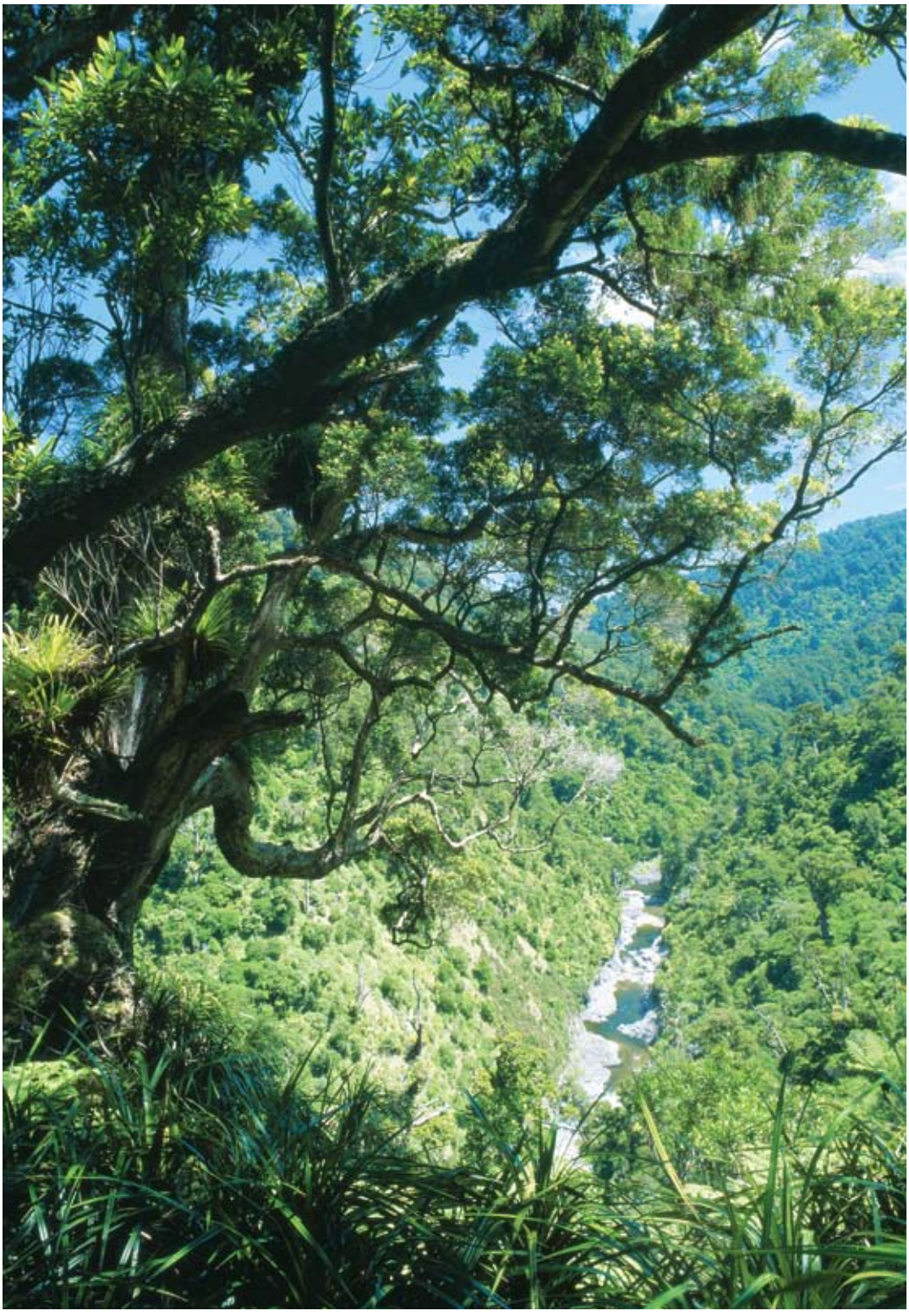
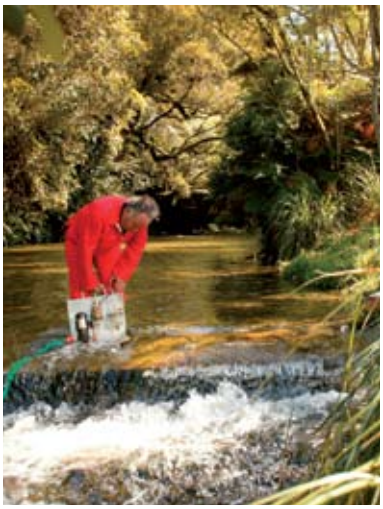
Water Supply Annual Report

FOR THE YEAR ENDED
30 JUNE 2010

Quality for Life

greater WELLINGTON
REGIONAL COUNCIL | Water





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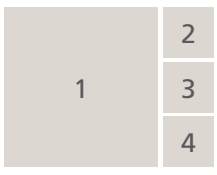


1. The Hutt Water Collection Area (Photo: Robin Blake)
2. River water sampling – Manuka Track, Wainuiomata River (Photo: Nick Servian)
3. Water clarity testing – the Stuart Macaskill Lakes
4. Checking the flocculation chambers – Wainuiomata Water Treatment Plant (Photo: Nick Servian)

Contents

Introduction

Reporting scope

This report covers the Greater Wellington Regional Council's wholesale water supply activity for the year ended 30 June 2010.

Greater Wellington's main annual report meets the Council's statutory reporting requirements under the Local Government Act 2002. This report is supplementary to the statutory annual report and provides our customers and the community with a more detailed account of our wholesale water supply operation.

The commentary on p3-24 reflects significant achievements and challenges in relation to our business objectives and performance targets.

Our objectives cover quality and quantity of supply, system security (risk), environmental responsibility, asset management, cost efficiency, and health and safety. We have summarised our results for all annual targets for 2009/10 on p33-40.

Our purpose

We aim to provide enough high-quality water each day, now and in the future, to meet the reasonable needs of the people of our region's four cities, in a cost-effective and environmentally responsible way.

What we do

We collect, treat and distribute water to four city councils – Hutt, Porirua, Upper Hutt and Wellington – for their supply to consumers. We:

- Operate four water treatment plants, 15 pumping stations and 183km of pipeline
- Supply around 145 million litres of water daily on average, to meet the needs of industry, commerce, public services and about 390,000 people
- Target at least an A grade quality standard for our water treatment plants and distribution system, where consistent with customer requirements
- Forecast future water needs and plan so those needs can be met at an acceptable cost to the community
- Carry out our work with care for the environment, including promoting ways to conserve water and the benefits to the public of water conservation
- Manage assets with a replacement book value of $345 million

Governance and organisation structure

The Wellington Regional Water Board Act (1972) defines Greater Wellington's wholesale water supply role. The Council is responsible for setting policy. The Regional Sustainability Committee oversees the work carried out by Greater Wellington's Utilities and Services group to manage wholesale water supply. Four departments share this workload:

- Water Supply – (manages and operates the existing water supply assets including water treatment, distribution, asset management, engineering design, system modelling and compliance with quality and environmental standards)
- Development and Strategy – (manages strategy, planning, investigations and development of new water sources and associated infrastructure)
- Marketing and Design – (includes customer reporting and water conservation activities)
- Finance and Support – (financial, administrative and secretarial services)

Greater Wellington contracts-out water quality testing services and some construction work.

Performance indicators

Greater Wellington's *10-Year Plan 2009-19 and Annual Plan 2010/11*[1] group performance indicators and targets for wholesale water supply under four main activities: water collection treatment and delivery, water supply infrastructure, planning for future water demand and supply, and water conservation programmes. We have cross-referenced reporting of annual targets for our seven long-term performance indicators with these four main activities, from p35. You can view the *10-Year Plan 2009-19* and *Annual Plan 2010/11* on our website or you can contact us for a copy (see outside back cover for contact details).

Management systems

We operate management systems for assets, water quality, environmental effects, health and safety, public health risk, projects and maintenance. We hold quality management system certification to international standard ISO 9001:2000 and environmental management system certification to ISO 14001:2004.

1. The *10-Year Plan 2009-19* contains performance indicators for three years to June 2012. The *Annual Plan 2010/11* updates the 10-year plan

The year in review

WATER SUPPLY VOLUME

A reference to relevant objectives and targets from our management systems follows each heading. We have listed these objectives and targets in full, with links to the relevant content from Greater Wellington's *10-Year Plan 2009-19 (incorporating the Annual Plan 2009/10)*, from p33.

TOTAL WATER SUPPLY VOLUME

(Environment responsibility – Improvement Target 5.63, p37)

We supplied 52,939 million litres (ML) of water, 2.4% less than we did last year. The estimated resident population supplied has increased by 1.1% over the same period.

The annual volume of water that we supply has decreased in each of the last four years, and this year has seen the smallest amount of water supplied in the last decade. We met all demand for water from our customers without the need for restrictions[2].

The average daily supply was 145ML.

The most recent annual reduction in water supply coincides with extra leak-detection and demand management work by the four city councils that we supply.

PEAK WATER SUPPLY

(Environment responsibility – Improvement Target 5.63, p37)

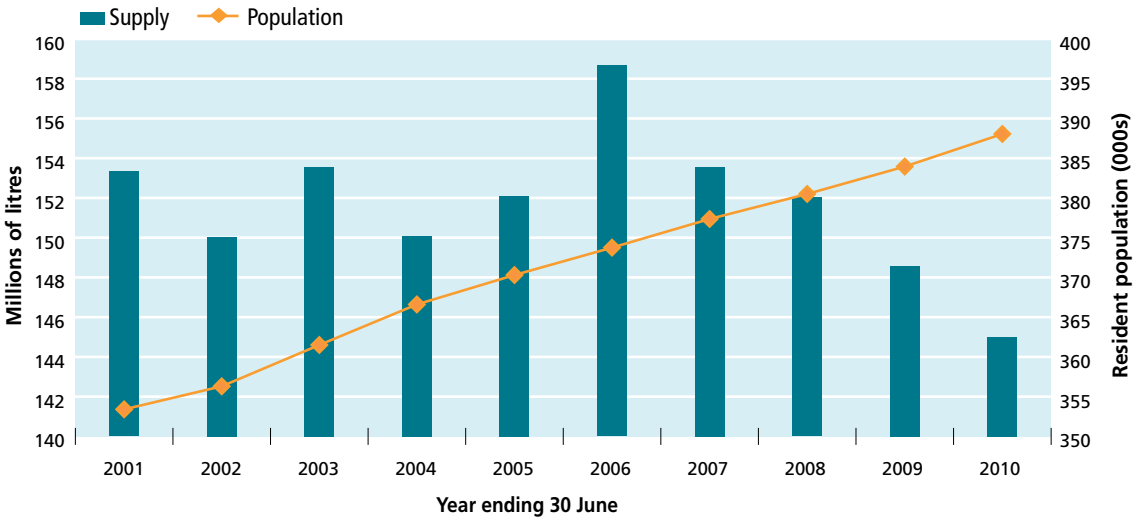
This year, both the highest week and highest-day supply totals were lower than those totals for any of the last 10 years.

The average day of our largest week of supply was 169ML this year, while the largest single day of supply was 176ML. When compared with the average daily supply for the year (145ML), these totals equate to 17% more and 21% more respectively.

Our summer weather was a mixed bag. The months of December, February and March each saw the level of rainfall at about 55% to 60% of their usual rainfall levels[3]. However, January had more than twice its average rainfall total. The high January rainfall, coupled with rain nearly every week during the summer – and an absence of long periods of settled fine weather – kept demand relatively low.

It is worth noting that historically, summer weather factors have had a marked impact on summer water use and annual changes in water supply volumes.

AVERAGE DAILY SUPPLY AND POPULATION 10-YEAR TREND



Total annual water supply has continued to reduce, despite a growing resident population within our region's four cities

2. Not including the standard restrictions applied to unattended watering methods by Hutt, Porirua, Upper Hutt and Wellington city councils

3. Measured at Kelburn, Wellington

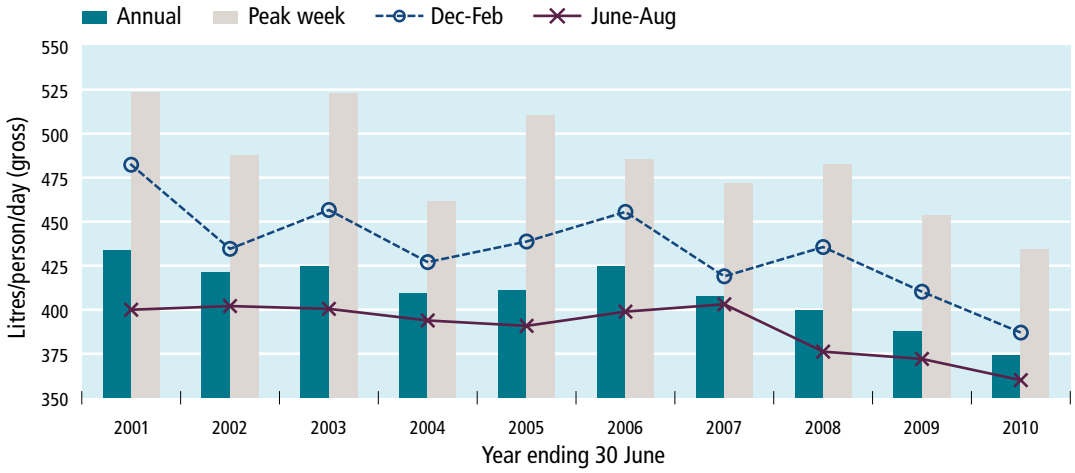
WATER SUPPLY PER RESIDENT

(Environmental responsibility – Improvement Target 5.56, p37)

Total gross water supply per resident[4] averaged 374 litres per person per day (L/p/d).

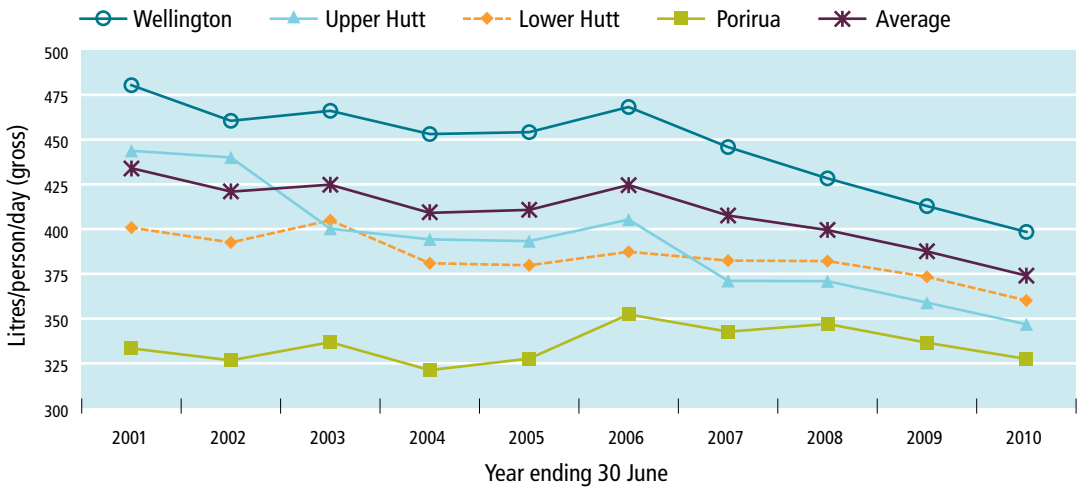
Greater Wellington's *10-Year Plan 2009-19* includes a target of at least a 10% reduction in per capita water use by 30 June 2019, from a base of 399 L/p/d. To date, the reduction in per capita supply is 6%.

TOTAL SUPPLY PER RESIDENT 10-YEAR TREND



The 10-year trend in average annual water supply per head of resident population for our water supply area is decreasing steadily. A downward trend is also evident in summer, winter and peak week averages for water use (above). Of the four cities that we supply, only Porirua shows little overall change in average annual water supply per resident over the 10 years shown, but Porirua's supply per resident remains less than for the other three cities (below)

SUPPLY PER RESIDENT BY CITY 10-YEAR TREND



4. This divides water supplied for all purposes by the estimated resident population within our supply area

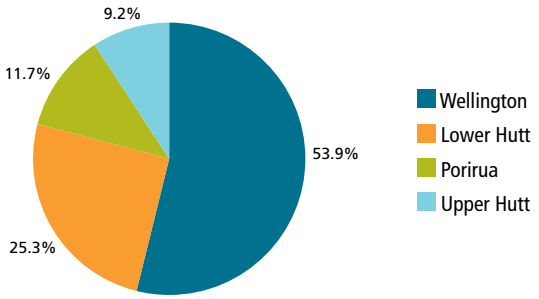
WATER SUPPLY TO EACH CITY

(Environmental responsibility – Improvement Target 6.50, part, p37)

Each of the four cities that we supply used less water this year than last year:

- Lower Hutt used 3.2% less water
- Porirua used 1.6% less
- Upper Hutt used 2.6% less
- Wellington used 2.1% less

SHARE OF ANNUAL SUPPLY BY CITY



ESTIMATED DOMESTIC WATER USE

Most local households do not have a water meter to measure their usage, so our city council customers do not have precise figures for domestic water use. City council estimates of domestic water use[5] are:

- Lower Hutt 250 L/p/d
- Porirua 230 L/p/d
- Upper Hutt 240 L/p/d
- Wellington 230 L/p/d

For more water supply volume statistics, see p29-30.

RESERVOIR LEVELS AND SUPPLY PRESSURE

(Able to meet demand – Annual Targets 3.1, 3.2, p38)

We have two time-related targets for maintaining storage above set levels each month for every customer reservoir that we supply. We achieved 98% of each target[6]. We aim to achieve 100% of each target.

Our water supply to Thorndon feeds directly into Wellington's central business district, rather than via a storage reservoir. We have two targets for maintaining the pressure of water delivered to Thorndon each month. We achieved both targets fully[7].

