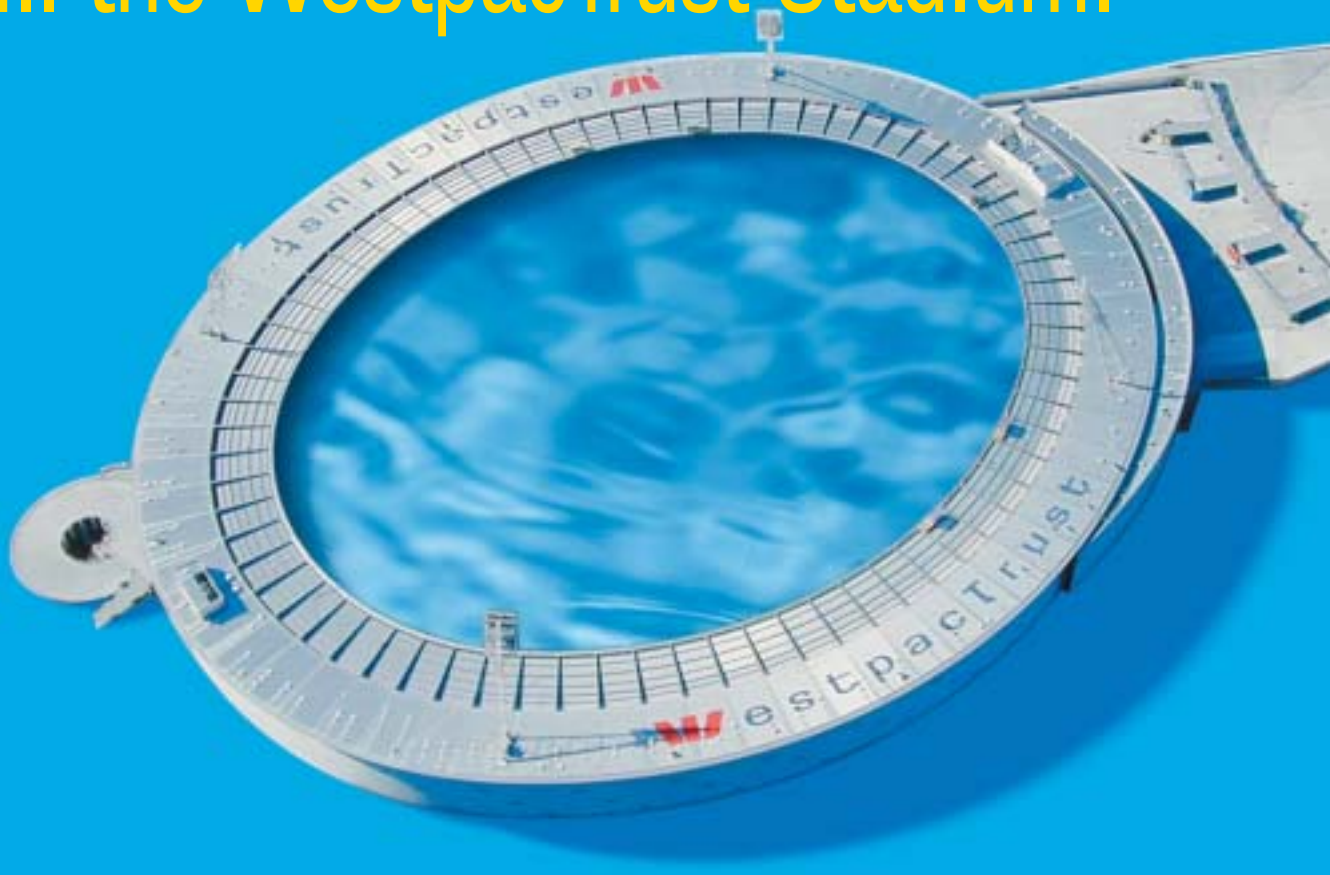
region's four city councils – Hutt, Porirua, Upper Hutt and Wellington – for end supply to consumers • The Water for the water needs of those consumers. Our mandate is to provide for a safe region with healthy citizens, environmental management – which affords the production of water at a fair price without unnecessary impact health and safety, customer service and governance (see page 34) • Our many areas of activity are closely Cost Efficiency, Environmental Management and Risk Management.

people every day. Forecasting future water needs and planning to ensure they can be met.

Operating 4 treatment plants, 15 pumping

Supplying on average 150 million litres of water daily, 1,730 litres every second.

water to completely fill the WestpacTrust Stadium.



The Water Group's laboratory holds IANZ accreditation to the NZ Code of Laboratory Management Practice (including ISO 9002 and ISO Guide 25).

Certification by BVQI to ISO 9002 (Quality Management System) relates to the Water Group's wholesale water supply functions only, and excludes its laboratory. Certification to ISO 14001 (Environmental Management System) also relates to wholesale activities only, but includes the laboratory.

CHAIRMAN'S REPORT THE YEAR IN REVIEW

If there was a main focus for the Water Group over the last twelve months, it would be that of advancing sustainable development. This is a simple concept that aims to strike a good balance between progress – improving the quality of life for people in our region today, and preservation – protecting the environment for following generations.

We are succeeding in finding that balance on many fronts. There is also still a lot to do.

Sustainable development involves social, environmental and economic aspects of our lives, all of which are closely interrelated. Consequently, we are in constant dialogue with the many other agencies shaping the rural and urban landscapes in which we're all working to achieve higher standards at a reasonable price.

Here I will briefly touch on some of the highlights and issues from the year. We cut the wholesale water levy for the coming year (2001/02) by 2% with no reduction in standards of service. The levy is now the lowest it's been, in dollar terms, since 1992/93. This latest cut is due to reduced interest costs, resulting from early repayment of debt, and further efficiency gains, related in part to our progress in optimising electricity costs. Our policy of using part of any surplus to accelerate debt repayment has been hotly debated over the years; we have sought external advice, which is the basis for this practice. In the end it comes down to a balancing act between intergenerational equity and prudent financial management; we believe that we have this balance about right. However, we have now maximised the efficiency of our water supply operations to a point where any new demands for increased quality and environmental standards over the next few years must inevitably lead to some price increase.

We have applied to renew our surface water-take consents for 35 years. The consents will include new conditions that take into account both the protection of river ecosystems and the public's desire for recreational use of these regional assets. The proposed consents require that more water be left in our rivers at low summer flow times. This will necessitate taking more water from storage lakes, with higher associated chemical and electricity use and a higher production cost per litre. In most cases, greater environmental protection carries an increased cost. Again – we are mindful of finding an appropriate balance.

Our driest summer since 1907/08 failed to cause any real difficulty in meeting demand for water, again highlighting the security that the region's integrated supply system offers. A carefully targeted advertising campaign helped keep water consumption at manageable levels; however the drought conditions were a timely reminder that progress towards a more sustainable water supply requires everyone contributing to preserve water resources.

For the first time in nearly 100 years, we are allowing managed access to the Wainuiomata water collection area. This area of outstanding natural beauty and very high ecological value has been closed to the public to protect the high quality of the source water destined for treatment and supply. We now believe that the constraints in place to guard against waterborne contaminants are sufficient that we can open the area up for our community to enjoy on a managed basis. But we will proceed with caution, as continuing high water quality must be our first priority.

More demanding Drinking Water Standards became effective as of 1 January 2001, and a number of new initiatives to further raise the national standard of water management are currently under discussion.

Significant changes to the Health Act regarding drinking water standards are expected to be presented to Parliament before the end of the 2001 calendar year. These proposed changes include making national water quality standards and risk management plans mandatory for all public

CR EUAN MCQUEEN
CHAIRMAN

CR ROBERT SHAW
DEPUTY CHAIRMAN

CR ROSEMARIE THOMAS

WELLINGTON REGIONAL COUNCIL UTILITY SERVICES COMMITTEE

water providers. Risk management is already an integral part of our quality system and the quality of water supplied is of a very high standard – we are already meeting aspects of the new Drinking Water Standards that will not be enforced until 2005. At this stage it is not clear how the proposed risk management plans, linked with the new Standards, will impact on our existing risk management systems, although cost increases are likely.

The Parliamentary Commissioner for the Environment released a discussion paper – *Ageing Pipes and Murky Waters*, which identified some key issues affecting the sustainable management of urban water systems. The Council concurs with the Commissioner's view that real progress towards sustainable development is going to require greater understanding and involvement from all stakeholders, and welcomes initiatives to this end. The Water Group is ready to play a constructive role in any informed debate on the sustainable development of our region's water services.

The Council has backed the principle of integrated water services to the metropolitan region since 1997. A joint initiative with Hutt and Wellington City Councils led to an integration proposal being put forward by officers of the three authorities last February. This initiative was a further attempt to use public resources more efficiently for water supply, without sacrificing quality or transferring ownership into private hands (a key element in the community's desires). The thrust of the initiative was applauded by the Parliamentary Commissioner for the Environment; however his paper highlighted two significant issues for the industry that ultimately had a major bearing on the Council's rejection of this latest proposal. Public fear of privatisation, and existing legislative and institutional restrictions made an ideal integration outcome extremely unlikely. Attempts to work around those issues produced a compromise solution, which the Council concluded would involve significant risks in achieving sound accountabilities. In addition, the response from public consultation made it clear that public opinion was not in favour of the water trust model proposed.

However, the concept of integration and regional co-operation remains a sensible one and so, in the spirit of shared resource, when requested, the Council provided a preliminary estimate for supplementary water supply to the Kapiti Coast District Council. Kapiti's councillors will assess the feasibility of this submission alongside local options.

This is my final year as Chairman of the Utility Services Division in the Regional Council – the Committee under whose direction the Water Group operates. It has been a stimulating and rewarding six years, not only because of the inherent fascination of dealing with such a complex and fundamental part of our community infrastructure, but also because of the sheer pleasure of working with such a dedicated and loyal group of people.

All the topics I have noted above have long-term implications that will have to be monitored, developed, at times reshaped, and sometimes changed. The present levels of efficiency I see as a baseline: we will continue to look for enhancements. There will be pressure from some of our customers to reduce prices by not repaying debt at an appropriate rate. The Water Group has a clear strategy on this, but our customers' views must be heard, considered, and robust agreements negotiated.

The Water Group is well managed, has a good asset base, clear objectives, and a strong financial base. It is an integral part of the metropolitan region's infrastructure. These qualities have not occurred by accident: the challenge is now to build on what is good, to make it even better.

Euan McQueen
Chairman, Utility Services Committee

CR CHRIS LAIDLAW

CR RICHARD J WERRY

CR MARGARET SHIELDS

CR STUART A MACASKILL

Cr Ian Hutchings of Wellington City Council was invited to attend Utility Services Committee meetings during the year. He had speaking rights but not voting rights. The Council Chairperson (Stuart Macaskill) and Council Deputy Chairperson (Margaret Shields) are not members of the Utility Services Committee when considering Wellington wholesale water supply matters.

French Moroccan, Fadela Novak lived in many European cities before making a lifestyle decision to move to "exotic multi-cultural little Wellington" with her English husband in 1999. After years of drinking heavily bleached water in Barcelona, risking illness from tap water in Prague, having hair so brittle it snapped, lugging five litre containers of water home from the supermarket in France, and budgeting to afford bottled water in restaurants and cafés – she appreciates the simplest things here – like a complementary glass of water with her daily 'short black'. "Quality wise I don't think I've ever seen anything as good as the water in Wellington really. Both in terms of taste and in terms of the flow. You never have any problems here and the taste is just incredible. What am I saying – it's got no taste and that's the nice thing about it, tap water's not supposed to taste!"

fadela

WATER QUALITY

The Water Group actively targets the highest 'A' grading for its treatment plants, which means that water leaving these plants must be consistently proven free from bacteria or chemicals that may cause health problems. The quality of drinking water we supply is currently among the best in the country and well above minimum Ministry of Health standards – however, in the past 12 months, the desire to improve water quality at a national level has seen new risk management legislation proposed. If passed, this legislation could affect our plants' water gradings – without actually reducing the level of risk associated with the water we supply.

New Drinking Water Standards

The Ministry of Health's (MoH) new Drinking Water Standards (2000), introduced in January 2001, tightened the criteria underground sources must meet to be classified as 'secure' from contamination by pathogens. To comply, a groundwater supply must be secure (i.e. 99.995% of the water from the wells must have been underground and beyond the risk of contamination for more than 12 months, or specified chemical characteristics must show low variation in some key characteristics). Work currently underway will gauge more accurately the age of water in the Waiwhetu aquifer, which feeds our Waterloo treatment plant. Results are expected in October or November. Failure to comply will mean increased monitoring to prove that the aquifer is not contaminated – and probably additional treatment (such as ozonation). This would increase our costs.

The new Standards also change the way turbidity is monitored. Turbidity is a measure of the amount of suspended matter in water, and is used in the Standards as a surrogate for the removal of protozoan cysts. If turbidity is low in filtered water, it can be inferred that cysts are not present. Under the new Standards, turbidity must be measured on each filter at water treatment plants rather than on treatment plant outflows, which improves detection of the source of changing turbidity levels. In response, new turbidity meters and software controls for operating the filters have been installed at the Te Marua and

Wainuiomata plants. Meters have also been fitted at Thorndon, Karori and Haywards pumping stations to monitor turbidity in our distribution system. Even tougher turbidity standards for all water treatment plants serving over 10,000 people will become compulsory on 1 January 2005. The new Standards will require a turbidity reading of less than 0.1 NTU 95% of the time (down from 0.5 NTU 95% of the time at present). We are already meeting the tougher 0.1 NTU standard for our treatment plant outflows.

Proposed Health Act changes

The Government has signalled changes to the Health Act – with a bill expected to be presented to Parliament later this year. Proposed changes will make drinking water standards mandatory for all public water providers in New Zealand (at present, although there is a grading system, there is no minimum standard that must be achieved). It is likely there will be a requirement for water providers to develop risk management plans covering all significant risks to water quality.