WATER TRANSMISSION EFFICIENCY

We measure the volumes of water leaving our water treatment plants and entering customer reservoirs, as a means to show where we may be losing water from our distribution network. This year, the difference between these volumes was 1%. This result is within the margin of error for our meters (+/-2%).

5. Estimates provided by Capacity (for Lower Hutt, Upper Hutt and Wellington) and Porirua City Council. Figures provided as accurate to within +/- 30 L/p/d

6. See p38 for details
7. See p38 for details

FINANCIAL SUMMARY

(Cost effectiveness – Annual Targets 6.1-6.3, p39-40)

Total operating costs of $26.1 million were $0.1 million over budget and 1.0% higher than for 2008/09. Total direct operating costs were $14.2 million. The operating deficit was $0.50 million, 22% lower than budgeted.

Interest costs were $2.9 million, compared with a budget expectation of $3.1 million. Personnel costs were $0.6 million lower than budget, as were materials and supplies costs. Our depreciation charge was $0.5 million over budget, after we brought forward an asset revaluation to 1 July 2009.

We were able to reduce debt again, by $0.1 million, to $42.2 million at 30 June 2010.

CAPITAL WORKS SPENDING

(Cost effectiveness – Annual Target 6.4, p40)

Our capital works programme for the year cost $6.0 million: $1.7 million under budget. A delay in spending for one project, development of hydro generation capability at Wainuiomata[8], contributed 66% of this outcome.

Of 100 projects of various sizes in the 2009/10 capital works programme, we completed 83. Eleven projects involve work over two or more years and are still in progress. We have deferred three projects until 2010/11 and cancelled three.

MAJOR CAPITAL PROJECTS BY SPEND, 2009/10

Project	Cost
Replace 750mm cast-iron main – Wainuiomata	$783,000
Hydro-electricity generation plant – Wainuiomata	$502,000
Seismic strengthening – Stuart Macaskill Lakes	$433,000
Replace air valves – Kaitoke to Karori main	$399,000
Orongorongo to Karori main re-commissioning – Ngauranga to Kaiwharawhara	$299,000
Develop VantagePoint data management system	$272,000
Mitigate earthquake risk to Bell Road branch main within Raroa Road tunnel	$258,000
Improve seismic strength and increase storage – Stuart Macaskill Lakes	$248,000
Mitigate flood risk – Karori branch main across Kaiwharawhara Stream	$237,000
Replace control system – Waterloo treatment plant	$212,000

8. See p18 for project details

WATER LEVY

(Cost effectiveness – Annual Target 6.2, p39)

We have held – at $23.46 million – the total levy that we charge for the collection, treatment and wholesale supply of water to the region's four cities. This sum excludes GST.

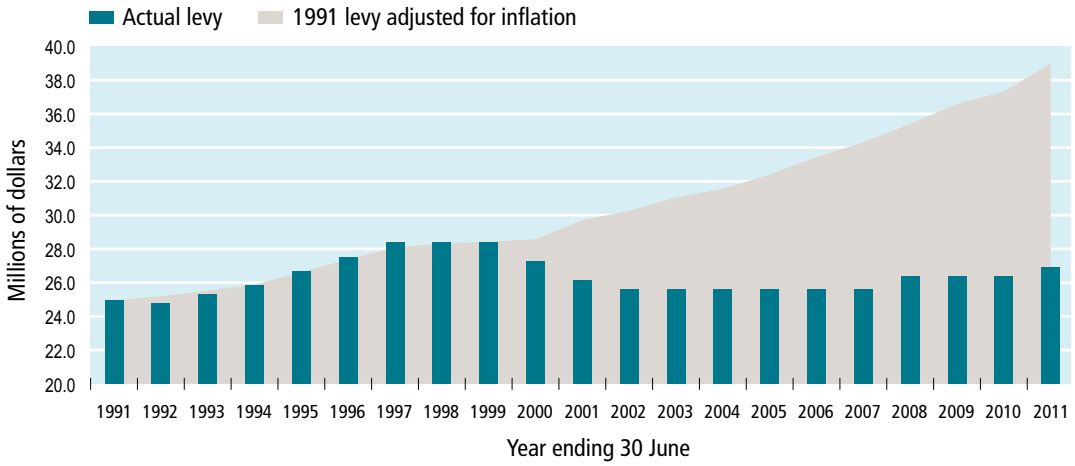
Over the last decade, we have committed $42.9 million to capital works and reduced public debt by $19.9 million, while keeping a tight control on the water levy.

COST COMPARISON WITH AUCKLAND

(Cost effectiveness – Annual Target 6.2, p39)

Our wholesale water supply costs equate to 47.4 cents per thousand litres of water supplied. Of this, we met 44.3 cents per thousand litres from levies on our four city council customers. On a unit cost basis, our supply costs compare favourably with those of Watercare Services, the wholesale water supplier for the greater Auckland urban area. A graph of comparative costs appears on p49.

WATER LEVY AND CPI INFLATION COMPARISON



The water levy that we charge Hutt, Porirua, Upper Hutt and Wellington city councils will remain unchanged during 2010/11, apart from the increase in GST from 1 October 2010 (from 12.5% to 15%). We have been responsible for raising the levy only once since 1997. If the levy had kept pace with inflation since 1991, it would now be $39.0 million, 45% more than the actual figure. (CPI figures are 12 months to December – year to December 2010 estimated at 4.5%, including the rise in GST. Source: Asia-Pacific Risk Management)

WATER SUPPLY DEVELOPMENT

WATER SHORTAGE RISK MODELLING

(Able to meet demand – Improvement Target 3.50, p36)

An update of our risk model, which includes the impact of less water use in recent years, indicates a reduction in the annual chance of a water shortage for our system.

We model the security of water supply that our system provides – measured as the annual probability of a shortfall between supply and unrestricted demand – using climate and water use records, and population estimates.

In recent years, modelled security of supply has declined with population growth. Twelve months ago, we reported that the annual risk of a shortage had increased again, to 3.9% (this means a shortage every 26 years on average). However, that apparent deterioration did not reflect the decrease in annual water supply volumes since 2005, when the National Institute of Water and Atmospheric Research (NIWA) last updated the model's demand data set for us.

In the latter part of 2009, we became concerned that the gradual increase in the modelled risk was out of step with observed water use. Water use had decreased for three consecutive years (to 30 June 2009) and showed signs of being lower again during 2009/10.

Given the importance of water shortage risk to planning capital projects, we decided to bring forward an update of the model, including the demand data set to 30 June 2009. The update, costing $53,000, had been scheduled for 2011.

A notable refinement to the model is that it now allows for population change and water use to be assessed individually for eight separate zones across our supply area. This has been possible due to improvements in computing power. Previously the model had only been able to treat our supply area as a single zone, with an averaged demand value applied to all four cities. Because of that limitation, the model used a "worst case" view of growth, by assuming that any extra water use due to population growth occurred in Wellington city. That assumption was more likely to result in a modelled water shortage than allocating growth correctly to individual zones, as Wellington is the most distant point from our water sources and treatment plants.

We received the updated version of the model in June 2010 and started validation testing of it. This testing to date indicates a reduction in the annual risk of a water shortage from our position one year ago. However, it is likely that our modelled risk will remain above our 2% annual probability standard, so agreeing with our customers how to address that must remain a high priority.

REVIEW OF WATER-SHORTAGE RISK STANDARD

(Able to meet demand – Improvement Target 3.50, p36)

A recent review of our standard for security of supply has endorsed our approach to risk.

Our standard for acceptable risk of a water shortage is no more than once in 50 years on average, or an annual probability of 2%. We agreed this standard with our four customer councils in June 2000.

More recently, our customers have requested that we reassess the 2% annual shortage risk standard. Given this request and the number and cost of projects included in Greater Wellington's *10-Year Plan 2009-19* to restore security of supply (and retain it) within the 2% target, we decided to review whether this risk standard remains appropriate in relation to best practice for water suppliers with similar circumstances.

Engineering consultant Montgomery Watson Harza (MWH) collected information from 15 comparable water suppliers around the world, to see how they set their security of supply standards and the regulatory context that each operated within.

Based on this survey, MWH concluded that we have selected a reasonable target level of service for unrestricted supply of water (2%). Nine of the suppliers surveyed expressed their level of service in terms of probability of shortages. Of these nine, three had more demanding targets than we do, while four had lower targets.

MWH assessed our water resource model – the Sustainable Yield Model – as "advanced" and described our modelling approach as "a best practice (that) was also used by the two Australian water suppliers surveyed".

As an extension to this review, we have asked MWH to provide data for our supply area that will indicate the extent to which climate factors have affected the reductions in water use seen over recent years. We expect to receive the report in the second quarter of 2010/11.

STORAGE CAPACITY AT TE MARUA

(Able to meet demand – Annual Target 3.4, p38, Improvement Targets 1.53, 3.53, p35-36)

Our *10-Year Plan 2009-19* included capital funding, over the financial years 2009/10 to 2012/13, for seismic strengthening and increased storage capacity of the Stuart Macaskill Lakes at Te Marua.

Upgrading the seismic performance of the lakes will involve laying flexible membrane linings on the inside face of the embankment walls, and placing rock buttresses at several critical points to reinforce the outer face of the embankments. We can only do the lining work during dry weather, which is more likely during summer.

We are preparing to strengthen the Stuart Macaskill Lakes' embankments and upgrade the storage capacity by 13%

The original programme would have seen design work, consent applications and contract documents completed by 30 June this year. We had planned to install a new lining in Lake 2 during the summer of 2010/11, and in Lake 1 the following summer. However, as our consultants developed the project programme, it became clear that the design and consenting phase would take longer than expected. These delays caused a number of issues.

Our evaluation of the risk of water shortage associated with having Lake 2 empty during the coming summer indicated that as much as 13% of anticipated demand would need to be cut in the event of fine and settled weather conditions. Talks with our customers on this point during April resulted in submissions to our *Annual Plan 2010/11*[9] from both the Hutt and Upper Hutt city councils, asking that we secure consent to take more water from the Hutt River to cover the construction period, before emptying Lake 2.

When we began planning this project, a major reason for starting to upgrade the lakes during the coming summer was to boost our security of supply as soon as possible. However, the emerging trend of lower water use[10], coupled with the project's timing issues, has led us to conclude that a 12-month postponement holds less risk than continuing with the original timetable. Early indications from risk modelling with our updated Sustainable Yield Model endorse that view (see "Water shortage risk modelling", p8).

We will now award a separate contract for the rock buttress construction on the external embankments and expect this work to start in November 2010. Contractors will complete the buttressing between the lakes during the summer of 2010/11, before starting to raise the level of Lake 2 during the summer of 2011/12. This timing will simplify site access for both stages of the project.

During the year, our consultant Damwatch Services peer-reviewed detailed designs for the rock buttressing. We expect that Environment Waikato[11] will process the building consent for this work in October 2010.

In addition, we have arranged with Environment Waikato that it process the building consents for raising the lakes' embankments. We will apply for these consents separately, later in 2010/11.

9. Annual Plan 2010/11 – Proposed
10. See p3-4
11. Environment Waikato is certified to handle building consents for large dams on behalf of all North Island regional, district and city councils

WATER SUPPLY FROM THE HUTT RIVER

(Able to meet demand – Annual Target 3.4, p38, Improvement Target 3.50, p36)

We are preparing to apply for a short-term consent – for three years – that would allow us to leave a reduced flow of water in the Hutt River, downstream of the Kaitoke Weir. If our application is successful, this measure will lessen the risk of a summer water shortage while we upgrade the Stuart Macaskill Lakes.

Some of our stakeholders have voiced concern about the effect that a reduced flow might have on lower reaches of the Hutt River. As a condition of the consent change, we are proposing to monitor river habitat condition and ecological health during periods of low flow over the next three years. Porirua, Upper Hutt and Wellington city councils support this approach. At our year-end, we were waiting for a reply from Hutt City Council.

THE UPPER HUTT AQUIFER

(Able to meet demand – Annual Target 3.4, p38, Improvement Target 3.54, p36)

Our *10-Year Plan 2009-19* included funding this year to begin developing wells and a water treatment plant in Upper Hutt, so that we can utilise the Upper Hutt aquifer. However, we have deferred all work on this project, due to uncertainties surrounding change to the Kaitoke consent and the impact of the regional water strategy project (see "Water supply from the Hutt River" and "Regional water strategy", both this page). We will reassess our commitment to the Upper Hutt aquifer proposal once we have more certainty about the outcomes of these initiatives.

ECONOMIC BENEFIT ASSESSMENT FOR THE PROPOSED WHAKATIKEI DAM

(Security of water supply – Annual Target 3.4, p38)

Business and Economic Research Limited (BERL) completed a study of the economic benefits of the proposed Whakatikei dam on our behalf.

Based on 10% to 30%[12] probability of a Wellington fault-line rupture in the next 100 years, BERL estimates the "net present value" of the reduction in business losses because of the dam to be between $227 million and $680 million (in 2008 dollars). That estimate gives a benefit-to-cost ratio of between 1.7 and 5.0.

The study brought together information from three areas of work related to the impact of a Wellington fault-line earthquake. These were the economic framework to assess business losses due to disruption of essential services previously developed by BERL; wholesale water supply damage modelling by GNS Science; and the estimate of water network repair times developed by Greater Wellington.

The report assessed the reduction in business losses resulting from faster reinstatement of the water supply to Porirua and Wellington's central business district and northern suburbs if the Whakatikei dam was in place.

GNS Science will assess the social benefits of the Whakatikei dam in 2010/11. The results of that study should also provide useful information for improving our understanding of the dam's benefits.

THE REGIONAL WATER STRATEGY

(Environmental responsibility – Annual Targets 5.3, 5.4, p39)

In 2008, Greater Wellington proposed to develop and coordinate a regional water strategy with the region's eight city and district councils. We have since been working on this strategy, to include fresh water, stormwater, wastewater and water for supply.

Kapiti, Wairarapa and the four cities of the Wellington region have different short-term priorities for improving water services. Twelve months ago, we noted that the challenge for all parties this year would be to agree on common goals relating to a shared vision, while still accommodating the priorities of individual councils and sub-regions.

All parties to the strategy have put significant time and effort into shaping these shared goals during the last year, but we have still to finish that process. Each council recognises that water management action plans and targets need to be catchment-specific. However, we are still negotiating how to incorporate catchment-specific targets within a consistent regional framework that has overarching improvement targets.

12. As advised by GNS Science

SYSTEM RISK AND RECOVERY

REVIEW OF EMERGENCY STOCK

(Security of water supply – Annual Target 1.1, p38, Improvement Target 1.51, p35)

A review of our management of pipe stock for emergency repairs has highlighted several issues that we will address. We store spare pipes at four locations around our network. However, one or more drawbacks affect each of these sites, including less than ideal storage conditions, limited capacity and potential access issues following a major earthquake or severe weather.

Changes under investigation include relocating stock held at Gracefield and Gear Island, together with that held at Wainuiomata for use at other locations, to a purpose-fitted warehouse and compounds in more secure locations. We have identified three sites for further consideration in the coming year.

WATER-MAIN RENEWAL IN WAINUIOMATA

(Security of water supply – Annual Target 1.1, p38)

We improved the earthquake resilience of the main pipeline from Wainuiomata to Gracefield (and beyond), by replacing a section of 125-year-old pipe and upgrading pipe-supports at a stream crossing.

In 2003, geotechnical investigations found that the old cast-iron pipe was likely to fail during a movement of the Wellington Fault. The pipe was vulnerable to breaking apart at its joints where it crossed Black Creek, a main tributary of the Wainuiomata River.

We replaced about 300m of the old 750mm-diameter cast-iron pipe, with a 900mm fully welded steel pipe. Over the next 10 years, we will replace other sections of the old 750mm pipe in less vulnerable areas.

We have designed the new pipe to flex if liquefaction occurs, rather than break. A flexible pipe reduces the probability of damage and should reduce the extent of any damage. Less damage should improve the speed of water supply recovery. Similarly, we designed the supporting headwalls at either side of the stream crossing to reduce the chance of ground movement causing the pipe to fail.

Installing the larger-diameter pipes serves a dual purpose. It replaces the old 750mm main and provides for the retirement of a parallel pipe that dates from the 1920s and is nearing the end of its useful life.

The 10-week programme was finished in June, without disruption of water supply to consumers. The 750mm pipes will be recycled.

Diggers lift a new section of the Wainuiomata water main into place

DUPLICATION OF SUPPLY ROUTE TO WELLINGTON

(Security of water supply – Annual Target 1.1, p38)

Work is nearing completion on the second stage of re-commissioning part of the original Orongorongo to Karori (O-K) water main, between Ngauranga and Thorndon. This project will result in a more robust back-up method of supply to northern Wellington.

The O-K main between Petone and Thorndon has been largely unused since 1993, following changed distribution arrangements after the Wainuiomata Water Treatment Plant came into service. Re-commissioning part of it, between Ngauranga and Thorndon, will both duplicate the wholesale main serving Onslow, Ngaio, Highland Park and central Wellington (via Thorndon), and allow supply to these areas from our Te Marua treatment plant via Ngauranga Gorge. Both of these developments will provide extra system resilience in the face of emergencies.

This year, we connected the O-K pipeline into the Ngauranga valve chamber and sealed off the section between Ngauranga and Petone. At the end of June, we still had to finish a cross-connection between the Ngauranga valve chamber and the Kaitoke main (from our Te Marua treatment plant) and install a new scour valve at Ngauranga. These jobs are due to be finished by the end of September 2010.

The O-K water main between Ngauranga and Thorndon is unlined steel, which could result in higher than desirable iron content in water supplied through it. While the drinking water standards do not list iron as a health risk, it can discolour water, which can be a nuisance. We will flush the main and test the water thoroughly before it is re-commissioned. The test results will determine how much use we make of this main beyond emergency backup.

STRENGTHENING THE BRANCH MAIN TO KARORI

(Security of water supply – Annual Target 1.1, p38)

We have made the pipeline to Karori's main reservoir more resilient against flood damage. This involved replacing a pipe suspended across the Kaiwharawhara Stream with 30 metres of steel pipe buried beneath the streambed and held at each end with concrete anchor blocks.

The suspended pipe was located in a steep-sided valley in Birdwood Reserve, downstream of the lower Karori Dam. Our engineers had identified that the crossing was vulnerable to a dam-break flood following movement of the Wellington Fault, which runs beneath the 1880s earth dam.

The Department of Conservation assisted us with planning to minimise disturbance of the streambed and contain the related effects on aquatic habitat and native fish populations.

We also worked closely with Wellington City Council (the landowner), to agree a plan for both the removal of trees that would interfere with the site, and suitable replanting once the work was complete. We expect to carry out the replanting work during the spring of 2010.

We replaced a vulnerable section of the water main to Karori, across the Kaiwharawhara Stream (pictured), with a new section of pipe buried beneath the streambed

IMPROVING WELLINGTON'S WATER SUPPLY RECOVERY TIME

(Security of water supply – Annual Target 1.1, p38)

We advanced a three-year project designed to speed up the recovery of water supply to a large part of Wellington after an earthquake.

Our Te Marua to Wellington main delivers water to the Karori Pumping Station in Northland Tunnel Road. The main splits into several branch mains between the pumping station and Zealandia (the Karori wildlife sanctuary).

The supplies to Aro Valley and Brooklyn currently cross the Wellington Fault rupture zone in three places, just to the north of Zealandia. At the third crossing point the pipes are some 12m below ground, within a tunnel to the head of Aro Valley. These circumstances would almost certainly make repairs extremely difficult following a fault-movement earthquake. The security of this part of our supply network is critical to Wellington, as the Brooklyn branch main also connects to large hub reservoirs serving central, southern and eastern parts of the city.

This year, we drilled a 12m shaft adjacent to the pipe tunnel to Aro Valley. In addition, we extended the new branch main from the fault crossing to the shaft and down the shaft to its foot. This main bypasses the second and third crossings of the fault zone.

In the coming year we will excavate between the Aro pipe tunnel and the shaft, and connect the new branch main to the existing Aro Valley and Brooklyn mains within the tunnel.

WATER QUALITY

COMPLIANCE WITH DRINKING WATER STANDARDS

(Provide safe, high-quality water – Annual Target 2.2, p38)

We achieved full annual compliance with the *Drinking-water Standards for New Zealand 2005 (Revised 2008)* for the microbiological and chemical requirements of water leaving our treatment plants and water in our wholesale distribution zones.

We also monitor the aesthetic qualities of the water we supply. Our records show that we met the drinking water standards and grading criteria. However, there is currently no provision for aesthetic compliance reporting within the Ministry of Health's water quality reporting database (WINZ).

The Hutt Valley District Health Board's drinking water assessment unit assessed aesthetic compliance as part of the grading process for our Te Marua Water Treatment Plant in 2005, and our Wainuiomata Water Treatment Plant and wholesale distribution zones in 2007. We achieved A1 grading for the two treatment plants and a1 grading[13] for the three zones[14] within our distribution system following their assessments.

WATER QUALITY AND RISK GRADING

(Provide safe, high-quality water – Annual Target 2.4, p38)

We maintained the Ministry of Health grading for each of our four water treatment plants. Te Marua and Wainuiomata water treatment plants are graded A1, the Waterloo Water Treatment Plant is graded B (the highest grading available, given Hutt City Council's preference to receive an un-chlorinated supply). The Gear Island Water Treatment Plant is graded U (ungraded), although we are confident that it now meets at least the A grade standard (see "Grading review for Gear Island" below).

We also maintained the a1 grading for each of our three wholesale water distribution zones.

GRADING REVIEW FOR GEAR ISLAND

(Provide safe, high-quality water – Improvement Target 2.52, p35)

We are confident of receiving at least an A grading for our Gear Island Water Treatment Plant, having applied in May for re-grading.

Our Gear Island treatment plant serves a dual role. Most of the time, we use it simply to adjust the disinfectant level in water supplied to Wellington, after we mix waters from our Waterloo and Wainuiomata treatment plants[15]. However, Gear Island also has three wells that tap the Waiwhetu aquifer, and we use the plant occasionally to treat water from this safe groundwater source.

Preparing the proof to support re-grading has proved difficult for several reasons.

The Ministry of Health last updated the grading criteria for water treatment plants in 2003. Some of the criteria no longer correlate with current drinking water standards, which have undergone two revisions since 2003 and are now more accommodating of a wider range of circumstances.

Gear Island is highly unusual for a water treatment plant, in that the source water that it receives to treat is largely from two other water treatment plants. Effectively, all the water coming into the Gear Island plant is already safe to drink. The authors of the grading rules did not envisage this scenario. As a result, the plant has not been able to meet part of the grading criteria, even though those aspects do not measurably improve public safety in the case of supply from Gear Island.

The Gear Island Water Treatment Plant does comply fully with the *Drinking-water Standards for New Zealand 2005 (Revised 2008)* – the current version. We believe that we have proved how that compliance satisfies the intent of the criteria for an A1 grading. We are now waiting for a reply to our assessment of compliance from the regional public health provider.

13. A capital letter (A1-E) indicates a grading for a water source and treatment plant. A lower case letter (a1-e) indicates a grading for a distribution zone
14. Conditions for compliance with the drinking-water standards for a distribution system depend on various factors relating the source and treatment of water, including whether residual disinfection is used. We manage our distribution system in three distinct zones, which reflect different sources of water supply and/or customer requirements regarding disinfection
15. Water from Waterloo is not disinfected at source, due to the unique supply circumstances of Hutt City Council's Lower Hutt zone

PUBLIC HEALTH RISK MANAGEMENT PLANS

(Provide safe, high-quality water – Improvement Targets 2.50, 2.51, p35)

We have submitted Public Health Risk Management Plans for all of our water treatment plants to the regional public health provider for approval.

The Hutt Valley District Health Board's drinking water assessment unit has approved our risk management plan for the Waterloo Water Treatment Plant and we are awaiting approval of the plans we have submitted for our Wainuiomata, Te Marua and Gear Island water treatment plants.

The Health (Drinking Water) Amendment Act 2007 came into affect on 1 July 2008. The Act introduced the requirement that we have approved Public Health Risk Management Plans in use for all our water sources and treatment plants by 30 June 2010. However, in June 2009, the Government announced new compliance timing for Public Health Risk Management Plans. Large water suppliers now have until 1 July 2012 to implement the change. Despite this changed timing, we chose to push ahead with preparing our plans to the original deadline.

We will have satisfied all the relevant requirements of the Health (Drinking Water) Amendment Act 2007 once we have approved Public Health Risk Management Plans in use.

TASTE AND ODOUR COMPLAINTS

A rapid increase in algae growth in the Stuart Macaskill Lakes during late summer led to some complaints about the smell and taste of tap water. While the water we supplied was safe to drink, it did not have a pleasant taste. We are working to avoid this happening again.

The earthy taste that people experienced was from geosmin, a compound formed by algae. We use powdered activated carbon to remove taste and odour compounds, which proved effective when we used that extra process. However, geosmin is an infrequent problem, and its rate of growth is highly unpredictable in practice. We did not identify the threat to the taste and smell of our water supply quickly enough to prevent it on this occasion.

Setting up a tasting panel of people who are sensitive to changes in water quality is a practical solution to getting early warning of intermittent taste issues. We will investigate this approach.

USE OF RESOURCES, DISCHARGES AND WASTE

INTRODUCTION

We aim meet all the relevant requirements of the Resource Management Act 1991 and take reasonable steps to look after the natural environment while also providing high-quality water at a reasonable price.

The main impacts of our operations on natural and physical resources relate to water take, energy and chemical use, discharges and disposal of waste.

WATER FROM SOURCES – VOLUME AND COMPLIANCE

(Environmental responsibility – Annual Target 5.1, p39)

We took 59,230 million litres (ML) of water in total from our water sources, 0.7% less than during 2008/09. The region's resource consents manager has confirmed that we met all the conditions of our consents to take water.

The change in the volume of our water-take between 2008/09 and this year does not fully reflect the reduced supply volume, due to our use of source water to generate electricity as it flows into the Stuart Macaskill Lakes. We increased the turnover of water through the lakes and back to the Hutt River by 70% this year, an increase equal to 2% of our total water-take.

MEASURED USE OF SOURCE WATER

(Environmental responsibility – Annual Target 5.1, p39)

This year, we used 97.7% of the water we took from river and underground sources either to treat for immediate supply or to increase or refresh water storage in the Stuart Macaskill Lakes.

Our unmetered use of source water – for flushing water mains between our sources and treatment plants, treatment process water, evaporation losses from the lakes and real or apparent losses between our intake and production meters – accounted for 2.3% of our total water-take, compared with 5.5% during 2008/09.

ELECTRICITY AND CHEMICAL USE – INTRODUCTION

Our electricity use for water treatment and distribution is broadly equal to that of 2,000 average households and represents about 8% of total operating costs.

About two-thirds of our annual power use typically occurs at three sites: the Waterloo Water Treatment Plant (about 40% of total kilowatt-hours), the Waterloo wells (about 10%) and the Te Marua Pumping Station (about 16%). Therefore, our use of electricity relative to the volume of water that we treat (power use efficiency) is affected by the share of total supply that we pump from the Waiwhetu aquifer at Waterloo and how much raw water treated at Te Marua we pump from the Stuart Macaskill Lakes to the treatment plant.

The Hutt River (pictured) provided 43% of our total water supply this year

Our use of chemicals relative to the volume of water we treat (chemical use efficiency) is influenced by how much of our total production comes from river sources (which require more treatment than our aquifer source), how much water we treat from storage, and variations in raw water quality associated with rainfall. River water's higher chemical demand has associated impacts from the production and transportation of chemicals.

Treating river water also generates solid and liquid waste, which we must dispose of.

We do not have the means to quantify the relative environmental merits of production from rivers and the Waiwhetu aquifer[16]. Given this uncertainty, our approach is to produce water at minimum marginal cost, subject to meeting our obligations under the Resource Management Act and organisational carbon emissions reduction targets, and taking a conservative approach to security of supply.

CHEMICAL USE AND EFFICIENCY

(Provide safe, high-quality water – Annual Target 2.2, p38; Cost effectiveness – Annual Target 6.2, p39; Environmental responsibility – Annual Target 5.3, p39)

On average, we used 54kg of chemicals for every million litres of water treated, the same quantity as during 2008/09.

While the share of production from our river-sourced treatment plants was slightly lower this year than last (1.2%), we treated 17% more water from the Stuart Macaskill Lakes. Our stored water tends to need more treatment than that taken directly from the Hutt River.

Our increased use of the lakes was due in part to having the Hutt Water Collection Area closed between 7 August and 4 September 2009 to carry out possum control work.

CARBON FOOTPRINT FROM WATER TREATMENT CHEMICALS

(Environmental responsibility – Annual Target 5.1, p39)

A project to assess greenhouse gas emissions relating to our use of chemicals has confirmed that insufficient data is available at present to measure those emissions accurately.

Carbon emissions from the production and transportation of the chemicals that we buy are significant, but our search for standardised emissions factors found they are not publicly available in New Zealand or overseas.

We will continue to look for ways to minimise our necessary use of treatment chemicals.

ALKALINITY CONTROL IN TREATED WATER

(Provide safe, high-quality water – Annual Target 2.2, p38; Cost effectiveness – Annual Target 6.2, p39)

The results of a recent study indicate that we could add a smaller volume of chemicals during water treatment without increasing the water's corrosion potential. This would mean reducing the alkalinity and increasing the pH, which would reduce costs by approximately $100,000, and reduce our environmental footprint.

The corrosion potential of the water that we supply is an important aspect of water quality. We adjust alkalinity and pH – which control the water's corrosion potential – using carbon dioxide, calcium hydroxide and sodium hydroxide. This year, we sought a better understanding of the effects, if any, that our treated water has on pipes.

While the results of our investigations were encouraging, this change has the potential to affect our customers' distribution systems and domestic plumbing. We are planning a series of water quality tests from locations across our wholesale distribution network, as well as from customer reticulation systems, before we make any process changes. These tests will give us a base measurement, so we can assess whether subsequent changes to chemical dose rates affect the corrosiveness of the water.

From October 2010, we plan to adjust the alkalinity of the water supply in incremental steps, and monitor water quality at each step.

16. See "Carbon footprint from water treatment chemicals", this page

ON-SITE CHLORINE GENERATION AT TE MARUA

(Cost effectiveness – Annual Target 6.2, p39)

We commissioned a sodium hypochlorite generation plant at the Te Marua Water Treatment Plant to replace chlorine gas for water disinfection. This plant, utilising salt, water and electricity, will save an estimated $80,000 annually.

Sodium hypochlorite has been the duty disinfectant since June 2010. We have decided to keep the chlorine gas system operational as a back up. It currently provides 5% of the disinfectant demand, but is able to meet all demand if the hypochlorite plant is out of service.

We will assess the level of cost savings once the sodium hypochlorite plant has been in use for 12 months.

Generating chlorine from saltwater at Te Marua will save an estimated $80,000 annually. This picture shows the hypochlorite plant's brine tank

ELECTRICITY USE AND EFFICIENCY

(Environmental responsibility – Annual Target 5.1, p39)

We used just over 18 million kilowatt-hours (kWh) of electricity to treat and distribute water – 2.2% less than during 2008/09. Our total use of electricity per litre of water produced was essentially unchanged (0.1% higher).

POWER USE TREND

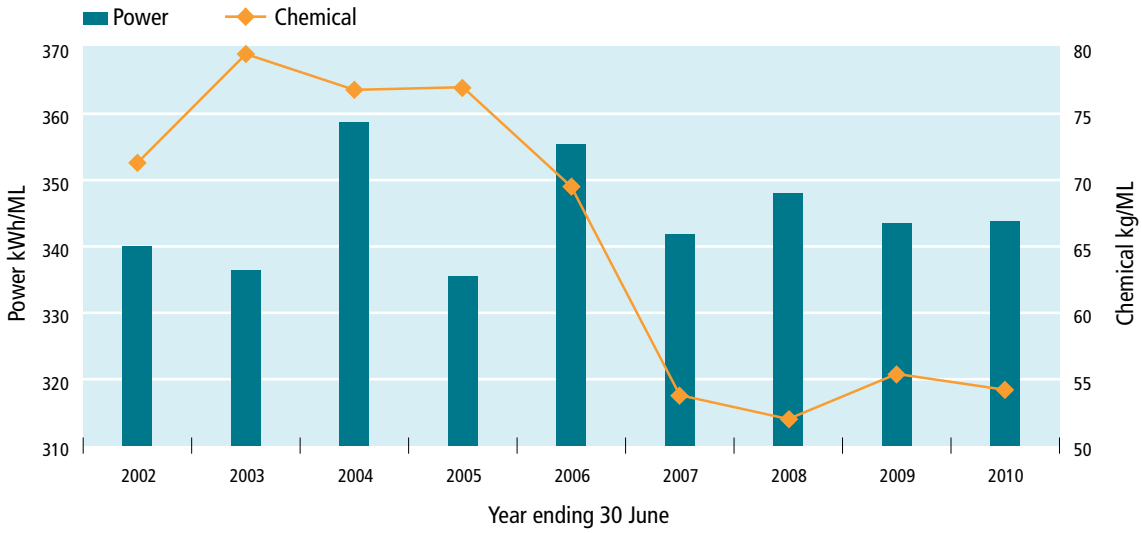
Financial year	Use - MWh[17]	Use - kWh/ML
2009/10	18,018	344
2008/09	18,421	344
2007/08	19,241	348
2006/07	19,215	342
2005/06	20,602	356

A benchmarking exercise during the year found that our electricity use for water treatment compares favourably with Watercare (Auckland) and many Australian water suppliers.

Electricity use within the range 50 to 1,000 kilowatt-hours per million litres of water (kWh/ML) is typical for treating surface waters. Electricity use for raw water pumping and treatment at our Te Marua plant was 40kWh/ML, while the equivalent figure for our Wainuiomata plant was 110kWh/ML. (Our Waterloo treatment plant, which treats groundwater, used 90kWh/ML.)

Our energy use for distribution is relatively high, due to the hilly terrain within our supply area. We minimise the impact of pumping by using highly efficient pumps.

POWER & CHEMICAL USE TRENDS



17. One megawatt-hour (MWh) equals 1,000 kilowatt-hours (kWh)

EMISSIONS TARGET FOR POWER USE

(Environmental responsibility – Annual Targets 5.1, 5.3, p39, Improvement Target 5.66, p37)

Our short-term goal for carbon emissions savings from energy use is 15% by 2012[18]. Our current estimate of actual savings since 2006 is 18%. This welcome progress is due to a combination of power-use efficiency gains and lower demand for water in recent years.

Greater Wellington has emissions-reduction targets for energy used for water supply as part of a corporate action plan.

We have calculated actual savings to date from power use during 2009/10 compared with that for 2005/06 – our base year.

We anticipate a further 13% reduction in emissions once electricity self-generation schemes at Te Marua and Wainuiomata are both operating fully.

HYDRO GENERATION AT WAINUIOMATA

(Environmental responsibility – Annual Targets 5.3, 5.4, p39, Improvement Target 5.58, p37; Cost effectiveness – Annual Target 6.2, p39)

We made steady progress with a project to generate 10% of our total electricity needs from the flow of piped water between the Orongorongo Weir and the Wainuiomata Water Treatment Plant.

High-pressure water from the Orongorongo Valley will drive a hydro generator. Valves at the treatment plant currently release this excess pressure.

In March, we were granted consent to discharge to George Creek any water used for generating electricity that is surplus to water treatment needs. The granting of consent was the result of a consultation process with environmental stakeholders, including iwi, the Department of Conservation and Greater Wellington's Environmental Management group.