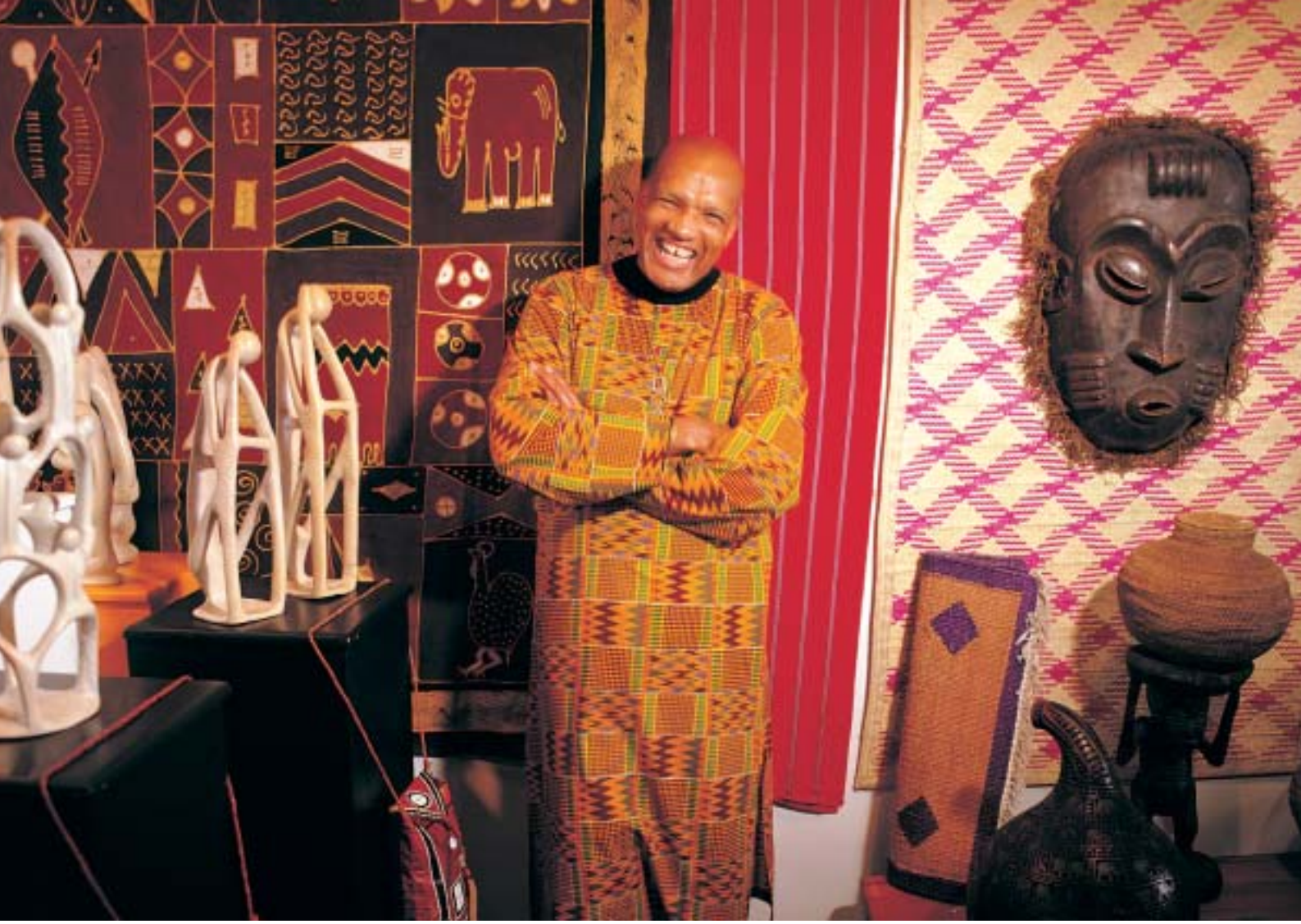
The Water Group already operates an internationally recognised quality management system, ISO 9002, which includes risk management planning. Hopefully new risk management requirements can be integrated into our existing quality management system, but that will incur cost and significant effort and may, in reality, add little to our risk event readiness. We will address these concerns once the draft legislation is introduced and submissions are called for by the Select Committee.

Catchment condition

The Council's Landcare Division manages water catchment land to meet the region's water supply objectives. The aim is to minimise public health risk from contaminants by ensuring treatment plants receive good quality water. Catchment management has to sustain healthy vegetative cover and keep introduced animal numbers low. Success here, in turn, helps nurture a greater diversity of plant and animal life in its natural habitat. Landcare's monitoring over the past 12 months showed that possum numbers have been reduced to an acceptable level in Wainuiomata-Orongorongo, but not in the Hutt catchment where control measures are being considered. Vegetation monitoring indicated the need for deer and goat control, and hunting operations were carried out in both catchment areas. Forest health, measured by insect and fungal damage, is generally good.

Water quality and treatment plant gradings

During the past year, water supplied to customers has continually surpassed the requirements of the Drinking Water Standards for New Zealand (see pages 32 and 33). Our Te Marua treatment plant has a Ministry of Health 'A' grading for water quality, while Waterloo is graded 'B' (the highest grade possible given Hutt City Council's requirement that we do not disinfect the water supplied to it). We have recently applied for a regrading of our Wanuiomata treatment plant, currently graded 'C'. Last year



we reported that several measures had been taken to counter occasional high turbidity levels (spikes) in the filtered water at the plant (the reason for the 'C' grading) and that we were gathering data to support a higher grading. Proving compliance to the Drinking Water Standard for turbidity has been complicated by further changes to turbidity monitoring at the plant – introduced to comply with the 2000 edition of the Standards – however, we expect an 'A' grading to result from our application made in June.

Last November we also resumed recyling of supernatant (the liquid remaining after treatment-process water has had the chemicals, pathogens and any other solid matter separated from it) back through the treatment process at our Wainuiomata plant.

Recycling of supernatant is environmentally desirable, as long as it does not pose a health risk to the public. In 1998 recycling was stopped after detection of a single *Giardia* cyst in filtered water. We investigated whether there was a link between supernatant recycling and the cyst and found that the probable cause was a rare coincidental meeting of infrequent turbidity spikes in source water and recycled supernatant which contained higher-than-normal pathogen numbers. We have now resumed routine recycling of supernatant liquid – except at times when the combined levels of turbidity in source water, together with supernatant, would add up to an unacceptable risk.

Management systems audit results

Following our laboratory's annual surveillance assessment by International Accreditation New Zealand (IANZ), accreditation to the International Standards Organisation's (ISO) quality standard 9002 and the laboratory specific standard ISO Guide 25 was renewed. Our accreditation is comprehensive and now includes the latest version of the *Giardia* and *Cryptosporidium* test using immunomagnetic separation to give improved detection sensitivity. This ensures compliance with the Drinking Water Standards 2000.

The Water Group operates quality and environmental management systems accredited to ISO 9002 and ISO 14001 respectively. A surveillance audit of the two systems was carried out in May and implementation of both was judged satisfactory. The auditor recommended that we work towards greater integration of the two system manuals. In response, a new document has been developed that details the overarching administrative functions common to both. Our Q-Pulse electronic record system was commended as an excellent tool for managing both systems and providing a good overview of system implementation and status. Two minor non-conformance issues were identified, one for not displaying current dangerous goods licences, the second relating to the timeliness of internal audits – and these have been addressed.

Lewis Scott was born in Georgia, USA – the son of sharecroppers and youngest of 14 children. As a young man in the '60s, he left home and lived in Europe – a long way from the Vietnam War and race riots – until a chance meeting with songwriter Shona Laing brought him to New Zealand. Wellington in 1976 seemed a friendly, safe, and peaceful village. Lewis settled down, and later opened Kwanzaa – the Afrikan shop in Manners Street. Now, he travels to Europe, the USA and Africa each year, buying for the shop and as a published poet – sharing his work.

"I am fascinated by water and I think that people who have never been threatened by the lack of water don't see it in a spiritual way. They see it as a commodity. Whereas in places where water is such a struggle to get – it is incorporated into their mythology. They think about Water Gods. I realise that much of my poetry is about the life-giving force of water."

SECURITY OF SUPPLY

The Water Group's commitment is that there will be enough water available in the Wellington region every day to meet the needs of our customers. The only circumstance in which this may not be possible is under drought conditions so severe that they are forecast to occur less than once in every 50 years.

Despite the fact that last summer was the region's driest since 1907/08, all water needs were met without hardship. This was due to forward planning and a well managed and maintained water supply infrastructure, to which we have made improvements on a sustainable basis during the past year.

Hydraulic model development

We commissioned a hydraulic model of the regional water supply system to aid in decision-making on hydraulic aspects and allow 'what if' scenarios to be tested for day-to-day operations and future planning. The model was built using a hydraulic modelling package, EPANET, developed by the United States' Environmental Protection Agency. It simulates hydraulic behaviour over time within pressurised pipe networks. By adding water demand data, and system specifications, EPANET calculates the flow of water in each pipe, the pressure at each junction, and the level of water in each tank and reservoir throughout the network. The model will be used in conjunction with our sustainable yield model to refine future distribution reliability estimates.

Water-take resource consents

Draft conditions for our new consents to take water from river sources are almost finalised. Two parties registered objection and agreements have been reached with both, after discussions that also involved the consent manager. Our agreement covering fishery issues with the Wellington Fish and Game Council includes funding to study the quality of trout fisheries in the Wainuiomata and Hutt rivers; independent experts will analyse new and historic survey data relating to habitat condition.

The second agreement, reached with a commercial rafting operator, facilitates their operating rafting trips on the Hutt River at weekends during winter.

(Following our year-end, applications went before independent commissioners and were approved on 17 August.)

Our applications for new resource consents recognise the Council's Freshwater Plan, introduced in December 1999. The plan includes new higher minimum river flow levels, to be maintained downstream of our water intakes. Modelling has been carried out, using demand data for the period January – April 2001, to determine the impact of the increased flow requirements on our ability to take river water for supply during a dry summer. In particular, we wanted to assess how much supplementary water would need to be taken from the storage lakes at Te Marua. Analysis showed that under the new consents, water from the lakes would have been needed on 33 additional days. A total of 796 million litres would have been drawn off, some 24 percent of the capacity of the lakes. Given the relative severity and length of drought conditions during the 2000/01 summer, this analysis underlines that we have sufficient security in the system under the new consent conditions. The main impact of using the lakes more often will be to increase electricity and chemical costs.

Pump testing – the Waiwhetu aquifer

Last year we reported that we would undertake a large-scale pump test on the Waiwhetu aquifer, to aid the consent manager's understanding of the aquifer's response under high abstraction conditions. This was cancelled as the test was likely to cause disruption to normal water supply arrangements to Hutt City Council and, as there is currently no need to increase water-take levels from the aquifer, we considered the cost of testing and mitigation work too expensive to justify. Testing will, however, have to be conducted before any application to take more water from the aquifer can be made.

Aquifer security

To improve security of the Waiwhetu aquifer for regional water supply, a disused well at Gear Island treatment plant was sealed and the wellhead removed. We also purchased a small water-take consent from Hutt City Council for the Waiwhetu aquifer, to increase the volume of water available to us from this source.

New supply to Upper Hutt Plateau area

In response to a request from the Upper Hutt City Council (UHCC), we built a new feeder main from the Kaitoke pipeline to UHCC's Plateau reservoir. The new main, together with facilities being built by UHCC, will help improve pressure and supply reliability to the Plateau and Maymorn areas and their new residential developments.

Ex English 'bobby' and human resources manager, Lawrence Ford, lived through Britain's 'water wars' of the early '90s when the water industry was privatised. Consumers suffered water shortages and household water bills that increased between 35% and 65% over three years. Lawrence came to Wellington from Lancashire on a job transfer in 1998. Now studying for an MBA at Victoria University, he's also taken courses at the Royal Port Nicholson Sailing Academy, and when he graduates he wants to buy a house and a yacht and put down roots.

"I owned a house in England, but it was very off-putting buying a house during 1990-1992, because at that time you could face traumatic and sudden cost increases to so many of your house-related expenses. The uncertainty of utilities ownership and management made budgeting, particularly for those on lower incomes, hard. The way things are run here seems well planned and reasonable. I trust that I can rely on not facing sudden jumps in water costs. I'm of the opinion that water belongs to the people. Having choice and having a say is fair."

lawrence

COST EFFICIENCY

The Water Group aims to ensure that the wholesale water supply activity for this region remains publicly owned and operated. We regard good quality drinking water as a basic human necessity for healthy living – a view clearly shared by the region's public, who want to retain direct accountability from those who run their water. The public also has a right to expect the system is efficiently run, and this is upmost in our minds. We see our role of providing water services to the Wellington region's four cities, at a fair and affordable price, as making a major contribution to supporting public health and social equity. Our views on the merits of an integrated water system are well known, and over the past year we have continued to actively promote and advocate a more integrated management and water treatment system for this region.

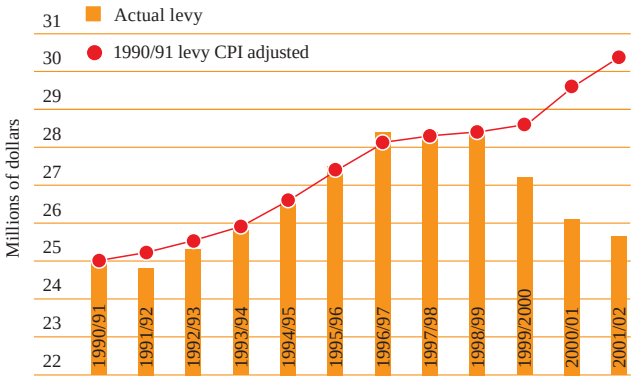
Wholesale water levy

We were able to cut the wholesale water levy (the price to our four customers for us to supply their water) by 2% for 2001/02. This was due to efficiency gains and reduced interest payments. Cumulatively, we have now reduced the levy by 10% over the last 3 years to produce the lowest regional water levy in dollar terms since 1992/93.

Reduced interest charges are the result of our policy over recent years to apply part of any surplus to early debt repayment. This has been controversial, but we believe it responsibly answers both the questions of intergenerational equity and prudent financial management. Our debt has reduced from $62.1 million at 30 June 2000, to $57.2 million at 30 June 2001. The reduced levy income has meant that our maximum target debt level has also been cut, to $50 million. Actual debt is still some $7.2 million above target. Bancorp (the Council's treasury advisor) recommends continued debt repayment to reduce debt-related risk and increase debt capacity for both foreseen and unforeseen future requirements.

Our projections show that we will not reach our target debt level until approximately 2012/13. Clearly, as we get closer to achieving our target, questions will arise as to how quickly debt should be repaid beyond the target level – as reducing the debt repayment rate could reduce

Water levy versus inflation 1990-2002



In real terms the levy has been reduced substantially since 1990/91. The levy for 2001/02 is just 2.7% ($0.7m nominal) higher than it was eleven years ago. If it had increased in line with inflation (Consumer Price Index), it would now stand at $30.3m, an increase of 21.4%. *(CPI figures are 12 months to December – year to December 2002 estimated. Source Bancorp. Water levy figures are for 12 months to 30 June and are inclusive of GST).*

the amount of the levy. The balance between these options will be carefully considered.

Integration proposal

Integration of Wellington's water services has been mooted in various forms for almost a decade. Since 1997, there have been five separate attempts to integrate the water supply services provided by the Wellington Regional Council with those of the four city councils it supplies. Our Council has supported the integration process in principle because it sees potential for significant cost savings and service improvements for consumers, as identified by independent consultants. However, none of the initiatives so far have found favour with all five councils.

In May 2000, our Council, Wellington City Council and Hutt City Council instructed their chief executives to investigate a workable solution to integrate their potable, and possibly storm and waste water assets. Upper Hutt City Council and Porirua City Council were invited to join the process, but declined. Four key outcomes were agreed:

1. assets must remain in public ownership and control;
2. water quality and security of supply must be maintained or enhanced;
3. significant cost savings must be achieved;
4. the system must remain flexible enough to meet the future needs of the region.

Environmental impacts and the fairness of pricing between participants were also considerations. The project team explored several options that would be acceptable to the three participating councils, and workable within the current legislation, with the result that an integrated water services trust was identified as the best option. Savings were forecast as being worth $2.8 million annually (after set-up), about 4% of total costs, which would be passed on to consumers.

There was a modest level of public response to the trust proposal, but the majority of submissions received were against it, largely due to concern about lack of public accountability, and fears that setting up a trust would lead to privatisation. The level of savings was also questioned. Despite being a long-time supporter of the principle of integration, the Council voted against the proposal as carrying too much risk and not enough public backing.

Following the rejection of the proposal, Wellington City Council (WCC) decided to review the management of its reticulation system, currently carried out by the Water Group under contract. While negotiations were continuing at 30 June 2001, some aspects of the contract will certainly be lost after 30 November 2001. Our estimate of average costs of water connections in Wellington's four cities indicates that our operational costs for the WCC contract are competitive. While we recognise the city council's right to award the contract elsewhere, we are disappointed at this outcome, which will inevitably lead to redundancies.

Supply schedule optimisation

In June 2000 we commissioned a software system to optimise the delivery costs of water from our Wainuiomata-Waterloo-

Major items of capital expenditure 2000/2001

Capital works

Our capital expenditure for 2000/01 totalled $4.0 million. This table outlines the major capital items for the year, together with the costs incurred for the 12 months to 30 June 2001.

EXPENDITURE ITEM	DESCRIPTION	2000/01 COST
Refurbishment Thorndon to Karori main	Relining 2.8km of the Orongorongo-Karori water main to provide an alternative supply between Ngauranga and Karori	$770,000
Fluoridation equipment	To modify fluoride dosing arrangements at Waterloo and Gear Island treatment plants to supply Petone with unfluoridated water (half funded by Hutt City Council)	$413,000
Plateau branch main	To provide a new water supply point to the Plateau area of Upper Hutt	$297,000
Seismic protection	Various projects, including isolation valves on the Te Marua lake inlet/outlet pipes	$286,000
Wainuiomata collection main	To replace a section of the main between the Orongorongo tunnel and Wainuiomata treatment plant	$159,000
Gear Island chlorine gas plant	To adjust the chlorine level of water supplied to Wellington after mixing of production from Wainuiomata and Waterloo treatment plants	$128,000
Waterloo motor protection	To install a new switchboard and soft starting on the Naenae and Gracefield pumps	$103,000

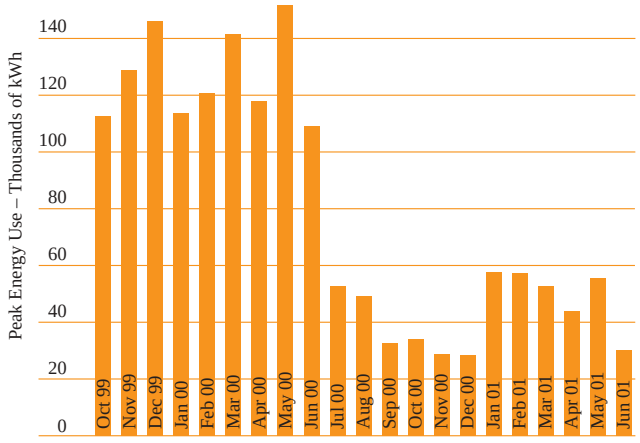
Wellington supply system, which includes the Waterloo and Wainuiomata treatment plants. The two plants have quite different marginal costs: Waterloo supplies aquifer water, requiring little chemical treatment but substantial pumping costs; whereas Wainuiomata supplies river water, requiring full chemical treatment but less distribution pumping as gravity can be employed. Power use charges, and therefore marginal costs, vary by time of day. The night rate (12.00 to 8.00 am) is the cheaper, while power use during peak daily 'windows' (around breakfast and dinner times) incurs a cost penalty. We also pay a fee based on our highest half-hour of use each month. Before the optimiser software was installed, production flows were manually set and pumping responded immediately to reservoir level information, irrespective of the tariff in place at the time. The complexity of the power cost structure and the ever-changing level of demand for water made it extremely difficult to optimise power use and marginal costs manually.

Our objective in installing the optimiser was to consistently use whichever of the two plants had the lower marginal costs at any given time and reduce overall energy costs for pumping. The software has enabled us to increase the use of night power, spread daytime use more evenly, and minimise production during the peak tariff windows, without affecting water supply.

Total estimated savings for the 12 months to 30 June 2001 were $120,000, based on a comparison with the previous year ($55,000 from lower energy charges, $45,000 from lower peaking charges and $20,000 from favouring the plant with the lower marginal production cost). The optimiser coped extremely well, despite a year which included numerous non-standard operating requirements, as well as extreme summer drought conditions. We do, however, have backup for both local and remote controls, so that site-specific software controls can override the optimiser if reservoir levels drop below critical settings.

Our Environmental Management System objective to reduce power use during maximum demand hours has been greatly advanced by the optimiser. Peak period energy use has been reduced by around two thirds since commissioning.

Wainuiomata-Waterloo System Peak Energy Use



Energy use during daily peak demand 'windows' has been cut by around two-thirds since optimiser software was commissioned on the Wainuiomata-Waterloo supply system in June 2000.

ENVIRONMENTAL MANAGEMENT

The Water Group's primary role is to provide a constant supply of safe drinking water to our customers. Within that role we also do whatever we can to protect the environment. We are aware that by abstracting water, using energy and chemicals, creating noise and disposing waste, we potentially compromise the environment. Our Environmental Management System (EMS) was introduced to instil discipline around these activities and set environmental policies, standards and targets to minimise any impact and improve resource use efficiency. We also weigh up the desire of local business and the public for access to recreational activities – such as swimming, fishing, hunting, hiking and rafting – alongside the potential risk these pursuits contribute to providing a quality water supply. This year, in co-operation with other Council divisions, progress was made on many fronts – achieving efficiency gains and improving catchment quality and access.

Efficiency of resource use

The Draft National Energy Efficiency and Conservation Strategy, published by central government, calls for an energy savings target of 20% by 2012. The Water Group aims to reduce power consumption by 3% by 31 December 2004. However, even this modest level of saving will be difficult to manage as long as we continue with the current approach of minimising total marginal cost rather than power use. This approach will put the Draft target beyond reach.

Our electric drive motors are already close to 100% efficient and the pumps we purchase, which are over 80% efficient, are the best currently available. Therefore, to achieve the requested 20% savings, water use would need to be radically reduced. The only chance of meeting the target would lie in metering, however, that would involve an estimated capital cost of $25 million, against power savings of approximately 5GW-hours. It is difficult to justify this level of investment given the associated network charge savings of around $400,000.

Although supply schedule optimisation (details in the previous Cost Efficiency section) helped to lower power costs on the Wainuiomata and Waterloo side of the supply system – power use efficiency (kilowatt-hours per million litres of water produced) decreased by 7% in the 12 months to 30 June. This resulted from a greater share of total production being sourced from Waterloo, while a 25% drop in output from Wainuiomata, due in part to low river levels during summer, resulted in reduced power use efficiency from that plant.

Despite this, we have made useful progress towards greater efficiency, by converting some fixed speed motors to variable speed, and by installing power factor correction equipment for electrical installations, to reduce the amount of current being drawn.

Following process trials in 1999, we improved chemical use efficiency at our surface water treatment plants (Te Marua

Growing up in the urban jungle of Singapore, Zarli Sein had no concept of packing a lunch and taking off into the bush at the weekend. He was introduced to 'the great outdoors' and bungy jumping, rafting, snow boarding and tramping when he came to New Zealand as a student. Now, working as a web-site designer, the fresh air, space and green environment are key reasons he's chosen to stay here. Weekdays he walks to work, and most weekends and holidays he and friends 'go bush'. "I had never really given much thought to the concept of an individual's personal relationship to the land because one's experience of the environment has been that of an artificial, man-made one. It's quite unusual when the landscape actually has such a noticeable psychological impact that it forces you to develop a personal relationship with the natural environment. This sense of awareness and enjoyment of the land is uplifting and it's something I never feel when I'm in a place like Singapore."

Zarli

and Wainuiomata). As a result, any further improvement in our chemical use and associated treatment waste volumes is now largely dependent on source water quality, or treating less water at these plants, rather than increased efficiency. Nevertheless, it is pleasing to note that increased use of Waterloo contributed to chemical use (tonnes per million litres of water produced) being 12% lower than the previous year, and the volume of sludge delivered to landfills (tonnes per million litres) 17% lower. These improvements offset our reduced power use efficiency and contribute towards our environmental goals of reducing waste and conserving non-renewable resources.

Distribution efficiency

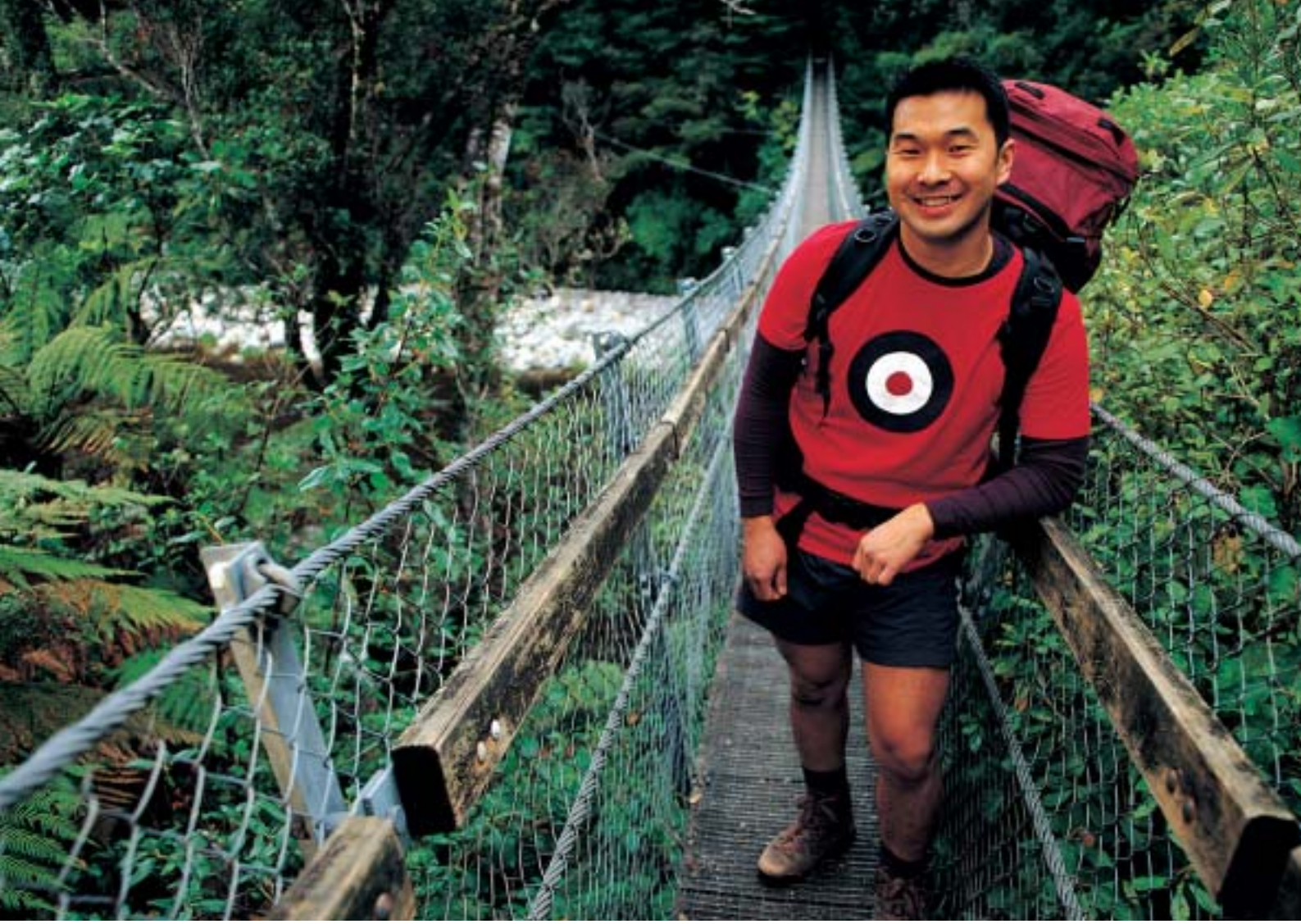
The efficiency of our distribution system can be gauged by the level of unaccounted-for water (the difference between the volume of water treated and the volume supplied to customer reservoirs). Unaccounted-for water – either used for mains flushing, due to leaks, or as a result of metering inaccuracy – was just 0.7% of the treated volume. This low figure reflects our drive over recent years to install more accurate flow meters and the hard work of our distribution maintenance staff.