With the consent secured, we were able to award a contract for supply of a turbine generator. However, during the past year, worldwide demand has seen the delivery time for small turbine generator sets increase from an initial estimate of six months to almost 12 months. The supply contract was awarded in May, with delivery scheduled for the end of March 2011.

We have laid cables for electricity supply and communications from the generator building site to the water treatment plant. Design of the generator building is underway. We expect to finish the building in April 2011.

Greater Wellington's *Annual Plan 2009/10* noted that construction and commissioning of the hydro generation plant would be finished during 2010/11, with most of the building work completed by 30 June this year. However, the extended delivery time for the turbine generator has delayed construction.

When commissioned, the generator will be capable of producing up to 300 kilowatts of electricity and an estimated average annual output of 1.8 million kWh.

High-pressure water from the Orongorongo Valley will turn a "Turgo" wheel (pictured) to generate electricity at the Wainuiomata Water Treatment Plant

HYDRO GENERATION AT TE MARUA

(Environmental responsibility – Annual Targets 5.3, 5.4, p39, Improvement Target 5.66, p37; Cost effectiveness – Annual Target 6.2, p39)

In December, we commissioned the Te Marua pump-as-turbine project, which utilises two seldom-used storage-lake transfer pumps to generate electricity when we are filling the Stuart Macaskill Lakes.

The modelled average-year reduction in our use of power from the national grid represents 5% of total electricity demand for wholesale water supply (950,000kWh). This reduction has an associated annual saving of about $80,000.

In the six months since commissioning (to June 2010), we generated just over 211,000kWh of electricity, or 22% of the forecast average-year saving. This self-generation resulted in an estimated emissions offset of 106 tonnes CO_2 and a cost saving of $18,000. Rainfall in the Hutt Water Collection Area was significantly below average during February, March and April, which affected the flow in the Hutt River and greatly restricted our opportunities to generate electricity.

Last year we reported plans to investigate two further options for boosting electricity generation capacity at Te Marua, with additional or larger turbines. While neither of those options proved to be economically worthwhile, they did give rise to a smaller-scale project that we forecast will lift our average-year saving to 1.1 million kWh. We will finish this project in the coming year.

18. Goal for Water Supply, using 2005/06 as the base year

At present, all the water utilised for power generation must pass into the Stuart Macaskill Lakes. However, our standards for the quality of water that we will store (for later treatment and supply) have meant that we have been unable to take full advantage of periods of high river-flow. Under high flow conditions, river water tends to contain higher levels of organic matter.

A bypass pipe and control valve between the lakes' inlet and scour pipes will let us use river water to run the turbines even if it is not of good enough quality to store. We will return the water to the Hutt River. We expect to have finished this work by April 2011.

HYDRO GENERATION AT SERVICE RESERVOIRS

(Environmental responsibility – Annual Targets 5.3, 5.4, p39, Improvement Target 5.61, p37; Cost effectiveness – Annual Target 6.2, p39)

During 2008/09, an Energy Efficiency and Conservation Authority-funded trial of the viability of generating electricity from water flowing into city reservoirs found a marginal cost-benefit outcome.

Further feasibility work this year – based on a potential mini-hydro installation at the Porirua Low-level Reservoir inlet – confirmed that the economics are not worthwhile under present circumstances. The price of electricity would have to increase significantly and/or the cost of mini-hydro generation technology be reduced for this assessment to change.

ELECTRICAL LOAD SHEDDING

(Cost effectiveness – Annual Target 6.2, p39)

Since early 2009, we have taken part in the National Grid operator Transpower's trial programme to increase the reliability of its electricity network. The programme works by managing peak loads and reducing the risk of power outages more effectively. Transpower pays us to make part of our electrical load available to be interrupted, for up to 30 minutes at a time, if demand on the electricity transmission system approaches full capacity.

This year, income from the trial, involving the Wellington pumps at the Waterloo Water Treatment Plant, has been modest: $6,800.

Further investigations have shown that there are limited opportunities for expanding the programme without changes to the way we manage the wholesale water supply network. The investment of capital and staff time needed cannot be justified as a high priority at present.

PUMP EFFICIENCY TESTING

(Environmental responsibility – Annual Target 5.3, p39, Improvement Target 5.52, p37; Cost effectiveness – Annual Target 6.2, p39)

This year we finished a review of our testing schedule for pumps. We have adopted a 10-year programme of performance testing, using state-of-the-art thermodynamic equipment for high energy-demand pump sets. All of our pumps will be subject to annual efficiency benchmarking. We will develop a system for automating the creation of benchmarking reports in the coming year.

We refurbished two boost pumps at the Te Marua Pumping Station, after thermodynamic testing had shown that savings would result. Testing after the refurbishment found a 9% average improvement in pump efficiency and flow rate under normal usage conditions. The estimated saving from this work is $20,000 per year, giving a project payback period of just over four years.

During 2010/11, we plan to refurbish one of the Waterloo-to-Wellington boost pumps and another at the Kaiwharawhara Pumping Station.

DISCHARGES

(Environmental responsibility – Annual Target 5.1, p39)

The region's resource consents manager confirmed that we complied fully with the conditions of our 21 consents to discharge water.

SOLID WASTE TO LANDFILL

(Environmental responsibility – Annual Target 5.2, p39)

We sent 2,151 tonnes of de-watered sludge to landfill. Sludge is the solid waste from the water treatment processes at our Te Marua and Wainuiomata water treatment plants. When we compare this tonnage to production from our Te Marua and Wainuiomata plants, it shows 72 kilograms of sludge for every million litres of water treated (kg/ML), a 9% reduction in kg/ML compared with 2008/09.

LAND USE AND BIODIVERSITY

PEST MANAGEMENT ACTIVITY

(Security of water supply – Annual Target 1.2, p38; Environmental responsibility – Annual Target 5.1, p39)

We completed a possum control operation in the Hutt Water Collection Area in August, with excellent results.

Helicopters spread cereal pellets containing 1080 over the entire water collection area, using global positioning technology to ensure accurate bait delivery. A follow-up survey of monitoring traps found no possums, giving a post-operation residual catch rate of 0%.

We stopped taking water from the river prior to the operation, instead using water from the Stuart Macaskill Lakes to maintain production from the Te Marua Water Treatment Plant. We resumed using water directly from the Hutt River on 4 September, once the Medical Officer of Health was satisfied that it was safe. Monitoring of water samples from the Hutt River at our Kaitoke intake found no trace of 1080 following the bait drop.

A great deal of planning went into managing the risks and addressing concerns from the public regarding 1080 use in a water collection area. We were particularly concerned about the potential for bait or possum carcasses to wash down the river into areas that are more accessible to the public. We are very pleased that there were no reported cases of harm to people or pets resulting from this operation.

Maintaining low possum numbers and good forest health provides a primary protection against poor quality water reaching the public. Together, protection of water catchments and effective treatment and disinfection of water give a high degree of certainty that our water supply from rivers is very safe.

We had planned a similar operation in the Wainuiomata-Orongorongo Water Collection Area during the winter of 2010. However, we postponed it after monitoring of trap lines showed possum numbers to be lower than anticipated. We have rescheduled this work for May 2011.

Forest health monitoring indicates that both the Hutt and Wainuiomata-Orongorongo water collection areas are in good health. Digital photography of rata trees showed an improvement in canopy density, while we found low levels of possum-damaged fruit in tawa and hinau fruit-fall plots.

We had excellent results from aerial possum control in the Hutt Water Collection Area

OTHER PROJECTS

MANAGEMENT SYSTEMS ALIGNMENT REVIEW

(All Performance Objectives, Improvement Target 1.52, p35)

We have started to review the relationships between our management systems, and are planning to consolidate these various systems over the next 18 months using the new international standard for risk management (ISO 31000:2009) as a platform.

Over the past 12 years, we have adopted management systems to cover assets, water quality, environmental effects, health and safety, public health risk, projects and maintenance. While we had each system developed independently, their functions and requirements overlap. As a result, our systems have become increasingly complex to use.

Recently, the Office of the Auditor General commented on the poor quality of non-financial performance reporting by public entities, and encouraged the development of performance management frameworks and improved asset management systems.

An underlying function of formal management systems is to manage risk, and the purpose of many of our day-to-day activities is risk related. We have seen an opportunity to define the risk-management function of our management systems and the links between high-level risks and risk-management actions more clearly.

During 2009/10, we started to develop new business performance management and risk- management frameworks. We have organised our reporting in relation to management system targets to reflect progress to date (see p35). We will continue to modify these lower-level objectives as we work through integrating the common parts of our systems.

ASSET MANAGEMENT PLAN REVIEW

(Manage assets wisely – Annual Target 4.3, p39, Improvement Target 4.53, p36)

We have also started to develop a new asset management framework, using guidelines published by the National Asset Management Steering Group (NAMS Group)[19], which develops and promotes infrastructure asset-management practices, policies and systems in New Zealand.

The NAMS Group guidelines draw on best practice from Australia, the United Kingdom, southern Africa and the United States. The guidelines are highly regarded internationally and endorsed by the Office of the Auditor-General, Local Government New Zealand and Water New Zealand.

We expect to complete the new asset management plan by June 2011. This project is part of our wider review of management systems.

ASSET MANAGEMENT SYSTEM

(Manage assets wisely – Annual Target 4.1, p39, Improvement Target 4.51, p36)

For a second year running, our Assets team has been heavily involved in a Greater Wellington-wide project to consolidate asset and financial management under one system: SAP. Data transfer for our 6,500 individually-identified water supply assets, from our former Hansen system, was completed this year and our staff received training on SAP before the system went live in September 2009.

Bedding-in of the new system has proved more disruptive than we had anticipated. An external audit of our maintenance management systems in June, including the use and configuration of SAP, found several areas for improvement, which we will pursue in the coming year.

DATA MANAGEMENT UPGRADE

(Manage assets wisely – Improvement Target 4.56, p36)

We have a variety of systems to collect, store, transmit, manipulate and display the vast quantity of data relating to our operations. This data forms the basis of reporting across all aspects of our business, including water quality compliance, water use tracking, and environmental and financial management.

Our storage and reporting methods for water use and compliance data rely on spreadsheets and a "Sequel" database[20]. This has been adequate in the past, but has become progressively more challenging to manage, in light of growing data volumes and increasing compliance demands.

During 2008/09, we completed an assessment of our reporting processes and needs. As a result, we are now implementing reporting-system software that will integrate data from our various platforms into a single model.

We have chosen a Rockwell system, using HistorianSE for data recording and Vantage-Point Basic for web-based reporting. The new system will automate data collection and report creation across a range of applications, providing a single platform for our data sources. Data users will be able to view standard report formats (customised to their needs) or generate ad-hoc reports via a web portal, giving improved access and search capabilities across our work sites and teams, while improving data security.

19. The Association of Local Government Engineering New Zealand (INGENIUM) formed the NAMS Group

20. SQL or "Sequel" is a database computer language designed for managing data in relational database management systems

To date, we have set up water supply revenue reporting from the Rockwell system. At year-end, we were generating reports from both our new and old systems, to ensure the Rockwell system was working as planned. We will roll out similar testing to other areas of reporting during 2010/11.

TE MARUA CONTROL SYSTEM UPGRADE

(Security of water supply – Improvement Target 1.57, p35; Manage assets wisely – Annual Target 4.3, p39)

In October, we commissioned a new programmable logic control (PLC) system and data acquisition system (SCADA) at our Te Marua Water Treatment Plant. This event resulted from a three-year project to replace the hardware and software that runs the plant's treatment processes. We made the changeover while continuing production at the plant, which required considerable planning.

The aged control system that we replaced had become increasingly unreliable and the supplier was phasing out support for it.

Our Control Systems team carried out the entire project. This work included developing and testing new code and graphics, off-line testing of the new PLC, transferring control of the wastewater treatment plant to the new PLC (while maintaining functionality with the old treatment process controller), then on-line testing, before activating the new PLC for the treatment plant in total.

This was the first time a project of this size had been undertaken in-house. We based this decision primarily on issues of risk, cost and knowledge retention.

In order to successfully design and install the new system, a good working knowledge of the treatment plant processes and control infrastructure was essential. For a contractor to gain this knowledge, our staff would have had to spend a lot of time either writing technical documents or providing instruction.

Our approach was to involve our operational staff closely in the design and commissioning of the new systems. This meant that there was a lot of knowledge transfer between the Control Systems and Operations teams, the quality of the finished system was very high, and the changeover from the old system to the new one was relatively easy for our operators.

Although the project proved considerably more demanding of staff time than we had anticipated, the final cost was under a third of that for two similar projects carried out overseas on similar-sized treatment plants by external contractors.

WATERLOO CONTROL SYSTEM UPGRADE

(Security of water supply – Improvement Target 1.56, p35; Manage assets wisely – Annual Target 4.3, p39)

This project has many similarities to the Te Marua control system upgrade (described earlier on this page). We had used all the available memory of the existing Waterloo PLC, so we could not install new applications. In addition, it was near the end of its design life and the supplier was preparing to withdraw support for it.

We used much of the code and graphics developed in-house for the Te Marua PLC upgrade for the new Waterloo PLC. This duplication simplified the development process and gave a standardised look to the two systems for our water treatment operators.

We transferred treatment plant control to the new PLC in March. This upgrade has allowed us to start commissioning a better lime dosing control process at the Waterloo plant, with the aim of minimising lime use and costs while maintaining treated-water quality.

TRIAL WINTER SHUTDOWN OF THE WAINUIOMATA TREATMENT PLANT

(Cost effectiveness; Manage assets wisely)

We are operating the Wainuiomata Water Treatment Plant as a standby facility during winter 2010. We anticipate benefits from the transfer of staff to assist with duties at other sites, as well as some minor cost savings.

Following consultation with our customers, production from Wainuiomata ceased on 18 June. We are maintaining the Wainuiomata plant so that we can re-start it quickly in the event of unscheduled maintenance at another plant. We plan to re-start regular production from the plant at the end of September 2010.

We anticipate a net saving of about $8,000 from power, chemical and waste disposal costs. More importantly, it should free up several hundred working hours per month, allowing the Wainuiomata plant's operations team to assist with maintenance at our other water treatment plants.

We will reassess the worth of the winter shutdown, including the views of our water supply customers, before deciding whether to repeat it in future years.

BURST WATER MAIN AT PLIMMERTON

In September, a small slip adjacent to Plimmerton School caused a joint to fail on our rising main that supplies the Plimmerton No.2 Reservoir. This break undermined a short section of Motuhara Road and spread debris into several neighbouring properties.

The full cost of the repair was $215,000, which represents a major unforeseen expense.

We finished repairs to the rising main within three weeks. However, obtaining the building and resource consents needed to reinstate the bank and repair the road took much longer.

We believe that heavy rain and a pre-existing leak on the main caused the slip. We had been unaware of the leak before the pipe failed.

COMMUNITY ENGAGEMENT

WATER CONSERVATION – INTRODUCTION

Within our supply area, weekly water use in mid summer can rise by nearly a third above winter levels, while use on individual days can rise by almost 50%. For households, increased summer water use typically arises from doing outdoor jobs, especially garden watering.

Our water network relies heavily on rivers to meet daily demand. As a result, occasional very dry conditions during summer have the dual effect of diminishing available supplies and pushing water use to extreme levels. This combination can result in a water shortage.

Each year we work to raise awareness of the potential for summer water shortages locally and promote a range of tips to households, with an emphasis on effective garden care, aimed at moderating summer water use.

MULCH PROMOTION

(Environmental responsibility – Annual Target 5.3, p39, Improvement Targets 5.56, 5.63, p37)

For the third consecutive year, we ran a successful promotion of garden mulch in conjunction with local New Zealand Garden Industry Association-member retailers. Mulch is essential for maintaining healthy soil and plants during summer while conserving water.

Throughout November, gardeners were encouraged to use mulch via an advertising and publicity campaign that promoted its moisture-retaining benefits. The promotion included a price incentive, with DIY stores and garden centres from across our supply area offering specials or "cheapest available" prices on a range of mulch products.

Feedback about sales of mulch during the promotion period was mixed, with several participating outlets citing poor spring weather as a major hindrance. However, our partnering initiative was widely applauded by the retailers, who expressed enthusiasm for continuing this relationship. We see this type of partnership as essential to more water users adopting water-efficient products and actions.

Our "Be water smart" summer watering tips promotion was run in association with local hardware stores and garden centres

WATERING TIPS PROMOTION

(Environmental responsibility – Annual Target 5.3, p39, Improvement Targets 5.56, 5.63, p37)

Our annual summer promotion of garden-water conservation tips started on 7 January. We continued a theme developed in previous years, focusing on a few easy-to-adopt methods – test the soil for moisture first, target water to the roots and time 30 minutes for all watering with sprinklers. Again, we teamed up with local DIY stores and garden centres to offer water-saving irrigation kits, water timers, trigger-controlled spray nozzles and soaker hoses at discounted or "cheapest available" prices. The promotional offers were available until the end of February.

Our summer weather proved to be a mixed bag. December, February and March each saw much less rain than is typical for those months. However, January had more than twice its average rainfall and this, coupled with some rain falling in most weeks during summer – and an absence of settled, fine weather – helped to keep water use at a low level for that time of year.

CONSULTATION ON OUR 2010/11 ANNUAL PLAN

Greater Wellington's proposed *Annual Plan for 2010/11* attracted 57 submissions about the wholesale water supply activities. Council adopted the plan in June, with one change to the programmes described for Water Supply[21].

Three of our four city council customers provided submissions to the annual plan. These were largely supportive, but did request that we delay works planned for the Te Marua storage lakes until we can reduce the risk of water shortage from that project. Our decision to postpone the Stuart Macaskill Lakes lining project until 2011/12 provides an opportunity to address those concerns by seeking a temporary increase to our water take from the Hutt River (see "Water supply from the Hutt River", p10).

RAINWATER TANK BENEFIT MODELLING

(Environmental responsibility – Annual Target 5.4, p39)

Public submissions on the future provision of water often call for more collection and use of rainwater by consumers, which can replace drinking water for purposes such as toilet flushing and garden watering. We have commissioned an investigation of the outcomes arising from this approach to water management.