Noise reduction

We are aware that our activities can make a significant noise impact on the environment, and so commissioned a survey of noise measurements on our 15 pumping stations to ensure that noise emissions from our water supply facilities meet the requirements of relevant territorial authorities. The survey found that noise emissions from the majority of pumping stations are at acceptable levels. Emissions from two facilities exceeded the levels: one will be corrected during 2001/02, the second is a shared facility with Wellington City Council and jointly funded mitigation work is being investigated.

Resource consents

The Resource Management Act 1991 requires that the Water Group hold resource consents for all activities that impact on the environment. At 30 June 2001 we held 39 consents, encompassing water use and diversion, land use, and discharges. There were two minor cases of non-compliance during the year. One related to not conducting a fish survey on the Wainuiomata River;



Wellington Fish and Game has now been contracted to carry out an annual survey for the next three years. The second non-compliance related to conducting the wrong type of aluminium residual test on partially treated discharges to the Wainuiomata River. Our laboratory is now conducting the correct tests.

Total supply

The level of demand for water in any year has a major bearing on our resource use and, therefore, the environmental impact of our activities. During the 12 months to 30 June 2001 we supplied 55,807 million litres of potable water to customer reservoirs, an increase of more than 4% on the previous year.

Supply conditions

As previously noted, our region experienced extremely dry conditions last summer. Records for the peak summer period (December – February) show Wellington experiencing its driest year since 1907/08. Temperatures were also above average, contributing to severe soil moisture deficits.

Recorded rainfall for our water supply catchments was uniformly low, at between 37% and 56% of normal levels.

River flows across the catchments were also low, but did not fully reflect the low rainfall thanks to good groundwater levels at the beginning of December. The Hutt River at Kaitoke had average flow of 66% of normal – a 4-year low. However, the Orongorongo River had flows equivalent to a 25-year low, and the Wainuiomata River a 100-year low. Although demand for water was relatively high as a result of the weather (averaging 172 million litres daily during summer), water use seldom reached the extreme high levels of daily use (200 million litres or more) that can test the capacity of the supply system.

Our three main treatment plants had enough source water to remain operating throughout the peak summer period, resulting in no real difficulty in meeting demand.

Water conservation campaign

The Water Group ran a water conservation awareness campaign between mid-January and early March, when rainfall is typically lowest. The campaign continued our strategy of the past three years of targeting water savings through effective use of garden water – gardening being the main reason for the high levels of daily demand during summer. Maggie Barry featured in a television advertisement giving watering advice. Post campaign research shows that 70% of gardeners recalled the advertisement, and water use, in relation to the harsh weather conditions experienced, indicates that the advertisement's message was heeded.

Trout habitat protection

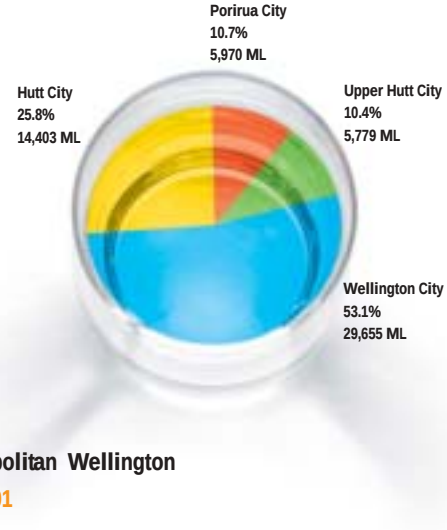
Autumn carried on the very low rainfall theme. Sunshine hours were 120% more than normal – the third highest since 1928.

Rainfall and river flows in the catchments remained well below normal conditions – particularly in the Wainuiomata catchment where we had to close the plant for nine days during May to protect wildlife. Our agreement with Wellington Fish and Game requires that we leave

Annual consumption by customer – millions of litres and share

for the year ended 30 June 2001

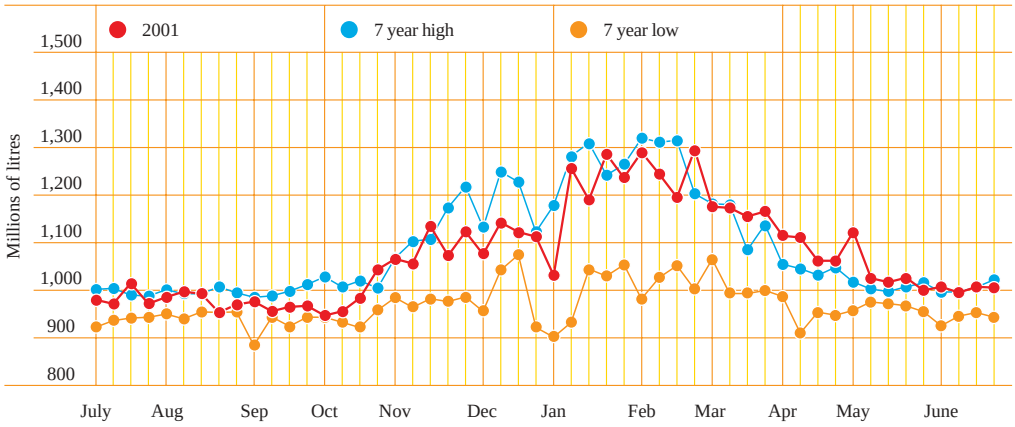
Total water consumption was 55,807 million litres, a 4.4% increase on the previous year.



Weekly consumption – metropolitan Wellington

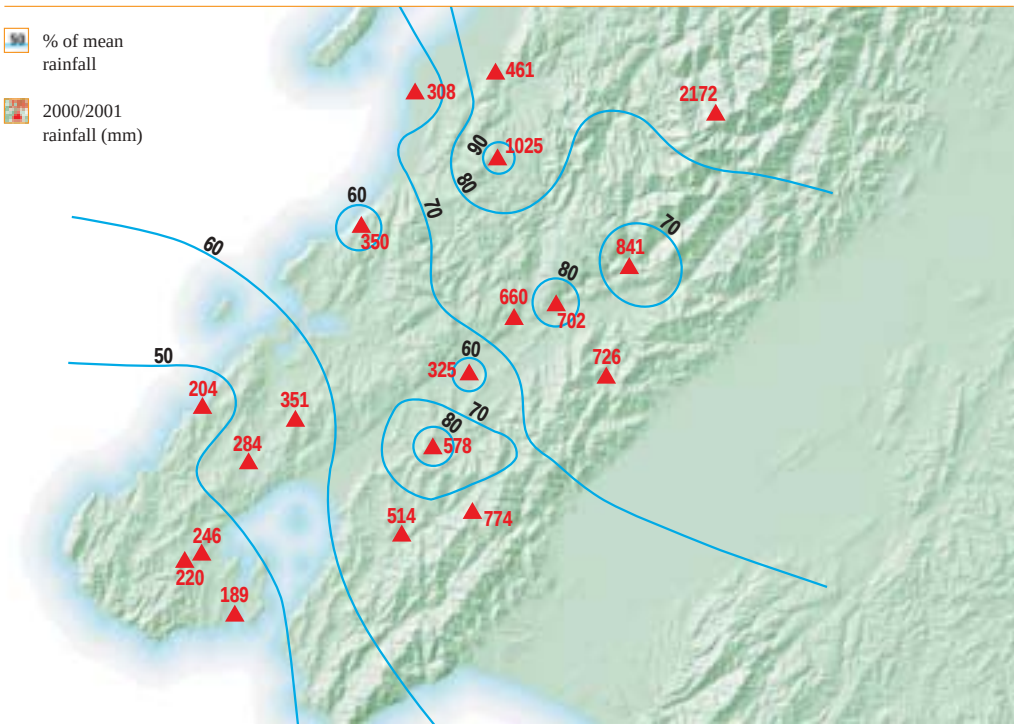
for the year ended 30 June 2001

2000/01 witnessed unusually dry weather during summer and autumn, with weekly demand consistently near or above the maximum experienced during the previous 7 years.



Regional rainfall – spring and summer

Wellington had its driest summer since 1907/08. Rainfall levels were close to 90% of normal in the last three months of 2000, but dropped to less than half of normal in the early months of 2001. Despite the very dry conditions, no water shortages resulted. Figures are Oct-March inclusive. *Source: Wellington Regional Council. Topographic information is copyright LINZ.*



more water in the Wainuiomata River between May and July, to accommodate trout spawning and help maintain fish numbers. This is the first time since the agreement was reached that low water levels have closed the plant to accommodate the trout.

In light of the low rainfall in our water catchments during the first half of 2001, we will continue to monitor rainfall and river levels in the coming months, and will co-ordinate a demand management programme with our customers for next summer, should this be necessary.

Kaitoke pipeline repair

We carried out a planned repair to the pipeline supplying water from the Hutt River to Te Marua treatment plant at the same time that the Wainuiomata treatment plant was turned off. Te Marua treated water from its twin storage lakes for the three-week duration of the repair, and while lake storage dropped to 40% as a result, the combination of events was a further demonstration of the security provided by an integrated system. Although we were unable to treat water direct from river sources for nine days, demand was still met and no shortages resulted.

Public access to Wainuiomata-Orongorongo catchment

In September 2000, in an historic move, the Council approved managed access to an area that has been closed to the public since the early part of last century – to protect water quality. Careful land management by the Council's Landcare Division, together with modern treatment methods, has now made managed access possible.

The forests in the water catchment area include superb rata

podocarp, sub-tropical emergent forest, hinau, kamahi, rewa rewa and tree ferns. Some black beech is found on drier sites, and silver beech on the high ridge-tops.

The access plan provides for ranger-guided walking tours for environmental groups to experience a unique area described as "the best example of lowland podocarp forest in the lower North Island", and to learn more about water catchments and Wellington's water supply.

There is no charge for the tours, but because Landcare can only allow a maximum of 40 people on one day each month, groups must enter a ballot for a tour.

Phase 1 of the access plan has been a success, although because of the dry summer, access and water quality issues have not yet been tested in bad weather. Phase 2 is now underway, with the walking tours still evolving as rangers develop trips tailored to visitors' particular interests.

Orongorongo catchment will remain off limits to the public so that we can use it as a control area to compare water quality results with the managed-access catchment.

Catchment access for hunting

Control of animal numbers is an important aspect of catchment management for water quality. In addition to the professional hunters that are routinely used for pest control, the Landcare Division again gave recreational hunters the opportunity to help cull deer in the Wainuiomata-Orongorongo catchment area during April. A pilot system for recreational hunting was launched last year and received around 300 applications – this level of interest prompted Landcare to again open up an area normally off-limits. The move was much appreciated by the recreational hunters who killed 31 animals in the four-week period.

In the Hutt catchment, 69 private hunters were also issued licences.

Education initiatives

The Water Group recognises the importance of community involvement to advance the goal of a sustainable regional water supply and, in the past year, we provided $50,000 for a 'hands-on' water conservation and pollution prevention education resource being developed by the Council's Environment Division.

The 'Take Action' programme is designed to introduce 8-12 year old students to the issues of water quality and conservation within their local environment. Take Action has been developed after detailed consultation with teachers, to encourage their use of the resource, and to suit the school curriculum. Initial trials have proved popular with both teachers and pupils – the resource will be officially launched in February 2002, and we have committed to provide additional funding in the coming year.

We offer tours of our main water treatment facilities to promote understanding of the region's water system. Visits are provided to organised groups at no cost, and the programme is particularly popular with schools. Some 900 visitors took advantage of this opportunity in the past year, including delegations of water supply policy and operations professionals from Southeast Asia (ASEAN) and from the People's Republic of China.

RISK MANAGEMENT

The Water Group is aware of the threat that natural disasters pose to the security of our daily water supply, and while we can't eradicate the risk of a major event such as an earthquake, we can work to reduce the system's vulnerability.

We have now reached a level of security where, if for any reason one of the region's three main water plants failed, base demand could still be met with no interruption to service.

A key element of our risk policy is to try and duplicate our critical assets, so that if one part of the system is damaged, another can take over. In the past year we have made good progress towards this goal. We have also undertaken substantial reviews and assessment work regarding workplace practices and proposed reforms to risk management organisation in the region as a whole.

Ageing Pipes and Murky Waters

Over the last 15 years or so, most major utilities have been subjected to governance reform. Water services are an exception. Although there have been several reviews over recent years, little change has resulted. In July 2000, the Parliamentary Commissioner for the Environment published a discussion paper, *Ageing Pipes and Murky Waters*. The purpose of the paper was to identify the key issues and significant risks affecting the sustainable management of urban water systems. The paper was intended to inform and stimulate debate. Its main argument was that water and wastewater should be managed as part of an entire natural water cycle, rather than in segmented parts – for example, looking at water treatment only.

The Council favours a holistic approach to resource management and has objectives, policies and methods in its Regional Policy Statement to achieve this end. A submission to the Commissioner supported much of the discussion paper's emphasis on ecosystems and their functions – however, the Council sees practical difficulties in using a 'whole lifecycle' approach, as ecosystems are notoriously complex, while human management of the environment needs to be simple to be effective.

In response to the submissions, a further paper was issued by the Parliamentary Commissioner, identifying four major areas of challenge:

1. The fragmented nature of water systems management, including lack of a clear central government home for policy and legislation;
2. Lack of stakeholder awareness of urban water systems and involvement in their management;
3. Community and political tensions surrounding the ownership, management and pricing of water services;
4. A lack of appreciation of the need to manage water in an integrated way according to ecosystem principles (including recognition that water is a finite resource).

The Commissioner has recommended that Government establish a taskforce to address these issues. Although the Council has not formally considered this recommendation, it is consistent with the Council's support for a more integrated and sustainable approach to water management.

Six years ago, in the build-up to war, Yugoslav Lubo Mihalchich fled Croatia for Serbia before bringing his wife and two daughters (then aged five and nine) to live in Wellington. He remembers a country where threats to the water supply were constant and any form of risk management almost pointless. A political disagreement could mean a neighbouring country would cut supply. Fuel shortages could render backup systems, such as diesel generation, inoperable – and large, constantly shifting populations of refugees put pressure on already scarce supplies.

"My father is ill and he drinks from water supplies that have been destroyed by bombings on chemical and oil plants. I think they keep quiet about it for political reasons. I know that people have concrete water tanks hidden under their houses, but the land is so polluted that the water is radioactive. I read on the Internet last night that they're bringing in private water tanks – but only the very rich can afford it. Here, I pray that people will only ever need to worry about managing the risks from nature, not politics."

lubo

Te Marua Lakes Emergency Action Plan

The Emergency Action Plan describes the actions to be taken by our staff in an emergency that threatens the structural integrity of the Te Marua storage lakes. The plan is based on the *Dam Safety Guidelines* published by the New Zealand Society of Large Dams (November 1995). We reviewed the plan during the year – assigning responsibility for each action to an individual and giving greater attention to alarm failure response procedures.

As a result of the review, pneumatically powered automatic actuators were installed on the lake inlet and outlet valves to improve system security.

The actuators will reduce downstream risk from flooding due to pipe rupture in the event of a major earthquake. Previously, the lake valves could only be closed from inside the lakes' towers. Now, the valves can be operated remotely and, in an emergency, any open valves can be closed immediately, even if the towers are damaged or flooded.

Risk assessment – Kaitoke pipeline

Earthquakes pose the greatest threat to the security of the water supply system, and we are continually working to reduce the anticipated impacts of a major quake. The most vulnerable parts of the system are now considered to be two sections of the Kaitoke-Karori water main: on the Silverstream bridge (the western end of which is near the Wellington Fault), and from the Western Hutt Road up to Haywards reservoir. Determining the most appropriate course of action to reduce the risk of pipe failure at these locations is difficult, as the probability of a major earthquake is relatively low, the cost of mitigation measures high, and resulting improvement in security hard to quantify. The decision-making process has been further complicated by proposals from third parties for capital works that could have a large bearing on the course of action we take. Further reports on risk assessment and mitigation options for both sites were received during the year, and these will be presented to Council for decision in the coming 12 months.

Refurbishment of Orongorongo-Karori pipeline

We completed Stage 2 of a project to provide an alternative means of supplying water to several of Wellington's northern suburbs. Kelburn, Karori, Northland and the upper Aro Valley normally receive water from reservoirs fed by the Kaitoke-Karori pipeline. However, if this pipe had failed between Ngauranga and Karori there was no alternative means to get water to the reservoirs. Relining and rehabilitating 2.8 kilometres of the Orongorongo - Karori main between Thorndon and Karori has provided an alternative and thus improved supply security. As part of this work we also created a new supply point off the refurbished Orongorongo-Karori main, to improve supply options to the northern end of Wellington City's Aro Street zone.

Orongorongo pipeline upgrade

The pipeline from the Orongorongo tunnel to our Wainuiomata treatment plant was built in the mid-1920s. It is a critical asset as it supplies water from the Orongorongo catchment for treatment. In the first stage of a project to upgrade the pipeline, we replaced a 140 meter-long section that was above ground and was subject to more rapid deterioration than the buried sections of the main.

Refurbished pumps at Waterloo wellfield

We refurbished the Waterloo wellfield pumps, which had been in service for 20 years. These eight pumps are below ground and were taken out and overhauled one at a time to ensure continued reliability of water supply from the Waiwhetu aquifer to Waterloo treatment plant.

Health and safety performance

We undertake to comply with all relevant codes of practice and legislation, including the Health and Safety in Employment Act 1992, and the Health and Safety Regulations 1995. An effective health and safety programme requires the participation and vigilance of all staff, contractors and visitors. We strive to continually improve training and operational practices, to provide a safe working environment, the skills to recognise and avoid potential accidents and the ability to respond effectively if accidents do occur. Our Health and Safety Plan is based on hazard identification, and details safe working practices, training requirements and emergency procedures for all operations. All procedures are reviewed regularly in order to achieve continuous improvement. In the last 12 months developments have included:

Incident Management System

Over the past few years, emergency procedures have been developed to cover specific incidents. During this process it became clear that an overarching document was needed. The resulting Incident Management System, finalised in December 2000, defines responsibilities and actions to be followed by our employees in the event of all possible major incidents that could affect water supply to customers. It also defines the interaction that should occur between our employees and those of neighbouring territorial authorities and emergency services.

Hazard identification review

We carried out a hazard identification review at each water treatment plant and entered all identified hazards in site-specific registers. Hazard mitigation is an ongoing process and site registers are reviewed on a six-monthly basis to assess the effectiveness of the measures taken.

Management of contractors

The health and safety plans of all contractors working at our treatment plants are now reviewed prior to their employment.

We have initiated site induction programmes to ensure contractors and subcontractors are advised of the hazards associated with water supply sites they are working at, and to ensure that any hazards created by their work are recorded in the Hazard Register. A site induction procedure, which identifies site hazards and evacuation plans, was also introduced to cover all plant visitors.

Pocket-sized edition of Health and Safety Plan

For easy reference by all staff, we have produced a pocket-sized edition of the Health and Safety Plan's main procedures.

Laboratory cleaning practices review

Laboratory cleaning practices have been reviewed and modified. The introduction of disposable sample bottles reduces staff exposure to chemicals by eliminating acid washing. An upgrade of the air conditioning system has improved the working environment of the chemistry laboratory.

During the year in review there were 38 work-related injuries involving our staff, resulting in 135 lost working days; the incident rate per hundred workers was 3.6, the frequency rate (per million working hours) was 235, while the severity rate (days lost to injury per million working hours) was 831. This format of reporting, adopted during the year, is an internationally recognised standard for accident and injury rates, allowing us to objectively measure and compare our performance in future years.

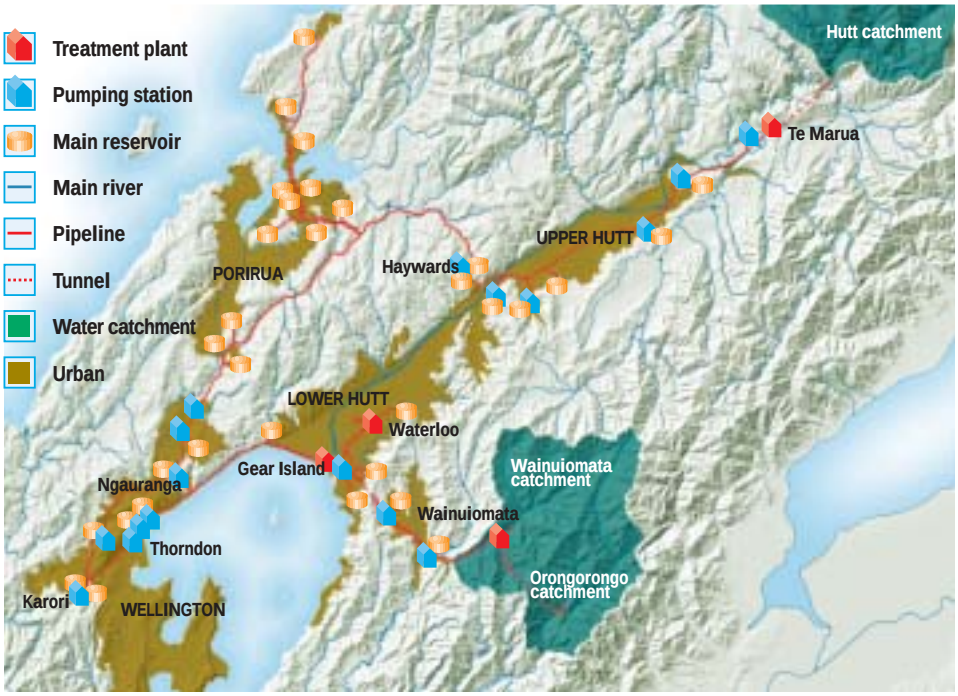
Even though our Operations staff receive regular training in manual handling, the injury rates were affected by a single back injury that resulted in 77 lost working days, more than half the annual total.

Our aim for the coming year is to reduce accident and injury rates by continuing to identify and record hazards, and by ensuring that the way we operate minimises, isolates or eliminates these identified risks.

Wellington Regional Council wholesale water supply network

Water supply system

Rivers in the Hutt and Wainuiomata-Orongorongo catchments supply around 60% of the region's water needs. The rest comes from the Waiwhetu aquifer beneath the Hutt Valley. For security, any customer can be supplied from more than one water source.



Stuart Macaskill CNZM, QSO, JP

Council Chairman Stuart Macaskill is standing down at October's local body elections, after a distinguished career in local government, spanning 30 years. His achievements in the realm of public service are numerous, but it is his involvement with the water sector that we particularly wish to acknowledge. Stuart was elected to the Upper Hutt City Council in 1971 and served as that Council's representative on the Wellington Regional Water Board for nine years.

In 1980, the newly formed Wellington Regional Council superseded the Water Board. Stuart was elected as Upper Hutt's representative to the Council, and was appointed Chairman of the Water Supply and Forestry Committee, a position he held until 1982 when he became chairman of the Urban Transport Committee. Stuart remained involved in water supply matters and, since his election as Council Chairman in 1986, he has continued as a member *ex officio* of the committees responsible for regional water supply.

Stuart's leadership in this Council's development of the regional supply system has been far-sighted. The system in place today, which provides a reliable and fairly priced supply of high quality water to the region's four cities, is a tribute to his contribution.

FINANCIAL STATEMENTS AND WATER SUPPLY PERFORMANCE INFORMATION

CONTENTS

FINANCIAL OVERVIEW

The financial results for the reporting period ended 30 June 2001 reflect a year of solid operational performance for the Water Group, with costs continuing to fall when compared to the corresponding 1999/2000 reporting period. An operating surplus of $3.28 million was achieved, which was $1.23 million ahead of that budgeted, before accounting for one-off abnormal items. The resulting cash surplus generated has been applied to accelerate the ongoing rate of debt principal repayment.

These results reflect the decision taken in June 2000 to reduce the wholesale water levy by 4.0% to $23.24 million for the 2000/2001 financial year, with a further 2.0% or $0.46 million reduction scheduled for the 2001/2002 financial year. Consequentially, by June 2002 the cumulative water levy cuts over the preceding three years will represent a 9.7% reduction and equate to a levy level last applied in 1992/1993. Whilst the Water Group's debt level has fallen by almost $5.0 million (to $57.2 million) since June 2000, and by $15.5 million since June 1997, it is still above that recommended by our treasury advisors. Therefore, any further reductions in the levy in the foreseeable future are likely to result in a slowing of progress towards a prudent level of debt relative to income.

Total operating expenditure has fallen by 2.1%, from $22.67 million to $22.18 million, which compares to a 2.7% reduction in 1999/2000. Savings of 10.0% in electricity costs and 4.8% in chemical costs have been realised. Undoubtedly, these savings reflect the ongoing benefits of the full commissioning of system optimisation software. The dry summer and autumn of 2001 has contributed significantly to the 4.4% increase in water consumption during 2000/2001 (55,807 ML), compared to 1999/2000 (53,440 ML). Net financial costs also continue to fall, being 9.3% lower than for the corresponding reporting period last year.

Finalised expenditure on the capital works programme amounted to $4.0 million. This was lower than budgeted, mainly due to permanent cost savings and the deferral of some 2000/2001 projects. However, the actual expenditure figure reported does include the $0.2 million that Hutt City Council contributed towards the overall completed project cost of reinstating an unfluoridated water supply to Petone. The recovery of this contribution has been reflected as a one-off abnormal item in the table below. Amongst the other projects completed during the year were: refurbishment of various sections of the Orongorongo-Karori water main; design and construction of a rising main at Plateau Road, Upper Hutt; various seismic review and protection works; plus security and safety measures at the Wainuiomata site.

The information contained in the following five pages explains the financial results for the Water Group's wholesale activities. The table below summarises financial performance since 1997. All results exclude the Network section, which manages the water supply within Wellington City under contract to Wellington City Council.