We have asked consultants Harrison Grierson to model the performance of both 5,000-litre and 10,000-litre domestic rainwater tanks for each of the four cities that we supply. For each city, they will use three representative roof-collection areas and model outcomes for two, three and four-person households.

The model will calculate the tanks' storage levels over 12 months, using both average- and dry-year rainfall data, and the estimated use of tank water under both scenarios. We expect to have the results of this modelling by the end of 2010.

WATER-EFFICIENT SHOWERS INVESTIGATION

(Environmental responsibility – Annual Target 5.4, p39)

During the year, we accepted an invitation from the Energy Efficiency and Conservation Authority (EECA) to collaborate on its plan for a trial promotion of water-efficient showers.

Our Marketing team was closely involved in the early stages of project design, but took a watching brief after EECA opted to conduct the trial promotion nationally – rather than in Wellington only – so its offer could be delivered to the public via GreenPlumbers[22].

Water-efficient showers offer considerable potential for water and energy savings, but have received unfavourable publicity due to the perception that a reduced flow rate must result in a lesser showering experience. We advocated the need to address this opinion.

As part of the project, EECA commissioned a product test – by *Consumer* magazine – to investigate the performance of seven water-efficient showers. Several of the showerheads tested received favourable reviews from the test panel. We are now looking into how we can help to publicise the results, which appear in the magazine's August 2010 issue.

WATER SUPPLY TEACHING RESOURCE

(Environmental responsibility – Annual Target 5.4, p39)

The Enviroschools[23] co-ordinator for the Wellington region researched and drafted resource material for teachers on our behalf, about the local supply of drinking water. This work supports our aim of raising public awareness about water supply for the region's cities.

The resource will have clear links to the requirements of the school curriculum. It will encourage teachers of Year 5-8 pupils to focus on water supply issues with their classes and bring them to see how a water treatment plant works.

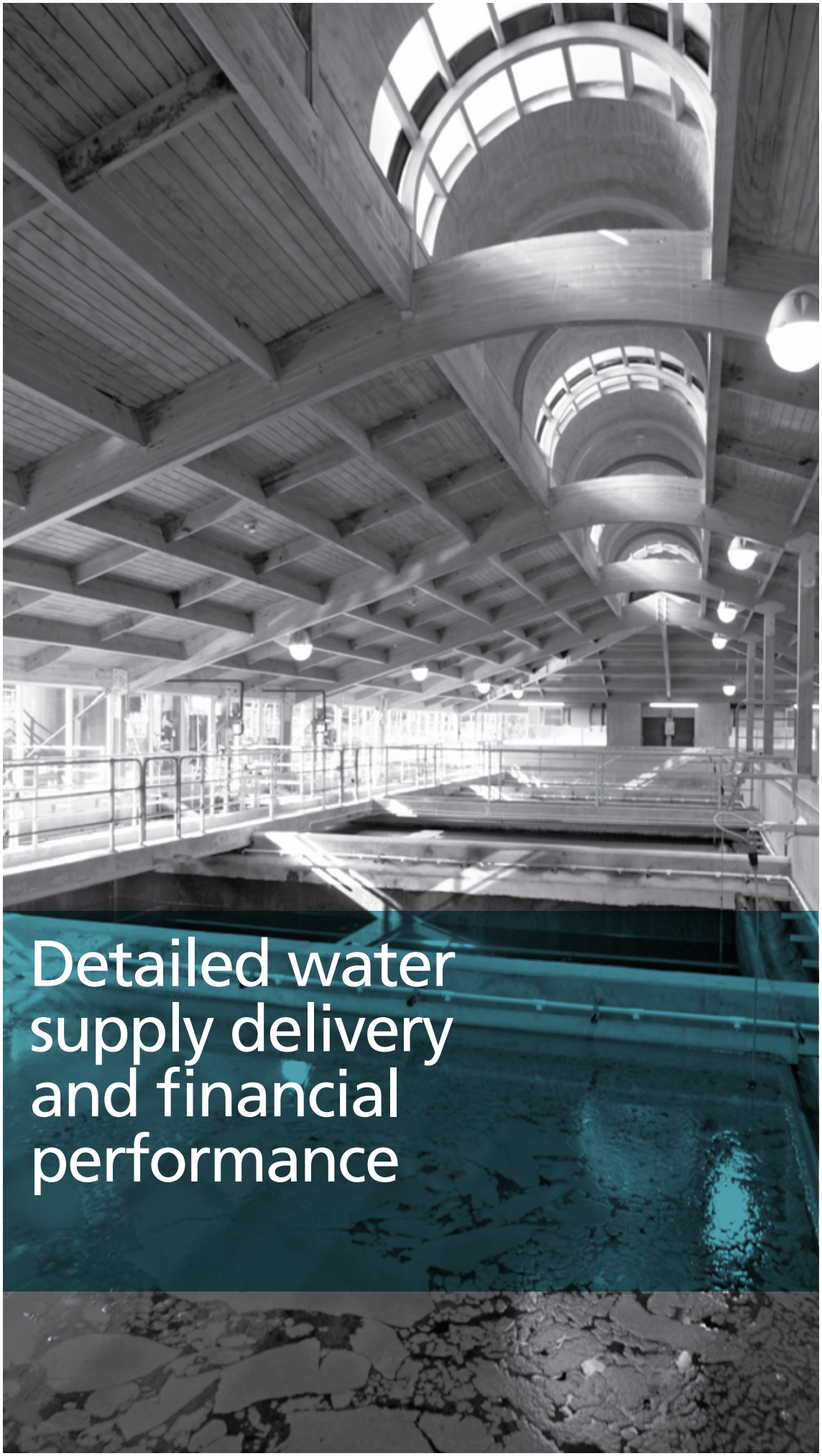
Greater Wellington already offers the Take Action for Water teaching resource: a 10-week study programme that helps pupils to understand and care for fresh water, with environmental educators available to assist their teachers. Our new resource will complement and extend the Take Action programme by offering a self-guided module about tap water.

The first draft of our tap water resource, for Years 5-6, was finished in June. We are arranging to pilot this version with a few schools later this year. We will then modify the resource to create a separate edition, for Years 7-8. We expect to design and publish the resource in the first half of 2011.

21. Council postponed seismic enhancement and storage capacity increase works for Lake 2, Stuart Macaskill Lakes, by 12 months, along with a related communications programme. See "Storage capacity at Te Marua", p8

22. Registered master plumbers who have completed 'GreenPlumber' environmental awareness training

23. An environmental education programme that aims to build a network of schools committed to environmental learning, action and creating sustainable communities



Detailed water supply delivery and financial performance

Sources of water supplied

WATER ABSTRACTION (MILLIONS OF LITRES)

For the year ended 30 June

Source	Annual					Maximum week			Maximum day		
	Total		Percent	Average day		Date	Average day		Date	Day	
	2010	2009	2010	2010	2009	2010	2010	2009	2010	2010	2009
River and stream abstraction											
Kaitoke/Te Marua	29,244	27,536	49.4%	80.1	75.4	10/02/10	130.9	135.9	5/06/10	149.5	146.8
Wainuiomata	4,120	6,047	7.0%	11.3	16.6	23/09/09	23.4	45.8	7/10/09	31.0	43.3
Orongorongo	1,533	1,626	2.6%	4.2	4.5	11/11/09	14.5	17.2	14/07/09	23.0	21.5
George Creek	1,100	1,317	1.9%	3.0	3.6	23/09/09	6.1	6.5	14/09/09	7.7	9.4
Big Huia Creek	558	604	0.9%	1.5	1.7	29/07/09	7.7	6.9	24/07/09	9.4	11.0
Total – Rivers	36,556	37,130	61.7%	100.2	101.7	28/10/09	156.1	159.3	14/06/10	176.6	193.4
Public artesian abstraction											
Waterloo	22,626	22,461	38.2%	62.0	61.5	10/03/10	84.8	86.5	26/02/10	90.6	94.9
Gear Island	48	77	0.1%	0.1	0.2	30/09/09	3.3	7.0	26/09/09	15.5	12.1
Total – Artesian	22,675	22,539	38.3%	62.1	61.8	10/03/10	85.3	86.7	25/09/09	94.1	94.9
Total Public Abstraction	**59,230**	**59,669**	**100.0%**	**162.3**	**163.5**	**10/02/10**	**227.1**	**224.3**	**14/06/10**	**258.4**	**268.2**

Totals may not add exactly due to rounding

RAINFALL LEVELS (MILLIMETRES)

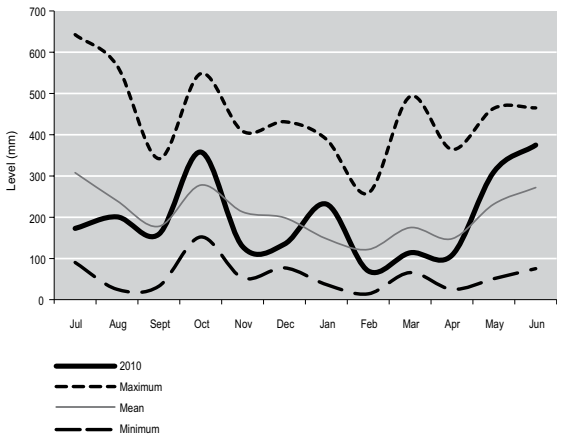
For the year ended 30 June

	Kaitoke[1]	Karori[2]	Orongorongo[3]	Wainuiomata[4]
2010	2,068	1,299	2,362	1,726
2009	2,544	1,567	2,807	2,031
Mean of data record	2,298	1,237	2,512	1,927
2010:mean	90%	105%	94%	90%

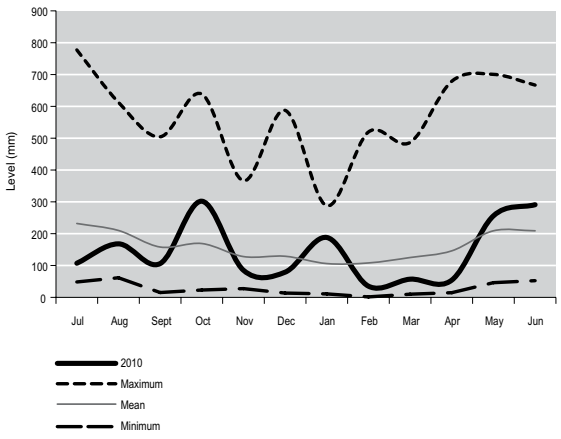
1: Kaitoke Headworks rain gauge. 2: Karori Sanctuary rain gauge. 3: Orongorongo Swamp rain gauge. 4: Wainuiomata Reservoir rain gauge

The following graphs show average rainfall per month in our surface water catchments compared with the maximum, minimum and mean of the data record for each site.

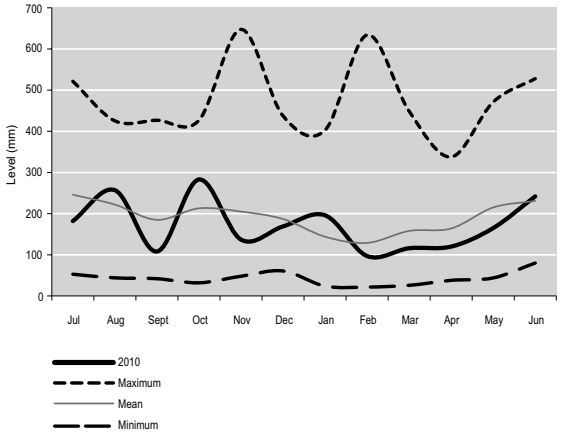
ORONGORONGO CATCHMENT RAINFALL
(Orongorongo Swamp record 1980-2010)



WAINUIOMATA CATCHMENT RAINFALL
(Wainuiomata Reservoir record 1890-2010)



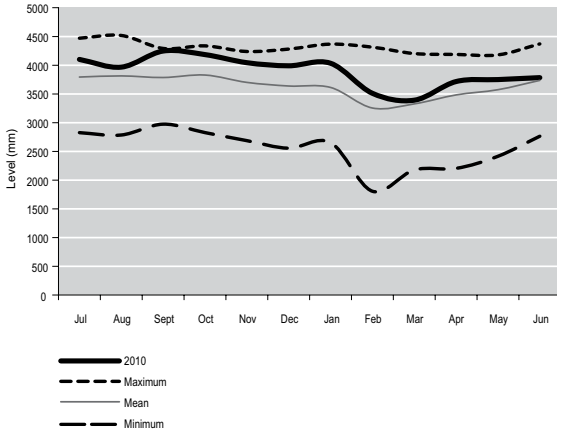
HUTT CATCHMENT RAINFALL
(Kaitoke Headworks record 1951-2010)



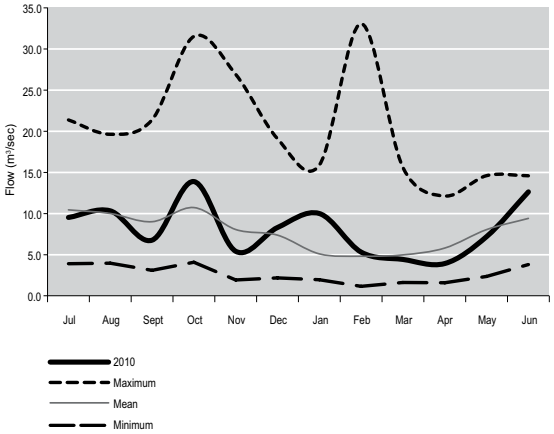
LEVELS AND FLOWS FROM WATER SOURCES

The following three graphs show historical highs, lows and averages for river flows from the Hutt and Wainuiomata rivers and for the level of the Waiwhetu aquifer at Petone – the three main water sources that we use to supply the greater Wellington metropolitan area – compared with data for the 12 months to 30 June 2010.

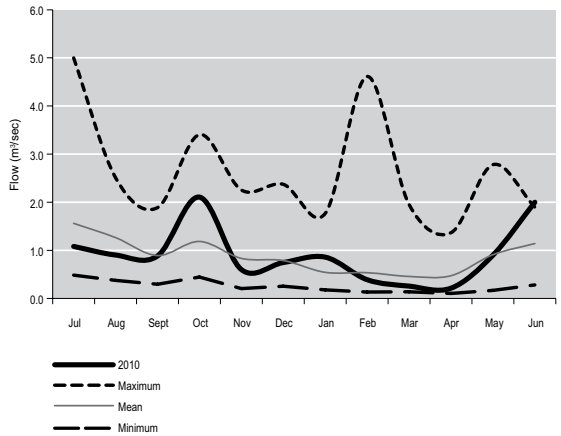
WAIWHETU AQUIFER
(McEwan Park record 1971-2010)
Average monthly level for the year ended 30 June



HUTT RIVER
(Kaitoke record 1968-2010)
Average monthly flow rate for the year ended 30 June



WAINUIOMATA RIVER
(Manuka Track record 1982-2010)
Average monthly flow rate for the year ended 30 June



Distribution shut-offs

For the year ended 30 June

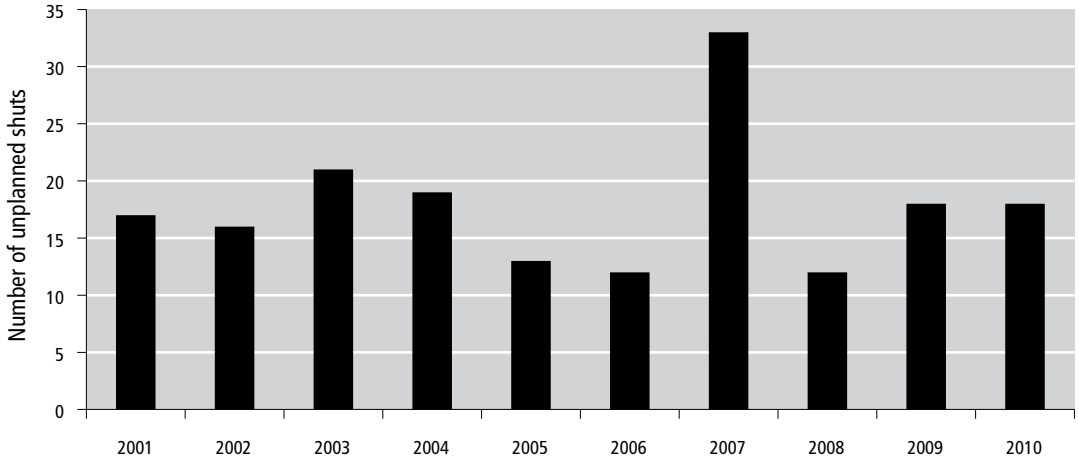
We had to shut off part of our bulk water supply network on 51 occasions this year, to carry out repairs, maintenance and improvements (2009 = 51). In all cases, we finished the work and reinstated the supply without loss of water or pressure to consumers within the affected supply zones.

Of the 51 shut-offs, we needed more than eight hours to reinstate 12 of them. We were able to supply water from an alternative reservoir in nine of these 12 cases. In the other three cases, we managed the affected reservoirs to avoid disruption.

Eighteen shutdowns were unscheduled, for repairs of leaking or burst mains, or to repack leaking valves, compared with 18 during the year to 30 June 2009 (see graph below).

The remaining 33 shutdowns were scheduled (2009 = 33). This work was required to install new or refurbished pipes and valves (26), install new flow meters (4) and mitigate the risk of asset failures from seismic activity (3).

UNPLANNED SHUT-OFFS OF BULK WATER MAINS



Resource consents

Resource consents held as at 30 June 2010

Water-take	Land use	Discharge	Total
10	56	21	87

For a report of compliance with consents for the year to 30 June 2010, see Annual Target 5.1, p39.