Water Group Financial Summary

	Actual June 1997 $'000	Actual June 1998 $'000	Actual June 1999 $'000	Actual June 2000 $'000	Actual June 2001 $'000	Budget June 2002 $'000
Operating revenue	**28,640**	**27,535**	**27,403**	**26,206**	**25,251**	**24,287**
Depreciation	4,028	4,193	4,335	5,009	5,117	5,220
Financial costs	8,243	6,909	6,166	5,399	4,943	4,897
All other operating expenditure	14,340	12,695	11,862	12,264	12,251	12,811
Surplus before abnormal items	**2,029**	**3,738**	**5,040**	**3,534**	**2,940**	**1,359**
ABNORMAL ITEMS						
Karori land asset write down	–	–	(1,590)	–	–	–
Distribution stock write up	–	–	1,111	–	132	–
Interest – buy back of debt	–	–	(455)	–	–	–
HCC's contribution to Petone de-fluoridation project	–	–	–	–	205	–
Operating surplus	**2,029**	**3,738**	**4,106**	**3,534**	**3,277**	**1,359**

Statement of Financial Performance

for the year ended 30 June

	Notes	2001 Actual $'000	2001 Budget $'000	2000 Actual $'000
OPERATING REVENUE				
Water supply levies		23,241	23,241	24,210
Internal revenue		687	684	716
Other revenue (interest & external)		1,528	942	1,280
Total operating revenue		**25,456**	**24,867**	**26,206**
OPERATING EXPENDITURE				
Personnel costs		3,631	3,655	3,570
Contractor & consultant costs		1,687	1,926	1,666
Internal consultant costs		716	679	692
Interest costs		4,943	5,328	5,399
Depreciation		5,117	5,184	5,009
Loss/(gain) on sale		(14)	(31)	(67)
Movement in doubtful debt provision		–	–	5
WRC overhead charge		766	766	731
Operating expenditure	1	5,333	5,647	5,667
Total operating expenditure		**22,179**	**23,154**	**22,672**
Net surplus for the year		**3,277**	**1,713**	**3,534**

Statement of Movements in Equity

for the year ended 30 June

	2001 Actual $'000	2001 Budget $'000	2000 Actual $'000
Equity as at 1 July	**198,240**	**198,240**	**131,113**
Net surplus for the year	3,277	1,713	3,534
Total recognised revenues and expenses for the year	**3,277**	**1,713**	**3,534**
Revaluation reserve movement	(2,776)	–	63,641
Other reserve & equity movements	14	2,919	(48)
Equity as at 30 June	**198,755**	**202,872**	**198,240**

The accompanying notes and accounting policies should be read in conjunction with these financial statements.

Statement of Financial Position

as at 30 June

	Notes	2001 Actual $'000	2000 Actual $'000
EQUITY			
Accumulated funds, including appropriations		62,622	57,853
Asset revaluation reserve		135,083	137,859
Departmental reserve	2	1,050	2,528
Total equity		**198,755**	**198,240**
Represented by:			
NON CURRENT LIABILITIES			
Public debt	3	57,201	62,135
Total non current liabilities		**57,201**	**62,135**
CURRENT LIABILITIES			
Accounts payable		2,351	1,813
Employee entitlements		696	634
Treasury payables		806	1,294
Total current liabilities		**3,853**	**3,741**
Total liabilities		**61,054**	**65,876**
NON CURRENT ASSETS			
Fixed assets	4	251,251	254,904
Investments	5	4,705	5,471
Total non current assets		**255,956**	**260,375**
CURRENT ASSETS			
Accounts receivable		2,378	2,415
Stocks	6	1,463	1,314
Accrued revenue		12	12
Total current assets		**3,853**	**3,741**
Total assets		**259,809**	**264,116**
Total net assets		**198,755**	**198,240**

The accompanying notes and accounting policies should be read in conjunction with these financial statements.

Statement of Funds

for the year ended 30 June

	Notes	2001 Actual $'000	2000 Actual $'000
FUNDS FROM OPERATING ACTIVITIES			
Funds were provided from:			
Levies received		23,241	24,210
Interest received		349	331
Other revenue		1,867	1,665
		25,457	**26,206**
Funds were applied to:			
Payments to suppliers and employees		12,134	12,331
Interest paid on public debt		4,943	5,399
		17,077	**17,730**
Net funds from operating activities		**8,380**	**8,476**
FUNDS FROM INVESTING ACTIVITIES			
Funds were provided from:			
Proceeds from sale of fixed assets		31	81
		31	**81**
Funds were applied to:			
Purchase of fixed assets		246	429
Capital projects		3,998	3,654
		4,244	**4,083**
Net funds from investing activities		**(4,213)**	**(4,002)**
FUNDS FROM FINANCING ACTIVITIES			
Funds were provided from:			
Appropriations/new loans		1,481	2,810
Transfer from reserves		2,500	825
		3,981	**3,635**
Funds were applied to:			
Repayment of public debt		6,415	6,394
Transfer to reserves		1,022	1,081
Investment additions		712	634
		8,149	**8,109**
Net funds from financing activities		**(4,168)**	**(4,474)**
Net increase in funds held		0	0
Add opening funds brought forward		(5)	(5)
Ending funds carried forward		**(5)**	**(5)**

The accompanying notes and accounting policies should be read in conjunction with these financial statements.

Notes to the Financial Statements

for the year ended 30 June

1 Operating expenditure

Operating expenditure is made up of payments for transportation costs, plus materials and supplies such as chemicals and power.

2 Departmental reserve

The departmental reserve is made up of a chemical contingency reserve and an asset rehabilitation reserve held to fund future work to refurbish the assets of the Water Group.

	2001 Actual $'000	2000 Actual $'000
Balance at 1 July	**2,528**	**2,272**
Transfer to reserves	1,022	1,081
Transfer from reserves	(2,500)	(825)
Balance at 30 June	**1,050**	**2,528**

3 Public debt

The public debt obligations are fully secured against the rateable property of the region. The interest rate paid for the year ended 30 June 2001 was 8.23% (8.32% to 30 June 2000). Operating cash surpluses are applied to repaying debt.

	2001 Actual $'000	2000 Actual $'000
Long term debt	62,135	65,720
Operating cash surplus applied to debt repayment	(4,934)	(3,585)
Balance at 30 June	**57,201**	**62,135**

4 Fixed assets

The last valuation of land, buildings and water supply infrastructure assets was in 1999. These are stated at the 1999 rating values prepared by Quotable Value NZ and the 1 July 1999 depreciated replacement cost. The next asset revaluation will be carried out by June 2004 at the latest, and thereafter revaluations will occur on a regular cyclical basis. Those assets which contribute directly to the supply and distribution of water are classified as water supply infrastructure and valued at component level. Detailed valuation information is held in the Water Group's asset information system.

Fixed Assets (continued)

2001	Deemed cost $'000	Revaluation reserve $'000	Accumulated depreciation $'000	Net book value $'000
Land	2,820	–	–	2,820
Water supply infrastructure	120,607	135,083	9,388	246,302
Office equipment	178	–	136	42
Plant & equipment	1,282	–	916	366
Motor vehicles	1,122	–	672	450
Work in progress	1,271	–	–	1,271
	127,280	**135,083**	**11,112**	**251,251**

2000	Deemed cost $'000	Revaluation reserve $'000	Accumulated depreciation $'000	Net book value $'000
Land	2,820	–	–	2,820
Water supply infrastructure	116,378	137,859	4,667	249,570
Office equipment	184	–	121	63
Plant & equipment	1,302	–	784	518
Motor vehicles	1,080	–	711	369
Work in progress	1,564	–	–	1,564
	123,328	**137,859**	**6,283**	**254,904**

5 Investments

The chemical contingency was established to cover the potential cost of additional chemicals, required as a result of an extreme event occuring within one of the surface water catchment areas. The insurance investment is held as self insurance for the Te Marua lakes and pipe network. The capital reserve is an asset refurbishment reserve which is used to fund capital expenditure incurred to rehabilitate our assets.
The interest rate paid by the WRC Internal Treasury to the Water Group for the year ended 30 June 2001 was 8.00%.

	2001 Actual $'000	2000 Actual $'000
Chemical contingency	520	482
Insurance investment	3,655	2,943
Capital reserve	530	2,046
	4,705	**5,471**

6 Stocks

	2001 Actual $'000	2000 Actual $'000
Chemicals	124	107
Capital spares	1,339	1,207
	1,463	**1,314**

7 Contingencies

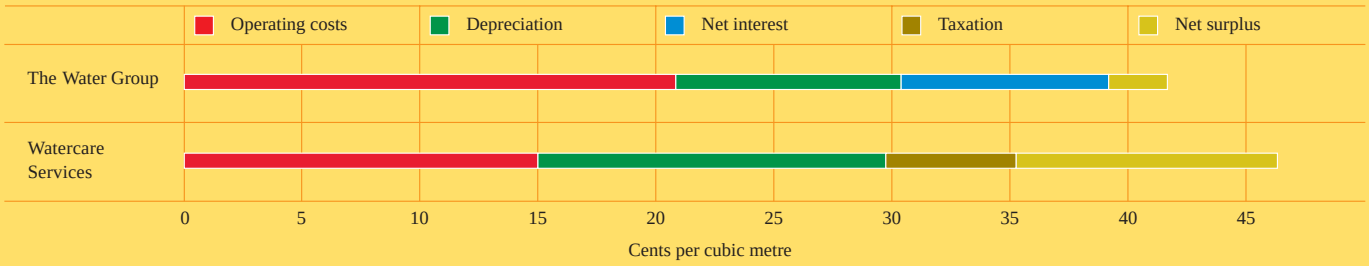
The Water Group has no contingent liabilities as at 30 June 2001.

INDUSTRY BENCHMARKING

The Water Group's performance has been compared with that of Watercare Services Limited (Auckland), the only other water supplier in New Zealand that sells water to territorial authorities for on-sale, rather than to consumers directly. Although the two organisations work under substantially different conditions, Watercare provides the most meaningful performance comparison currently available.

Water supply costs

for the year ended 30 June 2001



The Water Group's costs are for its wholesale water supply operations only

SUPPLY

Sources of supply

for the year ended 30 June

Source	Annual					Maximum week			Maximum day		
	Total ML			Average day ML			Average day ML			ML	
	2001	2000	Percent 2001	2001	2000	Date 2001	2001	2000	Date 2001	2001	2000
RIVER AND STREAM ABSTRACTION											
Kaitoke/Te Marua	24,612	21,740	42.6%	67.4	59.4	27/2/01	82.9	71.0	27/6/01	106.2	82.0
Wainuiomata	4,100	6,314	7.1%	11.2	17.3	30/8/00	21.5	32.0	27/6/01	35.9	45.0
Orongorongo	3,027	2,690	5.2%	8.3	7.3	23/5/01	21.1	21.7	20/5/01	22.2	27.5
George Creek	1,090	1,618	1.9%	3.0	4.4	27/9/00	5.8	10.2	19/6/01	9.3	18.2
Total river and stream abstraction	**32,829**	**32,362**	**56.9%**	**89.9**	**88.4**	**24/1/01**	**110.1**	**113.8**	**27/6/01**	**142.2**	**127.9**
PUBLIC ARTESIAN ABSTRACTION											
Buick Street	n/a	514	n/a	n/a	1.4	n/a	n/a	5.4	n/a	n/a	7.3
Gear Island	208	471	0.4%	0.6	1.3	6/6/01	4.9	17.4	26/2/01	14.7	21.6
Waterloo	24,672	22,028	42.8%	67.6	60.2	2/5/01	85.1	72.3	4/11/00	97.5	90.3
Total public artesian abstraction	**24,880**	**23,013**	**43.1%**	**68.2**	**62.9**	**2/5/01**	**85.1**	**81.8**	**4/11/00**	**97.5**	**92.7**
Total public abstraction	**57,709**	**55,375**	**100.0%**	**158.1**	**151.3**	**24/1/01**	**187.3**	**180.2**	**13/11/00**	**226.7**	**212.0**

Buick Street treatment plant ceased production in October 1999

Annual rainfall (mm)

for the year ended 30 June

Location	2001	2000	Year-on-year change
Kaitoke	2,184	2,652	-17.6%
Karori	578	1,364	-57.6%
Orongorongo	1,814	2,701	-32.8%
Wainuiomata	1,178	2,189	-46.2%

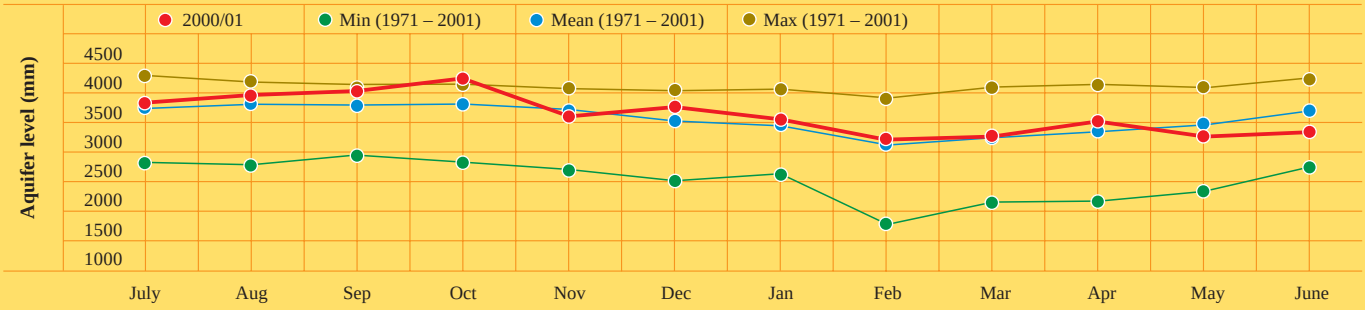
Rainfall measurements were taken from the following rain gauge sites:
Kaitoke (Hutt River catchment) – Hutt at Phillips
Karori reservoir
Orongorongo Swamp
Wainuiomata at Skull Gully

Levels and flows from water sources

The following three graphs show historical high, low and average flows/levels for the Water Group's three main water sources, compared with data for the 12 months to 30 June 2001. The Hutt and Wainuiomata rivers both experienced consistently low flows during the second half of the year. In contrast, the Waiwhetu aquifer was relatively unaffected by the dry weather, remaining very close to its long-term average level during the second half of the year. The measurement sites are Hutt River at Kaitoke, Wainuiomata River at Manuka Track and Waiwhetu aquifer at McEwan Park. Data for the Orongorongo River was not available.

Waiwhetu aquifer level

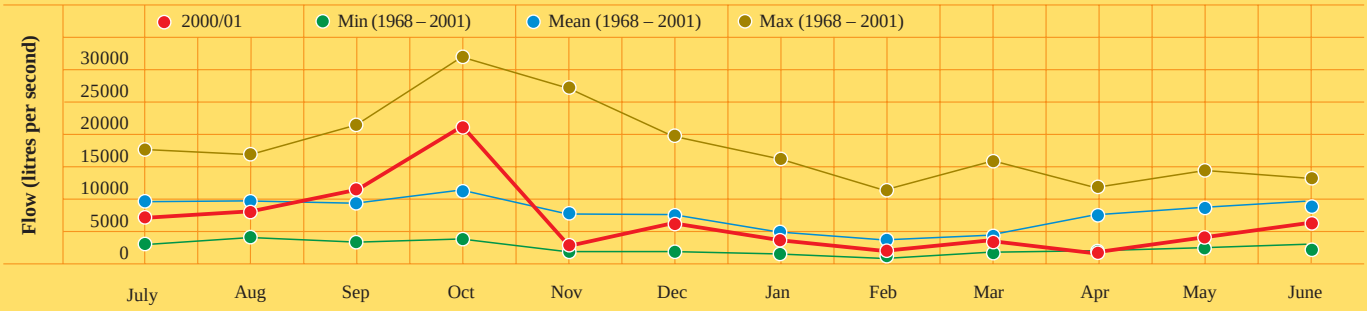
for the year ended 30 June



June 2001– ten days data not available

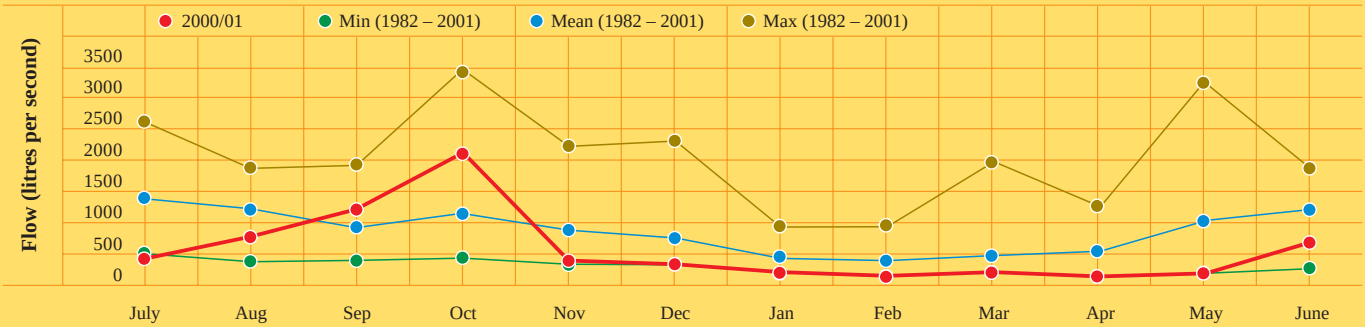
Hutt River flow

for the year ended 30 June



Wainuiomata River flow

for the year ended 30 June



Distribution pipeline shutdowns

for the year ended 30 June

During the 12 months to 30 June 2001 there were 81 shutdowns on wholesale supply mains. No loss of supply or pressure to our customers resulted.
Sixteen shutdowns were unscheduled, for the repair of leaking or burst mains. Each job was completed within eight hours.
The remaining 65 shutdowns were scheduled. This work was required to install new or refurbished pipes (18), fit flexible 'earthquake' couplings to pipe joins (6), remove redundant metering equipment that had been superseded (32) and exercise scour valves (9).
All scheduled shutdowns were completed within eight hours, with most completed in fewer than six hours.

RESOURCE CONSENTS

Resource consents held

as at 30 June 2001

Water		Land use			Discharge			**Total**
Take	Diversion	Structures	Earthworks	Pipelines	To land	To water	To air	
5	3	14	3	4	2	5	3	**39**

The Water Group held 39 resource consents, each containing up to 21 separate conditions. All conditions of all consents were complied with during the year, apart from two non-compliance incidents (details below).

Resource consents non-compliance

Consent: Discharge of partially treated water to the Wainuiomata River. The Water Group mistakenly conducted aluminium testing that was not as specified in the consent conditions. This has been rectified.

Consent: Discharge of supernatant to the Wainuiomata River. The Water Group failed to conduct a fish survey on time, to identify whether supernatant was having any impact on fish habitat. Wellington Fish and Game has now completed this survey on our behalf and has been contracted to conduct an annual survey for the next three years.

CONSUMPTION

All consumption figures are based on 52 weekly meter readings, apart from 1993 and 1999, which are based on 53 weeks.

Annual consumption

for the year ended 30 June

	Hutt City	Porirua City	Upper Hutt City	Wellington City	**Regional total**
ML consumed:					
2000	13,919	5,507	5,470	28,544	**53,440**
2001	14,403	5,970	5,779	29,655	**55,807**
Movement	3.5%	8.4%	5.6%	3.9%	**4.4%**

ML = millions of litres. Rows may not add due to rounding.

Average consumption

for the year ended 30 June

	Hutt City	Porirua City	Upper Hutt City	Wellington City	**Regional total**
Population (1)	97,800	47,400	37,100	167,400	**349,700**
Rateable households (2)	34,529	15,255	12,727	57,173	**119,684**
Average day (ML/city/day)					
2000	38.2	15.1	15.0	78.4	**146.8**
2001	39.6	16.4	15.9	81.5	**153.3**
Average consumption (litres/head/day)					
2000	391.0	319.2	405.1	468.4	**419.8**
2001	404.6	346.0	427.9	486.7	**438.4**

ML = millions of litres. Rows may not add due to rounding.

(1) Statistics New Zealand – Resident Population – estimate at 30 June 2000

(2) From LTA's – estimate of residential urban rateable households at 30 June 2000

Consumption – maximum week

for the year ended 30 June

	Hutt City	Porirua City	Upper Hutt City	Wellington City	**Regional total**
Max. week					
2001	28/2/01	24/1/01	28/2/01	7/2/01	**28/2/01**
Total of max. week (ML)					
2000	319.9	133.2	131.1	633.9	**1,201.9**
2001	337.7	150.4	144.4	678.5	**1,295.5**
Avg. day max. week (ML)					
2000	45.7	19.0	18.7	90.6	**171.7**
2001	48.2	21.5	20.6	96.9	**185.1**

ML = millions of litres. Rows may not add due to rounding.

Annual consumption trend (ML) – 10-year history

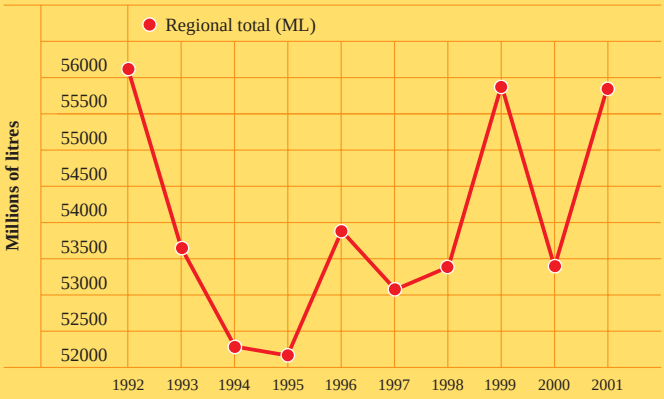
for the year ended 30 June

Year	Hutt City	Porirua City	Upper Hutt City	Wellington City	**Total**
1992	15,662	6,314	5,088	29,043	**56,108**
1993	14,933	6,006	5,012	27,692	**53,643**
1994	14,899	5,561	5,155	26,760	**52,375**
1995	14,497	5,317	4,805	27,580	**52,199**
1996	14,327	5,073	5,035	29,308	**53,742**
1997	14,274	5,120	5,155	28,516	**53,066**
1998	14,640	5,481	5,093	28,206	**53,419**
1999	15,209	5,862	5,822	29,088	**55,981**
2000	13,919	5,507	5,470	28,544	**53,440**
2001	14,403	5,970	5,779	29,655	**55,807**

ML = millions of litres. Rows may not add due to rounding.

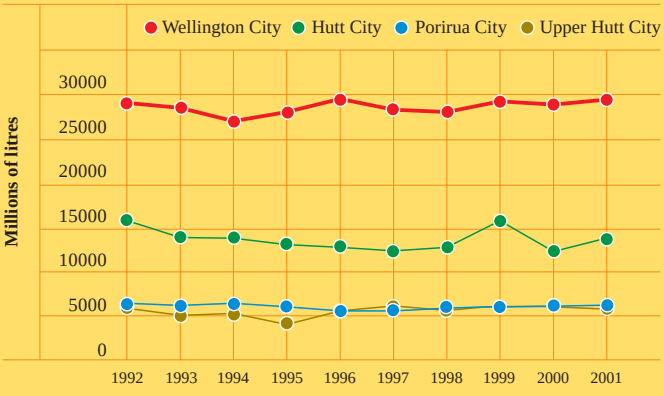
Annual consumption trend (ML) – region

for the year ended 30 June



Annual consumption trend (ML) – by customer

for the year ended 30 June



Chemical monitoring of the wholesale water supply

The health risk due to toxic chemicals in drinking water differs to that caused by microbiological contaminants. It is unlikely that any one substance could result in an acute health problem except under exceptional circumstances, such as significant contamination of the supply. Moreover, experience has shown that the water usually becomes undesirable after such incidents[A] for obvious reasons such as taste, odour and appearance. The problems associated with chemical constituents arise primarily from their ability to cause adverse effects after prolonged periods of exposure.

Turbidity analysis

The Drinking Water Standards require that turbidity does not exceed 0.5 NTU for at least 95% of the time that our treatment plants are operating. Turbidity in treated water is continuously monitored at our Wainuiomata and Te Marua plants. Results for the year to 30 June 2001 show both plants complying with the 0.5 NTU rule 99.99% of the time. Results against 0.1 NTU (rule to

Mean values of chemical analysis at treatment plants

for the year ended 30 June 2001

		TE MARUA		WAINUIOMATA		WATERLOO		GEAR ISLAND	
Parameter	DWS NZ GV/MAV[(A)]	No. of samples	Value	No. of samples	Value	No. of samples	Value	No. of samples	Value
Alkalinity (total) mg/L $CaCO_3$	–	254	47	52	51	52	67	31	65
Aluminium (acid soluble) mg/L	0.15	249	<0.02	51	0.05	–	–	–	–
Arsenic (total) mg/L	0.01	1	<0.001	1	<0.001	1	<0.001	1	<0.001
Boron mg/L	1.4	1	<0.03	1	<0.03	1	<0.03	1	<0.03
Cadmium (total) mg/L	0.003	1	<0.0003	1	<0.0003	1	<0.0003	1	<0.0003
Calcium (total) mg/L	[(B)]	1	12	1	23	1	20	1	11
Chloride mg/L	250	1	8	1	21	1	15	1	17
Chromium (total) mg/L	0.05	1	<0.002	1	<0.002	1	<0.002	1	<0.002
Colour (total) PtCO units	10	63	<5	64	<5	–	–	–	–
Conductivity µS/cm @ 25ºC	–	12	140	12	191	13	199	13	199
Copper (total) mg/L	2	1	0.005	1	0.005	1	<0.001	1	<0.001
Cyanide (total) mg/L	0.08	1	<0.008	1	<0.008	1	<0.008	1	<0.008
Fluoride mg/L	1.5 [(C)]	259	0.80	257	0.79	185	0.78	–	–
Hardness (total) mg/L $CaCO_3$	200	12	37	12	58	12	68	11	44
Iron (total) mg/L	0.2	12	<0.03	12	0.05	12	0.09	11	0.14
Langelier Saturation Index	≥0	12	–1.0	12	–1.1	12	–0.8	11	–1.5
Lead (total) mg/L	0.01	1	<0.0005	1	0.0029	1	<0.0005	1	<0.0005
Magnesium (total) mg/L	[(B)]	1	1.4	1	2.2	1	2.7	1	4.1
Manganese (total) mg/L	0.5	1	0.002	1	0.003	1	0.002	1	0.004
Mercury (total) mg/L	0.002	1	<0.0002	1	<0.0002	1	<0.0002	1	<0.0002
Nickel (total) mg/L	0.02	1	<0.001	1	0.003	1	<0.001	1	<0.001
Nitrate mg/L $^-$N	50	1	0.10	1	0.07	3	0.73	5	0.91
pH	6.5 – 8.5	269	7.9	64	7.7	52	7.8	33	7.4
Phosphate – (dissolved reactive) mg/L $^-$P	–	1	<0.01	1	<0.01	3	<0.01	5	<0.01
Reactive silica mg/L	–	1	9.7	1	11.0	1	15.0	1	16.0
Selenium (total) mg/L	0.01	1	<0.001	1	<0.001	1	<0.001	1	<0.001
Sodium mg/L	200	1	15	1	13	1	12	1	24
Solids (total dissolved) mg/L	1000	1	87	1	130	1	120	1	130
Sulphate mg/L	250	1	6.5	1	9.2	1	6.2	1	7.5
Zinc (total) mg/L	3	1	<0.003	1	0.039	1	<0.003	1	<0.003

[(A)] Drinking Water Standards for New Zealand 2000, Guideline Value (GV) or Maximum Acceptable Value (MAV). [(B)] See Hardness. [(C)] The fluoride content recommended for drinking water by the Ministry of Health for oral health is 0.7 – 1.0 mg/L.
A dash in the DWS NZ column indicates that there is no guideline or maximum acceptable value

be introduced in 2005) were – Te Marua 99.92%; Wainuiomata 96.56%. The Waiwhetu aquifer is a secure source, so reporting of turbidity for our Waterloo and Gear Is. plants is not required.