Water supplied to customers

Historically, we have recorded water supply figures weekly by manual reading of revenue meters at the supply points to our customers. However, since December 2005, we have had remote access to these meters and have collected readings daily. The annual supply totals prior to the year ended 30 June 2006 presented below have been calculated to represent 365/366 day years, so as to make the historic data more directly comparable between years and consistent with abstraction and production figures, which are recorded daily. The years ended 30 June 2000, 2004 and 2008 are 366 days.

WATER SUPPLIED (MILLIONS OF LITRES)

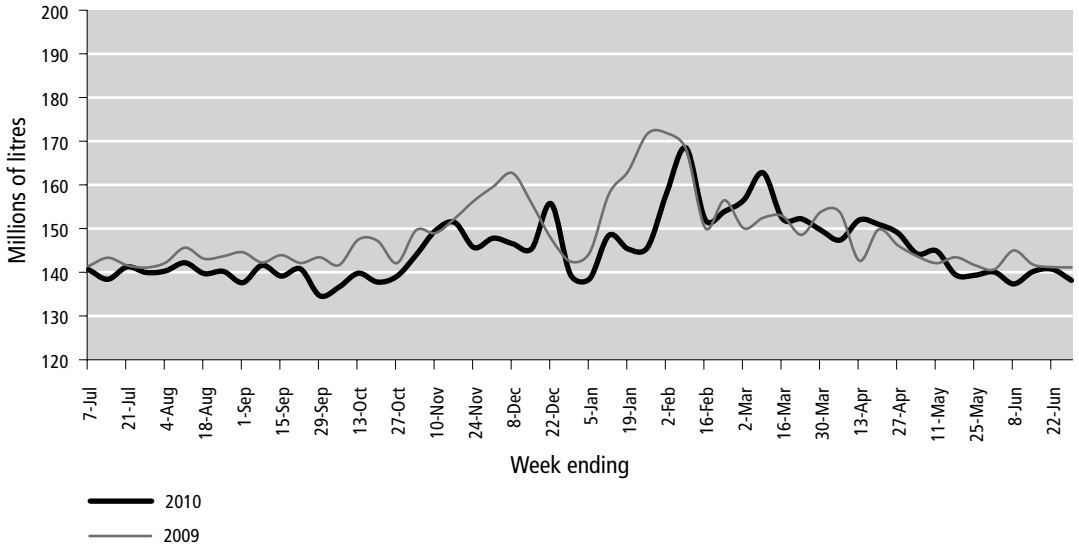
For the year ended 30 June

	Hutt City		Porirua City		Upper Hutt City		Wellington City		Total supply	
	Total	Avg. day	Total	Avg. day	Total	Avg. day	Total	Avg. day	Total	Avg. day
2010	13,369	36.6	6,179	16.9	4,880	13.4	28,510	78.1	52,939	145.0
2009	13,804	37.8	6,277	17.2	5,011	13.7	29,136	79.8	54,228	148.6
% change	*–3.2%*		*–1.6%*		*–2.6%*		*–2.1%*		*–2.4%*	
2008	14,133	38.6	6,439	17.6	5,159	14.1	29,912	81.7	55,642	152.0
2007	14,076	38.6	6,317	17.3	5,113	14.0	30,542	83.7	56,048	153.6
2006	14,236	39.0	6,475	17.7	5,533	15.2	31,667	86.8	57,913	158.7
2005	13,938	38.2	6,022	16.5	5,319	14.6	30,244	82.9	55,522	152.1
2004	13,956	38.1	5,907	16.1	5,296	14.5	29,776	81.4	54,935	150.1
2003	14,714	40.3	6,135	16.8	5,303	14.5	29,899	81.9	56,050	153.6
2002	14,177	38.8	5,908	16.2	5,774	15.8	28,902	79.2	54,760	150.0
2001	14,441	39.6	5,987	16.4	5,807	15.9	29,729	81.4	55,962	153.3

AVERAGE DAILY WATER SUPPLY BY WEEK

For the year ended 30 June 2010

Weeks shown are seven days from 1 July



AVERAGE DAILY SUPPLY PER CAPITA AND PER HOUSEHOLD (LITRES)

For the year ended 30 June 2010

	Hutt City	Porirua City	Upper Hutt City	Wellington City	Total
Population[1]	101,700	51,700	38,550	196,050	388,050
Households[2]	37,150	16,200	14,850	71,700	139,850
Gross litres/head/day	360	328	347	398	374
Gross litres/household/day	986	1,046	902	1,090	1,037

1: Usually resident population, urban areas – extrapolated from Statistics NZ estimates. The populations presented are estimates for 30 June 2009, plus half the difference between the 30 June 2008 and 2009 estimates, to approximate a 2009/10 average population. 2: Occupied dwellings, local authority areas – Statistics NZ 2006 Census (final) figures, projected forward using the usually-resident population estimate and the average annual change in residents per household (for the four cities in total) between the 2001 Census and the 2006.

MAXIMUM WEEK SUPPLY (MILLIONS OF LITRES)

For the year ended 30 June

Maximum week 2010	**Hutt City**	**Porirua City**	**Upper Hutt City**	**Wellington City**	**Total**
	10/02/10	**10/02/10**	**10/02/10**	**10/02/10**	**10/02/10**
Total of maximum week					
2010	299.4	141.1	120.1	618.8	1,179.3
2009	316.7	144.1	122.7	636.1	1,219.7
% change	*–5.5%*	*–2.1%*	*–2.1%*	*–2.7%*	*–3.3%*
Average day of the maximum week					
2010	42.8	20.2	17.2	88.4	168.5
2009	45.2	20.6	17.5	90.9	174.2

'BASE' WINTER (JUNE - AUGUST) SUPPLY (MILLIONS OF LITRES)

For the year ended 30 June

	Hutt City		Porirua City		Upper Hutt City		Wellington City		Total 'base' supply	
	Total	Avg. day	Total	Avg. day	Total	Avg. day	Total	Avg. day	Total	Avg. day
2010	3,275	35.6	1,472	16.0	1,174	12.8	6,940	75.4	12,860	139.8
2009	3,352	36.4	1,505	16.4	1,201	13.1	7,062	76.8	13,119	142.6
% change	*–2.3%*		*–2.2%*		*–2.2%*		*–1.7%*		*–2.0%*	
2008	3,321	36.1	1,491	16.2	1,192	13.0	7,165	77.9	13,168	143.1
2007	3,387	36.8	1,515	16.5	1,240	13.5	7,813	84.9	13,955	151.7
2006	3,377	36.7	1,503	16.3	1,276	13.9	7,560	82.2	13,716	149.1
2005	3,356	36.5	1,443	15.7	1,245	13.5	7,271	79.0	13,314	144.7
2004	3,414	37.1	1,415	15.4	1,226	13.3	7,230	78.6	13,285	144.4
2003	3,498	38.0	1,402	15.2	1,283	13.9	7,137	77.6	13,319	144.8
2002	3,445	37.4	1,365	14.8	1,374	14.9	6,996	76.0	13,180	143.3
2001	3,361	36.5	1,335	14.5	1,335	14.5	6,974	75.8	13,005	141.4

N.B. figures are July and August from one calendar year and June from the next. E.g. 2010 represents July and August 2009 and June 2010

Water supply to Wellington during June 2006 (shown as part of the 2006 June year total), and July and August 2006 (shown as part of the 2007 June year total), was substantially more than expected, due to a large leak on the city's reticulation, which was repaired in September 2006. Our analysis indicates that this leak accounts for much of the increase seen in total base supply during those two financial years.

Water quality

CHEMICAL MONITORING – 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 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. Standards for chemical compliance are set out in the Ministry of Health's *Drinking-water Standards for New Zealand 2005 (Revised 2008)*.

The drinking water standards state that maximum acceptable values (MAV) for inorganic determinands of health significance represent concentrations in the water that, based on present knowledge, do not result in any significant risk to the health of the consumer over their lifetime of consuming that water. Guideline values (GV) apply to aesthetic determinands, which the standards identify as not of health significance. However, if a GV is exceeded the water may be rendered unappealing to consumers.

MEAN VALUES OF CHEMICAL ANALYSIS AT TREATMENT PLANTS

For the year ended 30 June 2010

DWSNZ 2005 (Revised 2008)[A]			Te Marua		Wainuiomata		Waterloo		Gear Island	
Parameter	**MAV**	**GV**	**No. of samples**	**Value**	**No. of samples**	**Value**	**No. of samples**	**Value**	**No. of samples**	**Value**
Alkalinity (total), mg/L $CaCO_3$	–	–	[E]	–	[E]	–	4	56.5	4	46.0
Aluminium (acid soluble), mg/L	–	0.10	23	0.02	25	0.02	–	–	–	–
Arsenic (total), mg/L	0.01	–	2	<0.002	2	<0.002	2	<0.002	2	<0.002
Boron, mg/L	1.4	–	2	<0.05	2	<0.05	2	<0.05	2	0.023
Cadmium (total), mg/L	0.004	–	2	<0.001	2	<0.001	2	<0.001	2	<0.001
Calcium (total), mg/L	–	[B]	–	–	–	–	–	–	–	–
Chloride, mg/L	–	250	1	7.8	1	20.7	2	13.6	2	14.8
Chromium (total), mg/L	0.05	–	2	<0.001	2	<0.001	2	<0.001	2	<0.001
Conductivity, µS/cm @ 25°C	–	–	5	10.5	6	15.7	6	16.6	2	21.9
Copper (total), mg/L	2	–	13	0.32[D]	13	<0.013	13	<0.013	9	<0.013
Cyanide (total), mg/L	0.6	–	2	<0.005	2	<0.005	2	<0.005	2	<0.005
Fluoride, mg/L	1.5[C]	–	53	0.8	49	0.8	54	0.8	53	0.6
Hardness (total), mg/L $CaCO_3$	–	200	13	25.6	13	33.3	13	45.9	9	26.9
Iron (total), mg/L	–	0.2	13	0.013	13	0.032	13	0.073	9	0.052
Langelier saturation index	–	–	4	–1.4	5	–1.1	4	–0.7	4	–0.7
Lead (total), mg/L	0.01	–	2	<0.001	2	<0.001	2	<0.001	2	<0.001
Magnesium (total), mg/L	–	[B]	–	–	–	–	–	–	–	–
Manganese (total), mg/L	0.4	–	13	<0.013	13	<0.013	13	<0.013	9	<0.013
Mercury (total), mg/L	0.007	–	2	<0.001	2	<0.001	2	<0.001	2	<0.001
Nickel (total), mg/L	0.08	–	2	<0.001	2	<0.001	2	<0.001	2	<0.001
Nitrate, mg/L –N	50	–	2	0.01	2	0.04	2	0.6	2	1.2
pH	–	7.0–8.5	14	7.6	14	7.6	15	7.6	57	7.5
Selenium (total), mg/L	0.01	–	2	<0.005	2	<0.005	2	<0.005	2	<0.005
Silica (molybdate-reactive), mg/L	–	–	2	8.6	2	13.5	2	15.3	2	17.3
Sodium (total), mg/L	–	200	1	9.5	1	14.0	2	11.7	2	31.6
Solids (total dissolved), mg/L	–	1000	1	55	1	78	2	79	1	115
Sulphate, mg/L	–	250	1	11.7	1	4.3	2	6.4	2	6.5
Zinc (total), mg/L	–	1.5	13	<0.013	13	<0.013	13	<0.013	9	<0.013

Notes: Values that are preceded by the < symbol indicate the detection limit for that test. (A) *Drinking-water Standards for New Zealand 2005 (Revised 2008)*; MAV denotes "Maximum acceptable values for inorganic determinands of health significance"; GV denotes "Guideline values for aesthetic deteminands". A dash in the GV or MAV column indicates that there is no applicable value. (B) See Hardness. (C) The fluoride content recommended for drinking water by the Ministry of Health for oral health is 0.7 to 1.0 mg/L. (D) Annual mean values for copper typically <0.1 – we found an issue with the sampling point, which has been corrected. (E) We no longer require our laboratory to test for treated water alkalinity. We are now testing for raw water alkalinity and using that to adjust pH to achieve a suitable Langelier saturation index.

MICROBIOLOGICAL MONITORING OF THE WHOLESALE WATER SUPPLY

A public water supply that is free from microbiological contamination is an important factor in achieving high standards of public health. Microbiological contamination of a water supply has the potential to cause sickness within the community. We carry out microbiological monitoring of potable water in order to determine the safety of the water in relation to the possibility of transmission of waterborne disease. *Escherichia (E.) coli*, which usually comes from faecal material, is an accepted indicator of bacteriological contamination. We maintain very low turbidity levels in our treated water to demonstrate low numbers of protozoa *(Cryptosporidium)*. Direct testing of protozoa is not practical or required by the Ministry of Health.

PRODUCTION

At our surface-water treatment plants (Te Marua and Wainuiomata), we demonstrate compliance to the microbiological criteria of the DWSNZ by continuously monitoring turbidity of the water leaving each filter, and free available chlorine (FAC) and pH in drinking water leaving the treatment plants. A chlorine residual in the treated water indicates that we have neutralized microbiological contaminants.

The Waiwhetu aquifer is a secure water source and, therefore, free from microbiological contamination according to the drinking water standards. However, we test water leaving our aquifer-source water treatment plants (Waterloo and Gear Island) to demonstrate compliance to the *E.coli* criteria of the DWSNZ. Daily testing detected no *E.coli* in the water leaving either the Waterloo or Gear Island water treatment plants.

Regional public health units assess microbiological compliance with the drinking water standards on behalf of the Ministry of Health. These assessments cover the same period as our financial year: that is, 12 months to 30 June.

We received formal notice of microbiological compliance for our Te Marua, Wainuiomata, Waterloo and Gear Island treatment plants for the 12 months to 30 June 2010.

DISTRIBUTION

An International Accreditation New Zealand-registered laboratory monitors the microbiological quality of water in our distribution system after treatment. The laboratory uses *E.coli* sampling, in accordance with the sampling requirements for urban reticulation systems, as contained in the drinking water standards.

The *Register of Community Drinking-water Supplies in New Zealand* includes our distribution system. The system has three distinct zones, with each having its own sampling requirements based on population served. We must take samples on different days of the week and from sites that represent the full range of conditions that exist within a distribution zone. The three zones are (1) Central Hutt/Petone (un-chlorinated supply from Waterloo Water Treatment Plant), (2) Wainuiomata/ South Wellington (supply from Wainuiomata Water Treatment Plant) and (3) Upper Hutt/Porirua/North Wellington (supply from Te Marua Water Treatment Plant). We take samples from 16 sampling sites within the three zones.

We received formal notice of microbiological compliance for our three wholesale water supply network zones for the 12 months to 30 June 2010. A summary of results for the twelve months to 30 June 2010 appears below.

E.COLI RESULTS – SUMMARY OF SAMPLES COLLECTED

For the year ended 30 June 2010

Distribution Zone	DWSNZ MAV(F)	No. of samples	No. of positive results
Central Hutt/Petone	<1 in 100 mL of sample	398	0
Wainuiomata/South Wellington	<1 in 100 mL of sample	291	0
Upper Hutt/Porirua/North Wellington	<1 in 100 mL of sample	397	0

(F) *Drinking-water Standards for New Zealand 2005 (Revised 2008)*, MAV denotes "Maximum acceptable value for microbial determinands".

Annual plan performance indicators

Our performance indicators for the 2009/10 operating year are shown in regular type. Performance in relation to these indicators is denoted in italic type.

ACTIVITY 1: WATER COLLECTION, TREATMENT AND DELIVERY

Our services

1. Supply water to the four cities in the region that meets or exceeds national quality standards and meets reasonable daily demand
2. Ensure security of supply is not less than 2% annual probability of shortfall

How we measure our performance

1. Compliance with drinking water standards for biological, chemical and aesthetic determinands
2. Grading of water treatment plants
3. Reservoir levels
4. Breaches of security of supply standard
5. Level of deferred maintenance

By 30 June 2019

The quality of water supplied will continually meet the Ministry of Health's drinking water standards.

We have consistently met the requirements of the Ministry of Health's drinking water standards.

We hold certification to the International Standard ISO 9001:2000 for water quality management.

The grading of our water treatment plants and distribution system will be maintained or improved to achieve A1/a1, where this is consistent with customer requirements.

Two of our four water treatment plants have A1 grading, while we have requested a re-grading for a third treatment plant, which we believe will result in an A1 grading (currently ungraded). Our remaining treatment plant is graded B, the highest grading available given Hutt City Council's preference to receive an un-chlorinated water supply from this plant. Our wholesale water distribution system is graded a1, the highest grading available.

Supply security will meet a 2% annual probability of shortfall (one in 50-year drought standard).

We are currently operating outside the 2% standard for annual probability of shortfall. We have included various developments and activities in our 10-Year Plan 2009-19 to restore operational capability within the 2% standard.

By 30 June 2010

We will supply water to the four cities in the region that meets or exceeds national quality standards, and meets reasonable daily demand, within a budget of $21,548,000.

Regional public health units assess compliance with the drinking water standards for New Zealand on behalf of the Ministry of Health. Wellington's regional public health unit has confirmed full compliance with the chemical and microbiological requirements of the standards.

We met all demand for water within the four cities.

Actual costs were $20,257,000.

We will maintain or improve treatment plant grading levels.

We maintained the grading for each water source and treatment plant. The Te Marua and Wainuiomata water treatment plants are graded A1, the highest grading available. Waterloo Water Treatment Plant is graded B. Gear Island Water Treatment Plant is graded U (ungraded). We have requested a re-grading of the Gear Island plant.

Security of supply will be 3% annual probability of shortfall (one in 33-year drought).

The 2.4% reduction in total water use this year indicates an improvement in the security of supply. We will carry out further computer modelling of the security of supply, which we anticipate will have reduced to, or below, 3%.

There will be no deferred maintenance in the system.

We replace or enhance assets in accordance with the asset management plan. There was no deferred maintenance.

We will replace the current Hansen asset-management system with the SAP asset-management system, integrated directly with SAP financial system, within a budget of $445,000.

We fully implemented the SAP asset management system for Water Supply in September 2009, within the specified budget. Actual costs were $305,000.