Microbiological monitoring of the wholesale water supply

Microbiological contamination of a water supply has the potential to cause sickness within the community. Microbiological monitoring of potable water is carried out in order to determine the safety of the water in relation to the possibility of transmission of waterborne disease. Water samples are collected and tested for the presence of indicator bacteria – the coliform group of bacteria. One source of the indicator bacteria is faecal material. If the indicator bacteria are detected the water ***may*** be contaminated with faecal material and therefore may not be safe to drink. If the indicator bacteria are not found, it may be inferred that the water is not contaminated with faecal material and will not transmit waterborne disease. The coliform group of bacteria has been used much more than any other indicator group for monitoring potable water. This group consists of *Escherichia coli*, which usually comes from faecal material, plus other bacteria derived from non-faecal sources. Under certain circumstances, some coliforms from non-faecal sources can grow in water distribution systems. Therefore finding coliform bacteria in a water distribution system does not necessarily indicate a threat of transmission of waterborne disease. Heterotrophic bacteria counts are used as a means of estimating the number of live heterotrophic bacteria in water. Changes that occur in the bacteriological quality of the treated water from the time it enters the distribution system until it reaches the customer can be determined using the HPC methods. Bacterial numbers tend to increase during distribution, and the density reached is influenced by the number of factors, including the bacterial quality of the finished water entering the system, temperature, residence time, presence or absence of disinfectant residual, construction materials and the availability of nutrients for growth. At present there is no New Zealand guideline limit for heterotrophic bacteria in potable water.
The Wellington Regional Council's Laboratory monitors the microbiological quality of metropolitan Wellington's water supply. A summary of results for the twelve months from 1 July 2000 to 30 June 2001 is given here.

Faecal coliforms – raw water – summary of samples collected for the year ended 30 June 2001

Site	Faecal coliforms (CFU/100 mL)			
TE MARUA TREATMENT PLANT	No. of samples	Max.	Min.	Median
Kaitoke intake – Hutt River	52	168	0	13
Te Marua north lake deep	49	57	0	4
Te Marua north lake surface	49	165	0	4
Te Marua south lake deep	49	39	0	3
Te Marua south lake surface	49	36	0	4
WAINUIOMATA TREATMENT PLANT				
Orongorongo/Big Huia intake main	50	200	0	4
Lower George Creek intake	52	33	0	1
Wainuiomata River intake	52	>300	0	14

Total coliform and heterotrophic plate count results – summary of samples collected for the year ended 30 June 2001

	Total coliforms (CFU/100 mL)					Heterotrophic plate count @ 35ºC (CFU/mL)			
	DWS NZ MAV [D]	No. of samples	Max.[E]	Min.	Median	No. of samples	Max.	Min.	Median
Te Marua pumping station	< 1	296	1	0	0	212	>5700	0	0
Stokes Valley charthouse	< 1	256	1	0	0	256	2000	0	0
Pukerua Bay	< 1	259	2	0	0	259	170	0	0
Johnsonville pumping station	< 1	260	0	0	0	260	220	0	0
Karori (end of Kaitoke main)	< 1	260	0	0	0	260	560	0	0
Wainuiomata treatment plant gate	< 1	298	0	0	0	212	230	0	0
Hutt Park bridge	< 1	260	0	0	0	260	>5700	0	0
Thorndon pumping station	< 1	260	0	0	0	260	>5700	0	0
Waterloo treatment plant	< 1	298	1	0	0	212	1500	0	4
Gear Island treatment plant	< 1	24	0	0	0	24	860	0	2
Rahui reservoir	< 1	259	0	0	0	259	2000	0	1

[D] Drinking Water Standards for New Zealand 2000, Maximum Acceptable Value (MAV). There are no guideline values for heterotrophic plate count
[E] Although some tests showed a positive total coliform presence, further sampling and testing proved an absence of faecal coliforms, as required by the DWS NZ

OUR WATER SUPPLY MISSION

The Mission of Wellington Regional Council's Water Group is to provide a quality, cost-effective water supply service to the people of metropolitan Wellington. The following standards are designed to achieve this aim.

Our water quality standards

The quality of water supplied will continually meet the Ministry of Health's Drinking Water Standards. The related water supply infrastructure will be maintained and improved to meet the standards specified in the Regional Water Supply Asset Management Plan. An effective Quality Management System will be maintained that meets the requirements of the international quality standard ISO 9002.

Current status

- All water that the Water Group treats currently meets Ministry of Health Drinking Water Standards. The Regional Council has a policy to target an A-grade standard for each of its water treatment plants. This means the water supplied to its customers is completely satisfactory, with minimal levels of health risk.
- Waterloo and Gear Island treatment plants are graded B. This would be upgraded to A if chlorine was added to the treated water, although Hutt City Council has requested that this should not occur. Wainuiomata water treatment plant is graded C. The plant currently treats water to A-grade standard, however we were required to provide a supporting data record before seeking a regrading; we applied for regrading in June 2001. Te Marua water treatment plant is currently graded A.
- The Water Group holds certification to ISO 9002 for its wholesale water supply operations.

Specific objectives to be achieved by 30 June 2002

- The collection, treatment and delivery of water will be managed to ensure the quality of water supplied complies with the Ministry of Health's Drinking Water Standards for New Zealand (2000). Water testing will be carried out by an International Accreditation New Zealand (IANZ) registered laboratory at sampling points defined by the Quality Assurance section of the Water Group, not less than five days out of every seven. Costs will not exceed the budget of $436,000.
- The Wainuiomata water treatment plant will be regraded to an A or A1 grading by 30 June 2002.
- Vegetation management measures will be carried out in the Council's water supply catchment areas in accordance with the Council's Forestry Management Plan and within a budget of $159,000 so that the treatment plants receive good quality water.
- A ranger service for the Wainuiomata-Orongorongo water supply catchment will be obtained from the Regional Council's Landcare Division at a cost not exceeding $116,000.

Our security of supply standards

Enough water will be available on a daily basis to meet a 1-in-50 year return-period drought situation. The related water supply infrastructure will be maintained and improved to meet the standards specified in the Regional Water Supply Asset Management Plan. Appropriate contingency plans will be in place to cover a major emergency.

Current status

- Projections using a computer based sustainable yield model show that the Council's water supply infrastructure is sufficient to meet a 1-in-50 year return-period event until at least 2020, at current growth rates. A 1-in-50 year drought strategy has been adopted after consultation with our customers. This is less than that of Auckland's 1-in-200 year strategy, though their system is less dynamic in its raw water supply.
- The Council manages water supply assets in accordance with a planned programme of maintenance. Council policy is that there is no deferred maintenance. The Asset Management Plan was prepared in accordance with the National Asset Management Steering Group guidelines.
- The Council has an "n-1" policy for security of water supply. This means that either Te Marua or Waterloo water treatment plants could be out of commission and the daily base water requirement of 145 ML still met.

Specific objectives to be achieved by 30 June 2002

- The security of supply to Pinehaven will be enhanced by the replacement of the asbestos main, to accepted engineering standards, within a budget of $230,000.
- The pipeline across the Hutt River at Silverstream is vulnerable to major floods and seismic events. Investigations into an alternative river crossing will be completed, at a cost not exceeding $30,000.
- The security of the Johnsonville pumping station will be improved by replacing the electrical switchboard, within a budget of $160,000.
- The OK pipeline from Randwick to Korokoro will be refurbished to accepted engineering standards, at a cost not exceeding $1,250,000.

Our environmental standards

All water supply activities will be undertaken in a sustainable environmental manner according to the principles of the Resource Management Act 1991.

Current status

- The Council acquires and seeks to comply with all appropriate resource consents. Abstraction consents govern the quantity of water that can be drawn from each source and how much must remain.

Consents are also sought for any discharges from the treatment plants. Most by-products from the plants are processed through wastewater recovery plants and removed off site.

- The Council holds certification to ISO 14001 (the International Standards Organisation's environmental management benchmark) for its wholesale water supply activities.

The Water Group's environmental policy

The Water Group of the Wellington Regional Council takes water from surface and artesian sources, treats it using chemical and physical processes, and distributes it to Lower Hutt, Porirua, Upper Hutt and Wellington. This policy takes account of the environmental impacts of Water Group activities and the environmental results the community and the Council have agreed upon.

The Water Group is committed to sustainable environmental management, consistent with the production of water and the provision of laboratory services at competitive rates. In demonstrating this commitment the Water Group undertakes to:

1. Comply with all relevant laws and any Standards to which the Wellington Regional Council subscribes.
2. Evaluate the environmental effects and risks of all activities, and adopt all reasonable means, including consideration of alternatives, to avoid, remedy or mitigate these effects.
3. Prevent pollution of the environment. Wastes will be treated and disposed of in an environmentally safe manner. Where practicable, waste will be reduced through the use of alternative processes, reuse, recycling or conversion to by-products.
4. Recognise and operate within the natural limits of renewable resources, particularly water, and conserve non-renewable resources such as fuels, energy and materials.
5. Aim for no net loss of significant habitats or ecosystems.
6. Consider the environmental implications of business decisions.
7. Ensure that all staff members are aware of the importance of the environmental performance of the Water Group and of the environmental implications of the activities they undertake.
8. Specify the environmental requirements to be met by third parties engaged by the Water Group.
9. Where practicable, include consideration of environmental performance in the selection of contractors and suppliers.
10. Strive to continuously improve the environmental performance of the Water Group.
11. Make this environmental policy available to the public.
12. Review this policy and the supporting system regularly.
13. Report annually on the environmental performance of the Water Group.

Specific environmental objectives to be achieved by 30 June 2002

- All appropriate resource consents' conditions will be complied with, within a budget of $80,000.
- Resource consent compliance will be demonstrated to an auditable standard and a report on compliance for 2000/01 will be prepared by 30 November 2001.
- Water conservation will be promoted by way of an education campaign during the 2001/02 summer, at a cost not exceeding $70,000.
- Funding of $180,000 will be provided towards leak detection activities within the customer authorities' retail networks. Customers to report on outcomes by 30 November 2002.
- Selected reservoir high level probes will be replaced at a cost not exceeding $30,000, in order to avoid reservoir overflows.

Our customer service standards

The Council will continue to demonstrate that it has a high standard of customer service. It will provide customers with up-to-date and relevant information, as well as listening and responding to their needs.

Current status

- The Council has a policy to provide excellent customer service to all customers. Regular communication has been maintained with each of the metropolitan authorities to ensure service levels are being met.
  Publication of an annual business report, started in 1997/98, is in line with this policy.

Specific objectives to be achieved by 30 November 2001

Customers will be provided with an annual report that will include the following information:

- Financial results for the 2000/01 year.
- Operating costs that are benchmarked against Watercare Services Limited (Auckland).
- Actual quality compared with targeted performance.
- A list of incidents where supply has been interrupted, together with the time taken to respond and repair.
- A report on compliance with the requirements of our resource consents.

Our efficiency standards

The operational costs of collecting, treating and delivering the metropolitan region's water will be reduced wherever practicable, while maintaining levels of service agreed with our customers and within the Regional Council.

Current status

- Our total operating cost (per cubic metre) for wholesale water supply is currently below that of Watercare Services Limited (Auckland) – the only other 'wholesale-only' water supplier in New Zealand.

Some components of our price, however, are above those for Watercare. We will be working to bring these into line.

Our ownership and governance standards

All necessary steps are taken to ensure that the wholesale water supply activity remains in public ownership and operation.

Current status

- In line with a 1998 survey of metropolitan Wellington, this Council believes the wholesale water supply activity should continue to be owned and operated by a public utility.

Our health and safety standards

The Council is committed to providing and maintaining safe working environments for all staff and others that come into contact with its places of work. The Council's Water Group carries out its operations to comply with the Health and Safety in Employment Act 1992, Health and Safety Regulations 1995, relevant Codes of Practice and current legislation.

Current status

- Hazard management is at the core of the Water Group's Health and Safety Plan. A hazard identification programme is in place at all work sites, with hazards recorded in site registers that are continually reviewed and updated to eliminate, isolate or minimise risk. Staff receive role-specific training in hazard awareness, avoidance and accident response. The health and safety plans of contractors are reviewed prior to their employment, and site hazards and avoidance measures are identified to them when they begin work on site.

Specific objectives to be achieved by 30 June 2002

- The Hazard Register will be reviewed on a six-monthly basis. We will assess the effectiveness of the measures taken to eliminate, isolate or minimise risk to all Water Group employees and others.
- The health and safety plans of all contractors employed by the Water Group will be reviewed prior to their employment. Their activities must comply with the Health and Safety in Employment Act 1992, the Health and Safety Regulations 1995, relevant Codes of Practice and current legislation, and meet or exceed the methods of operation as determined within the Water Group's Health and Safety Plan. The activities of contractors will be monitored on a regular basis, to ensure that any risk to their employees, employees of subcontractors, Wellington Regional Council staff or the general public is eliminated, isolated or minimised.

ORGANISATIONAL STRUCTURE

The Water Group is organised into five key functional areas:

Operations	Strategy and Asset	Laboratory Services	Engineering Consultancy	Support Services
Production: Responsible for collection and treatment of water to acceptable standards, efficiency of production and maintenance of production assets. **Distribution:** Focuses on continuity of supply, water quality at customers' supply points, efficiency of transmission, maintenance of distribution assets and total system control. **Network:** Operates and maintains Wellington City's water reticulation system under a contract with the Wellington City Council.	**Asset management and quality:** Responsible for planning and implementation of asset management and capital works programmes, development and maintenance of catchment management, quality assurance programmes and resource consent monitoring. **Economics and marketing:** Focuses on long-term supply and demand scenarios, water pricing models, demand management, publicity, education and customer services.	This business unit monitors water quality for the Production and Distribution sections as a contracted service. The laboratory also undertakes work for clients outside of the Water Group.	This group provides contract supervision and project management services to the Water Group, together with some investigation and design services. It manages the plan records system and, under contract to Wellington City Council, responds to customer enquiries about water supply matters.	This section provides managerial, financial, secretarial and administrative assistance to the Utility Services Division, including the Water Group.