ACTIVITY 2: WATER SUPPLY INFRASTRUCTURE

Our services

Ensure that water supply assets are maintained and their performance is continually improved so that Greater Wellington has a reliable water supply system. This will be achieved through an asset management plan that reflects international best practice for infrastructure asset management.

How we measure our performance

1. Implementation of asset management plans
2. Capital expenditure projects for new infrastructure are built on time and within budget

By 30 June 2019

Replace and enhance assets in accordance with the asset management plan.

We manage water supply assets in accordance with a planned programme of maintenance. Our policy is that there is no deferred maintenance. The asset management plan was prepared in accordance with the National Asset Management Steering Group guidelines.

By 30 June 2010

Assets will be replaced or enhanced in accordance with the asset management plan, within a budget of $1,007,000.

We continue to replace and enhance water supply assets in accordance with the asset management plan, which was prepared in accordance with national standards. Actual costs were $1,019,000.

ACTIVITY 3: PLANNING FOR FUTURE WATER DEMAND AND SUPPLY

Our services

Ensure that plans are in place for Greater Wellington to supply enough water to meet the reasonable needs of the present and future populations of the four cities, taking into account environmental, social, cultural and economic needs.

How we measure our performance

Scenarios are in place to achieve security of supply based on sound modelling methodology, and include both demand reduction and increase in supply.

By 30 June 2019

Capital projects will be developed as required to allow a return to the 2% annual probability of a water shortage (no more than one in 50 years on average) and provide for future growth. The timing of projects will depend on population growth and per capita demand for water.

A Wellington Metropolitan Water Supply Development Plan was completed in 2007/08. This is a supply-side response to meet the needs of a growing population and restore the security of supply to a 2% probability of shortfall. There is an expectation that a regional water strategy (being developed) will result in acceptance of various initiatives leading to reduced demand for water. Potentially, this will enable water supply development projects to be deferred by some years.

By 30 June 2010

We will undertake major infrastructural developments in accordance with the *Wellington Metropolitan Water Supply Development Plan*, within a total budget of $2,500,000.

We will commence design work for raising the levels of the Stuart Macaskill Lakes, within a budget of $300,000.

We advanced design work to raise the levels of the lakes and initiated the building consent process. Actual costs were $248,000.

We will complete investigations for development of the Upper Hutt aquifer and an application for resource consent, within a budget of $100,000.

The project was deferred pending the outcome of other initiatives, including the Kaitoke consent change and the regional water strategy.

We will construct the Wainuiomata Water Treatment Plant mini-hydro generator, within a budget of $1,600,000.

The design is well advanced and preparatory construction is underway. The generator has been ordered but a long lead time to delivery (47 weeks) has delayed the completion of building construction and generator commissioning until July 2011. Actual costs were $502,000, with the remaining budget carried over to 2010/11.

We will complete design work and start construction for seismic upgrading of the Stuart Macaskill Lakes, within a budget of $500,000.

Design work is well underway and we have started the building consent process. The Regional Council has decided to defer construction until 2011/12. Actual costs were $433,000.

ACTIVITY 4: WATER CONSERVATION PROGRAMMES

Our services

Promote the responsible use of water by consumers and encourage people to reduce their demand for water.

How we measure our performance

1. Per capita consumption of water in the four cities
2. Total consumption of water

By 30 June 2019

Per capita gross consumption of water will decrease at a rate of at least 10% over 10 years, from 399 litres per person per day (l/p/d) during 2007/08.

Per capita water use has shown a gradually declining trend over the last 10 years. Our water conservation publicity and promotions are two of many factors that would have contributed to this outcome.

By 30 June 2010

Increases in total consumption will be held to levels consistent with population change and targets for per capita consumption, within a budget of $492,000.

Gross water supply per resident during 2009/10 equated to 374 l/p/d – 6.3% less than the target baseline.

Gross annual water supply during 2009/10 was 52,939 million litres, 2.4% less than the annual supply total for 2008/09. The estimated resident population supplied increased by 1.1% between 2008/09 and 2009/10.

The actual cost of water conservation publicity and promotions was $400,000.

Management systems reporting

We have started to review the relationships between our management systems. Over the next 18 months we will consolidate our management systems for assets, water quality, environmental effects, health and safety, projects and maintenance, using the new international standard for risk management (ISO 31000:2009) as a platform.

As part of this review process, we have split our quality and environmental management systems reporting between "business as usual" work (annual performance targets) and improvement work (improvement targets). We will expand this format to cover our other management systems as we develop the consolidation process. This format replaces our former reporting format, under quality management and environmental management headings.

We have shown the references to the annual performance targets from our quality and environmental management systems in the "Annual performance targets and related objectives" table from p38 ("QMS/EMS reference" columns). For both the improvement targets table and the annual performance targets table we have also shown links to the relevant content in Greater Wellington's *10-Year Plan 2009-19*.

IMPROVEMENT TARGETS AND RELATED OBJECTIVES

		***10-Year Plan 2009-19* reference**		
Objectives and targets	**Achievement** and 2009/10 commentary	**Activity**	**Community outcomes**	**Objectives** *10-Year Plan 2009-19*, p86
Objective 1 – Ensure there is a secure water supply				
Target 1.51 – Review strategic location of earthquake damage repair stocks by December 2010	**In progress** See "Review of emergency stock", p11	Water collection, treatment and delivery	Prepared community Essential services	Ensure the water supply is as resilient as possible Asset management principles (*10-Year Plan 2009-19*, p95)
Target 1.52 – Develop risk management framework by May 2011	**In progress** See "Management systems alignment review", p21	Water collection, treatment and delivery	Healthy and prepared community Healthy environment Essential services	Provide high-quality water Ensure a secure water supply Minimise environmental effects Ensure the water supply is as resilient as possible
Target 1.53 – Complete seismic upgrade design and start construction for upgrade of the Stuart Macaskill Lakes within a budget of $500,000 by June 2010	**Not achieved** Design work is well underway and we have started the building consent process. The Regional Council decided to defer construction until 2011/12. Actual costs were $433,000 – see "Storage capacity at Te Marua", p8	Planning for future water demand and supply	Prepared community Essential services	Ensure a secure water supply Asset management principles (*10-Year Plan 2009-19*, p95)
Target 1.56 – Complete the upgrade of the Waterloo treatment plant control system by June 2010	**Achieved** See "Waterloo control system upgrade", p22	Water supply infrastructure	Essential services	Asset management principles (*10-Year Plan 2009-19*, p95)
Target 1.57 – Complete the upgrade of the Te Marua treatment plant control system by June 2010	**Achieved** See "Te Marua control system upgrade", p22	Water supply infrastructure	Essential services	Asset management principles (*10-Year Plan 2009-19*, p95)
Objective 2 – Provide safe, high-quality water				
Target 2.50 – Complete Public Health Risk Management Plans (PHRMP) actions by November 2010	**In progress** PHRMPs have been submitted to Regional Public Health for approval – see p14	Water collection, treatment and delivery	Healthy community	Provide high-quality water
Target 2.51 – Review Health (Drinking-water) Amendment Act by November 2009	**Achieved** See Target 2.50	Water collection, treatment and delivery	Healthy community	Provide high-quality water
Target 2.52 – Achieve A1 grading for Gear Island Water Treatment Plant by June 2010	**Mainly achieved** We believe we have proved compliance with the criteria for A1 grading and are waiting on a response from Regional Public Health	Water collection, treatment and delivery	Healthy community	Provide high-quality water

		10-Year Plan 2009-19 reference		
Objectives and targets	**Achievement** and 2009/10 commentary	**Activity**	**Community outcomes**	**Objectives** *10-Year Plan 2009-19,* p86
Target 2.53 – Combine our quality and environmental management systems by June 2010	**Not achieved** During planning for the implementation of a risk management system and a review of the asset management plan it became apparent that, instead of integrating just our quality and environmental management systems, wider systems integration was required. This new project is part of our management systems alignment review – see p21	All four key activities	Healthy community and environment	All five key achievement objectives
Target 2.54 – Update ISO 9000:2000 to 9001:2008 by October 2009	**Mainly achieved** Certification to ISO 9001:2008 confirmed December 2009	Water collection, treatment and supply	Healthy community	Provide high-quality water
Target 2.56 – Review management of sample points on distribution system "dead legs" by June 2010	**Partly achieved** We completed a visual inspection of all pipe "dead legs" recorded on our drawings and are in the process of confirming suitable flushing and testing points are in place	Water collection, treatment and supply	Healthy community	Provide high-quality water
Objective 3 – Able to meet current and future demand				
Target 3.50 – Security of water supply will be 3% annual probability of shortfall by June 2010	**Not achieved** The 2.4% reduction in total water use this year indicates an improvement in the security of supply. We will carry out further computer modelling of the security of supply, which we anticipate will have reduced to, or below, 3%. (See also "Water shortage risk modelling", p8)	Water collection, treatment and delivery	Essential services	Provide high-quality water Asset management principles (*10-Year Plan 2009-19,* p95)
Target 3.53 – Commence design work for raising the Stuart Macaskill Lakes within a budget of $300,000 by June 2010	**Achieved** We advanced design work to raise the lake levels and initiated the building consent process. Actual costs were $248,000	Planning for future water demand and supply	Essential services	Ensure a secure water supply
Target 3.54 – Investigate the Upper Hutt aquifer and complete a water-take consent application within a budget of $100,000 by June 2010	**Not achieved** This work was deferred pending the outcomes of other projects – see "The Upper Hutt aquifer", p10	Planning for future water demand and supply	Essential services	Ensure a secure water supply
Objective 4 – Manage assets wisely				
Target 4.51 – Implement SAP asset management system within a budget of $445,000 by December 2009	**Achieved** We implemented the SAP asset management system for Water Supply in September 2009. Actual costs were $305,000	Planning for future water demand and supply	Essential services	Asset management principles (*10-Year Plan 2009-19,* p95)
Target 4.53 – Review the asset management plan and develop a new framework in line with NAMS Group guidelines by December 2010	**In progress** See "Asset management plan review", p21	Planning for future water demand and supply	Essential services	Asset management principles (*10-Year Plan 2009-19,* p95)
Target 4.55 – Develop a service level and performance monitoring framework by September 2010	**In progress** See "Management systems alignment review", p21	All four key activities	Essential services	Asset management principles (*10-Year Plan 2009-19,* p95)
Target 4.56 – Complete stage 1 of the integrated data collection and reporting system by December 2010	**In progress** Stage 1 included installation of computer hardware and software, setting up of a data analysis tool and development of revenue reports – see "Data management upgrade", p21	Water collection, treatment and supply	Essential services	Asset management principles (*10-Year Plan 2009-19,* p95)

		10-Year Plan 2009-19 reference		
Objectives and targets	**Achievement** and 2009/10 commentary	**Activity**	**Community outcomes**	**Objectives** *10-Year Plan 2009-19,* p86
Objective 5 – Be environmentally responsible				
Target 5.52 – Improve overall pumping efficiency by 15% by July 2011	**In progress** See "Pump efficiency testing", p19	Water collection, treatment and supply	Healthy environment	Minimise environmental effects
Target 5.56 – Per capita gross consumption of water will decrease by at least 10% over 10 years from 2007/08	**In progress** Gross water supply per resident during 2009/10 equated to 374 l/p/d – 6.3% less than the target baseline	Water collection, treatment and supply	Healthy environment Essential services	Reduce water use
Target 5.58 – Construct a hydro-electric generation plant at Wainuiomata treatment plant within $1.6m by June 2010	**Not Achieved** We ordered the generator but delivery (47 weeks) has delayed completion of building construction and generator commissioning until July 2011. Actual costs were $502,000, with remaining budget carried over to 2010/11 – see "Hydro generation at Wainuiomata", p18	Water collection, treatment and supply	Healthy environment Essential services	Minimise environmental effects Controlling costs and the water levy (*10-Year Plan 2009-19,* p88)
Target 5.61 – Investigate options for further hydro generation	**In progress** See "Hydro generation at service reservoirs", p19	Water collection, treatment and supply	Healthy environment Essential services	Minimise environmental effects Controlling costs and the water levy (*10-Year Plan 2009-19,* p88)
Target 5.63 – Increases in total consumption will be held to levels consistent with population growth and targets for per capita usage within a budget of $492,000 by June 2010	**Achieved** Gross annual water supply during 2009/10 was 52,939 million litres, 2.4% less than the annual supply total for 2008/09. The estimated resident population supplied increased by 1.1% between 2008/09 and 2009/10. All costs relating to water conservation publicity and promotions were met for $400,000	Water collection, treatment and supply	Healthy environment Essential services	Reduce water use
Target 5.66 – Reduce carbon emissions consistent with Greater Wellington targets for water supply emissions reduction by generating electricity from water flow at Te Marua and Wainuiomata water treatment plants	**In progress** See "Emissions target for power use", p18	Water collection, treatment and supply	Healthy environment Essential services	Minimise environmental effects
Objective 6 – Be cost-effective				
Target 6.50 – Meet or exceed national water quality standards and meet reasonable demand within a budget of $21.548m by June 2010	**Achieved** We complied fully with chemical and microbiological requirements of the drinking water standards. We met all demand for water within the four cities. Actual costs were $20.257m	Water collection, treatment and supply	Healthy community	Provide high-quality water Controlling costs and the water levy (*10-Year Plan 2009-19,* p88)
Target 6.53 – Assets will be replaced or enhanced in accordance with the asset management plan within $1.007m by June 2010	**Not achieved** Costs for five representative projects were $1.019m	Water collection, treatment and supply	Essential services	Asset management principles (*10-Year Plan 2009-19,* p95)
Objective 7 – Safe, healthy and productive workforce				
Target 7.51 – Health and safety systems meets ACC Level 2 standards by June 2010	**Partly achieved** Water Supply health and safety management practices are part of a wider Greater Wellington Health and Safety Management Plan. Water Supply was not selected for external audit in 2009/10. We had almost finished a self-audit by 30 June, with some minor items to follow up. We are confident that we could satisfy an ACC Level 2 audit by December 2010	–	–	–
Target 7.52 – Review and implement the hazardous substance component of the HASNO Act by dates required by regulation	**Achieved** A HASNO certifier completed a review of the Stationary Container Test regime for all our water treatment plants. We are following up the recommendations	Water collection, treatment and supply	Healthy environment Essential services	Minimise environmental effects

ANNUAL PERFORMANCE TARGETS AND RELATED OBJECTIVES

		QMS/EMS reference		*10-Year Plan 2009-19* reference		
Objectives and targets	**Achievement** and 2009/10 commentary	**ISO 9000**	**ISO 14001**	**Activity**	**Community outcomes**	**Objectives** *10-Year Plan 2009-19*, p86
Objective 1 – Ensure there is a secure water supply						
Target 1.1 – Emergency response capability is maintained or improved	**Achieved** Emergency procedures are up to date. We have allocated capital expenditure to improve seismic stock holdings. Emergency repair stocks have been increased	–	–	Water collection, treatment and delivery	Prepared community	Ensure the water supply is as resilient as possible
Target 1.2 – Raw water sources are protected	**Achieved** We monitor aquifer level and quality. Abnormal conditions trigger alarms. We control pest plants and animals as per catchment management plans. We completed a possum control operation in the Hutt Water Collection Area in 2009/10 – see p20	–	–	Water collection, treatment and delivery	Healthy community Essential services	Provide high-quality water Ensure the water supply is as resilient as possible
Objective 2 – Provide safe high-quality water						
Target 2.2 – Comply with the requirements of the DWSNZ 2005 (Revised 2008). For microbiological and aesthetic requirements (treatment and distribution) 100% of the time. For chemical requirements 85% of the time	**Achieved** – microbiological and chemical compliance **Provisionally achieved** – aesthetic compliance The regional public health unit of the Hutt Valley District Health Board advised microbiological and chemical compliance for 2009/10 for all our water treatment plants and distribution zones. For aesthetic commentary, see p13 Fluoride was below the target range for optimum dental protection (0.7-1.0 mg/L), due to equipment failure causing automatic shutdown of dosing	Target 2.1.1, 2.1.2, 2.1.3, 2.2.1, 2.2.3, 3.1.1	–	Water collection, treatment and delivery	Healthy community Essential services	Provide high-quality water
Target 2.3 – Operate a quality management system that is certified to ISO 9001	**Achieved** Certification confirmed to the revised ISO9001:2008 in December 2009	–	–	Water collection, treatment and delivery	Healthy community Essential services	Provide high-quality water
Target 2.4 – Treatment plant grading will be maintained or improved	**Achieved** All grading retained. We have applied for re-grading of Gear Island treatment plant – see p13	Target 5.2.1, 5.3.1, Objective 5.4	–	Water collection, treatment and delivery	Healthy community Essential services	Provide high-quality water
Objective 3 – Able to meet current and future demand						
Target 3.1 – Reservoirs at least 70% full 90% of the time and at least 60% full 98% of the time	**Not achieved** Both 60% and 70% targets met for 530 of 540 reservoir-months (98%). These results exclude reservoir-months where the target was not met entirely due to the customer requesting a temporary lower operating level	Target 1.2.1	–	Water collection, treatment and delivery	Healthy community Essential services	Provide high-quality water
Target 3.2 – Thorndon pressure >85m 90% of the time and >80m and <100m for 98% of the time	**Achieved** >85m target met 95% of the time or better each month. >80m and <100m target met 99% of the time or better each month	Target 1.3.1	–	Water collection, treatment and delivery	Healthy community Essential services	Provide high-quality water
Target 3.4 – Develop and extend the water supply infrastructure, including new sources, as required to ensure that sufficient water is available to meet the unrestricted (other than by routine hosing restrictions) demand in all but a drought situation that has a severity equal to or greater than a one in 50-year drought	**Not achieved** We use a complex supply and demand model (SYM) to assist with strategic planning. SYM modelling shows the current risk of shortage >2%. However, we met all demand for water without restriction during 2009/10, other than "time of use" rules that each city council uses to manage demand for garden watering. We have continued to pursue water supply development options – see p8	Target 1.1.1, 1.1.2		Planning for future water demand and supply	Essential services	Ensure there is a secure water supply

		QMS/EMS reference		*10-Year Plan 2009-19* reference		
Objectives and targets	**Achievement** and 2009/10 commentary	**ISO 9000**	**ISO 14001**	**Activity**	**Community outcomes**	**Objectives** *10-Year Plan 2009-19*, p86
Objective 4 – Manage assets wisely						
Target 4.1 – Asset age, condition and performance are monitored	**Achieved** We have an Improvement Project to review and update asset information and condition rating by June 2012	Target 4.1.2	–	Water supply infrastructure	Essential services	Asset management principles (*10-Year Plan 2009-19*, p95)
Target 4.3 – A comprehensive asset management plan is in place to guide maintenance, renewals and replacements so that assets are replaced or refurbished before failure reduces levels of service	**Achieved** – quality system targets for asset management, customer consultation and equipment records maintenance **Not achieved** – reservoir levels-of-service target (Target 3.2) We have an Improvement Project to develop a new asset management framework following NAMS guidelines by December 2010 – see p21. We met with customers (April 2010) to discuss capital works for 2010/11. We will hold future meetings re capital works before finalising annual plans	Target 4.1.1, 4.1.3, 4.2.4, 4.2.8	–	Water supply infrastructure	Essential services	Asset management principles (*10-Year Plan 2009-19*, p95)
Objective 5 – Be environmentally responsible						
Target 5.1 – Be aware of, comply with, and report on all requirements from legislation, regulations, bylaws and standards that are relevant to environmental performance	**Achieved** Full compliance for all resource consents for 2009/10. Reporting to consent manager was as required. Trade waste permits held for Te Marua and Wainuiomata water treatment plants – compliance achieved. An annual report including environmental factors was published October 2009	–	Target 1.1.1, 1.2.1, 1.2.2, 1.3.1, 1.3.2, 3.2.1, 3.2.2, 5.1.1, 9.1.1, 9.2.1	Water collection, treatment and delivery	Healthy environment	Minimise environmental effects
Target 5.2 – Adopt all practicable means to prevent pollution of the environment	**Achieved** All discharges monitored – no accidental discharges. Full compliance for sludge, solid and liquid waste (trade waste consents) for 2009/10	–	Target 3.1.1, 3.2.1, 3.2.3, 3.2.5	Water collection, treatment and delivery	Healthy environment	Minimise environmental effects
Target 5.3 – Conserve non-renewable resources such as fuels, energy and materials and minimise waste	**Mostly achieved** See "Use of resources, discharges and waste" (from p15) covering electricity, chemical and water use, and carbon emissions. See also water supply volume (from p3), and water conservation programmes (from p23)	–	Targets 4.1.1, 4.2.1, 4.2.2, 4.2.3, 4.2.4	Water collection, treatment and delivery	Healthy environment	Minimise environmental effects Reduce water use
Target 5.4 – Consider the environmental implications of business decisions	**Achieved** We reviewed our procedure for environmental aspects as part of a non-conformance report from our ISO 14001 external audit in December 2009. We are now reviewing our risk management practices – see p21	–	Target 5.1.2, 6.1.1, 7.1.1, 7.2.1, 8.1.1, 8.2.1	Water collection, treatment and delivery	Healthy environment	Minimise environmental effects
Target 5.5 – Operate an environmental management system that is certified to ISO 14001	**Achieved** Certification reconfirmed after two non-conformances were signed off, regarding an environmental aspect procedure and review of our aspects matrix	Target 7.1.1	Target 2.1.1, 2.2.1	Water collection, treatment and delivery	Healthy environment	Minimise environmental effects
Objective 6 – Be cost-effective						
Target 6.1 – Ensure that the actual direct operating costs do not exceed the budgeted value	**Achieved** Direct operating costs were $14.2m against budget of $14.4m	Target 4.2.3	–	All	–	Controlling costs and the water levy (*10-Year Plan 2009-19*, p88)
Target 6.2 – Areas of significant expenditure will be monitored and opportunities for cost reduction will be systematically identified	**Achieved** We assess all proposed Improvement Projects against seven key objectives, including cost-effectiveness. A cost comparison with Watercare Services was included in our *Water Supply Annual Report 2008/09*	Target 4.2.9	–	All	–	Controlling costs and the water levy (*10-Year Plan 2009-19*, p88)

		QMS/EMS reference		*10-Year Plan 2009-19* reference		
Objectives and targets	**Achievement** and 2009/10 commentary	**ISO 9000**	**ISO 14001**	**Activity**	**Community outcomes**	**Objectives** *10-Year Plan 2009-19*, p86
Target 6.3 – Practice prudent financial management	**Achieved** We capitalise completed capital projects each financial year. We revalue assets regularly, as per the NZ Infrastructure Asset Valuation and Depreciation Guide. We hold an asset contingency reserve fund in relation to the Stuart Macaskill Lakes and distribution network. This insurance investment reserve was $15.8m at 30 June 2010. We have a specific insurance policy to cover additional funding needs if a major natural disaster occurs. All other major assets are covered by insurance policies for replacement costs – these are updated annually	Target 4.2.2, 4.2.7	–	All	–	Asset management principles (*10-Year Plan 2009-19*, p95) Controlling costs and the water levy (*10-Year Plan 2009-19*, p88)
Target 6.4 – Capital expenditure projects are completed on time and within budget	**Mainly achieved** The 2009/10 capital works programme was under budget. Of 100 projects in the programme, three were delayed and re-budgeted to 2010/11, seven increased in scope (and cost) and three others were over budget	Target 4.2.5, 4.2.6	–	Water supply infrastructure Planning for future water demand and supply	–	Asset management principles (*10-Year Plan 2009-19*, p95) Controlling costs and the water levy (*10-Year Plan 2009-19*, p88)
Objective 7 – Safe, healthy and productive workforce						
Target 7.5 – Maintain an active and up to date health and safety management system that helps achieve the requirements of the Health and Safety in Employment Act	**Achieved** Location certificates and building warrants to fitness kept up to date. We reviewed our compliance with HASNO Act requirements for stationary container-test certification for all petrol and diesel storage. The review has generated an Improvement Project (7.52)	–	Target 1.2.3, 1.2.4, 1.2.5, 1.3.3	–	–	–

Financial overview

Summer weather factors have a marked impact on summer water use and annual changes in supply volumes. How much water we need to supply has a direct effect on our financial performance. Between December 2009 and March 2010 the demand for water was at a lower level than any other corresponding period in the past ten years. Although December, February and March were much dryer than is typical, January saw more than twice its long-term average rainfall. The high January rainfall coupled with an absence of long periods of settled weather throughout summer kept demand relatively low.

For the year we supplied 52,939 million litres (ML) of water at an average of 145ML per day, this is 2.4% less than the 2008/09 year, and the lowest volume supplied for any year in the last decade. The proportion of water supplied to each of our four city council customers was very similar to the ratios for the previous year.

Financial highlights

Greater Wellington's Water Supply operation produced a satisfactory financial result as these key measures show:

- Operating deficit lower than budget at $0.502 million (budget deficit $0.645 million)
- Total operating costs comparable to budget – $26.1 million (budget $26.0 million)
- Interest costs held at $2.9 million (budget $3.1 million)
- Debt reduced to $42.2 million (budget $43.0 million)

Operating revenue

We received external revenue from providing a pipeline as a communication duct and this earned $96,000 more than we had specifically budgeted.

The self-insurance funds investment income was $1,158,000, slightly more than anticipated because interest rates increased.

Operating costs

Personnel costs were $602,000 below budget, due to staff movements and additional labour costs being charged to capital expenditure projects over and above the budgets.

Better than forecast pricing for materials and supplies including chemicals, power and rates resulted in reduced spending of $595,000. Modest power cost savings were made as a result of an agreement with the energy supplier over peak load management. In addition, the first stage of the Te Marua mini hydro plant was commissioned and we expect an average energy cost saving of $80,000 per year from this initiative. Chemical prices have reduced back to 2008 levels after the dramatic increases that occured during 2009.

Increased insurance costs of $195,000 were offset by a lower contribution to the water contingency reserve.

Contractors and consultants' costs were $59,000 over budget, primarily because of a water main bursting in the Plimmerton area, which cost $215,000 to reinstate fully. We undertook and completed extensive repairs to the road and wall damaged by the burst.

The depreciation charge was $524,000 over budget due to a revaluation of water assets being brought forward to 1 July 2009.

Finance costs

Finance costs were $174,000 below budget because our opening debt position at 1 July 2009 was less than budgeted.

Capital expenditure

Capital expenditure was $6.04 million, compared with a budget of $7.70 million. This lower-than forecast spending – $1.67 million – was due to revised timing or deferral for several projects, including $1.1 million for the hydro-generation plant at Wainuiomata, $100,000 for investigation of the Upper Hutt aquifer and $100,000 for development of telemetry systems.

Cash flow

Cash flow from operating activities for the year was $7.6 million. This result is unchanged from the previous year.

Financial position

Our financial position is sound, with assets of $350 million (previously $351 million) and liabilities of $47 million (unchanged from 2008/09). Total debt is $42.2 million (previously $42.3 million).

FINANCIAL SUMMARY

	June 2010 Actual $000	June 2009 Actual $000	June 2008 Actual $000	June 2007 Actual $000	June 2006 Actual $000
Operating revenue	25,614	25,729	25,157	24,395	24,130
Depreciation	7,953	7,529	6,241	6,175	6,331
Financial costs	2,923	3,453	3,491	3,268	3,176
All other operating expenditure	15,240	14,863	14,204	15,315	14,682
Operating surplus/(deficit)	**(502)**	**(116)**	**1,221**	**(363)**	**(59)**

Financial statements

COMPREHENSIVE INCOME STATEMENT

For the year ended 30 June

	Notes	2010 Actual $000	2010 Budget $000	2009 Actual $000
Operating revenue				
Water supply levies		23,460	23,460	23,460
Internal revenue		690	726	278
Other revenue (interest & external)		1,464	1,172	1,991
Total operating revenue		**25,614**	**25,358**	**25,729**
Operating expenditure				
Personnel costs		4,071	4,673	3,933
Contractor & consultant costs		1,996	1,937	1,838
Internal consultant costs	2	901	172	886
Interest costs		2,923	3,097	3,453
Depreciation		7,953	7,429	7,529
Loss/(gain) on sale		126	(46)	165
GWRC overhead charge		1,032	1,032	984
Operating expenditure	3	7,114	7,709	7,057
Total operating expenditure		**26,116**	**26,003**	**25,845**
Net operating surplus/(deficit) for the year		**(502)**	**(645)**	**(116)**
Other comprehensive income				
Unrealised revaluation gains/(losses)		–	–	45,310
Other reserve and equity movements		–	–	5
Total comprehensive income for the year		**(502)**	**(645)**	**45,199**

STATEMENT OF CHANGES IN EQUITY

For the year ended 30 June

	2010 Actual $000	2010 Budget $000	2009 Actual $000
Equity as at 1 July	**303,673**	**305,778**	**258,479**
Total comprehensive income for the year	(502)	(645)	45,199
Other reserve and equity movements	–	–	(5)
Equity as at 30 June	**303,171**	**305,133**	**303,673**
Components of equity			
Closing accumulated funds	201,611	203,511	202,190
Closing other reserves	162	162	24
Closing asset revaluation reserves	101,398	101,460	101,459
Equity as at 30 June	**303,171**	**305,133**	**303,673**

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

BALANCE SHEET

As at 30 June

	Notes	2010 Actual $000	2010 Budget $000	2009 Actual $000
Equity				
Closing accumulated funds as at 30 June		**303,171**	**305,133**	**303,673**
Represented by:				
Non-current liabilities				
Public debt	5	42,196	43,039	42,287
Total non-current liabilities		**42,196**	**43,039**	**42,287**
Current liabilities				
Accounts payable		1,638	978	978
Employee entitlements		691	634	634
GWRC treasury payables	4	2,284	–	2,974
Total current liabilities		**4,613**	**1,612**	**4,586**
Total liabilities		**46,809**	**44,651**	**46,873**
Non-current assets				
Property, plant and equipment	6	329,086	329,214	331,232
Intangible assets	7	547	275	275
Investments	8	15,774	15,734	14,478
Total non-current assets		**345,407**	**345,223**	**345,985**
Current assets				
Accounts receivable		2,501	2,453	2,453
Stocks	9	2,007	1,802	1,802
Accrued revenue		65	306	306
Treasury receivables		–	–	–
Total current assets		**4,573**	**4,561**	**4,561**
Total assets		**349,980**	**349,784**	**350,546**
Total net assets		**303,171**	**305,133**	**303,673**

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

FUNDING STATEMENT

For the year ended 30 June

	Notes	2010 Actual $000	2010 Budget $000	2009 Actual $000
Funds from operating activities				
Funds were provided from:				
Levies received		23,460	23,460	23,460
Interest received		1,003	916	966
Other revenue		1,151	982	1,303
		25,614	**25,358**	**25,729**
Funds were applied to:				
Payments to suppliers and employees		15,114	15,523	14,698
Interest paid on public debt		2,923	3,097	3,453
		18,037	**18,620**	**18,151**
Net funds from operating activities	**10**	**7,577**	**6,738**	**7,578**
Funds from investing activities				
Funds were provided from:				
Proceeds from sale of non-current assets		55	52	10
		55	**52**	**10**
Funds were applied to:				
Purchase of non-current assets		208	295	510
Capital projects		6,037	7,708	4,938
		6,245	**8,003**	**5,448**
Net funds from investing activities		**(6,190)**	**(7,951)**	**(5,438)**
Funds from financing activities				
Funds were provided from:				
Appropriations/new loans		6,037	7,708	4,983
Transfer from reserves		24	24	–
		6,061	**7,732**	**4,983**
Funds were applied to:				
Repayment of public debt		6,128	4,853	5,406
Transfer to reserves		162	–	5
Investment additions		1,158	1,666	1,712
Repayment of current account		–	–	–
		7,448	**6,519**	**7,123**
Net funds from financing activities		**(1,387)**	**1,213**	**(2,140)**
Net increase in funds held		–	–	–
Add opening funds brought forward		–	–	–
Ending funds carried forward		**–**	**–**	**–**

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. STATEMENT OF ACCOUNTING POLICIES

A Reporting entity

The Greater Wellington Regional Council is a regional local authority governed by the Local Government Act 2002. For the purposes of financial reporting Greater Wellington is designated as a public benefit entity. The entity, Greater Wellington (GW) Water Supply is part of the Utilities and Services group of Greater Wellington Regional Council. GW Water Supply collects, treats and distributes potable water to four territorial authority customers.

These financial statements do not include any transactions arising from Greater Wellington's parks and forest activities and investments.

B Statement of compliance

These financial statements have been prepared in accordance with the requirements of the Local Government Act 2002 and New Zealand Generally Accepted Accounting Practices (NZ GAAP).

These financial statements are prepared in accordance with New Zealand equivalents to the International Financial Reporting Standards (NZ IFRS), as appropriate for public benefit entities.

Accounting judgements and estimations

The preparation of financial statements in conformity with NZ GAAP requires management to make judgements, estimates and assumptions that affect the application of policies and reported amounts of assets and liabilities, income and expenses. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances. These results form the basis of making the judgements about carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised when the revision affects only that period. If the revision affects current and future periods, it is reflected in those periods.

C Accounting policies

Basis of preparation

The financial statements are presented in New Zealand dollars, rounded to the nearest thousand. The financial statements have been prepared on a historical cost basis except for certain infrastructural assets that have been measured at fair value. The accounting policies set out below have been applied consistently to all periods presented in these financial statements.

The following particular accounting policies, which materially affect the measurement of results and financial position, have been applied.

Budget figures

The budget figures are those approved by the Council at the beginning of the year in the annual plan. The budget figures have been prepared in accordance with NZ GAAP, using accounting policies that are consistent with those adopted by Greater Wellington for the preparation of these financial statements.

Water supply levies

Levies, a statutory annual charge, represent charges to the territorial authorities for the collection, treatment and distribution of potable water. Levies are recognised in the year the charges are raised.

Property, plant and equipment

Property, plant and equipment consists of operational and infrastructure assets. Expenditure is capitalised when it creates a new asset or increases the economic benefits over the total life of an existing asset. Costs that do not meet the criteria for capitalisation are expensed.

The initial cost of property, plant and equipment includes the purchase consideration and those cost that are directly attributable to bringing the asset into the location and condition necessary for its intended purpose.

Property, plant and equipment are categorised into the following classes:

- Regional water supply infrastructural assets
- Regional water supply administrative buildings
- Regional water supply minor equipment
- Regional water supply motor vehicles
- Regional water supply capital works in progress

All property, plant and equipment are initially recorded at cost.

Stocks

Chemical stocks and spares used for maintenance and construction purposes are valued at the lower of cost and net realisable value on a first-in first-out basis. This valuation includes allowances for slow-moving and obsolete stocks.

Depreciation

Depreciation is provided on a straight-line basis on all tangible property, plant and equipment other than land and capital works in progress, at rates that will write off assets, less their estimated residual value over their remaining useful lives. The useful lives have been estimated as follows:

- Regional water supply infrastructural assets – 3 to 150 years
- Regional water supply administrative buildings – 10 to 50 years
- Regional water supply minor equipment – 3 to 15 years
- Regional water supply vehicles – 5 to 10 years

Capital works in progress are not depreciated.

Intangible assets

Software is carried at cost less any accumulated amortisation and impairment losses. It is amortised over the useful life of the asset: 1 to 5 years.

Accounts receivable

Accounts receivable are stated at estimated net realisable value after allowing for a provision for doubtful debts. Specific provisions are maintained to cover identified doubtful debts. All known losses are expensed in the period in which it becomes apparent that the receivables are not collectable.

Goods and services tax

We state all items in the financial statements as net of GST, with the exception of receivables and payables, which we state as GST inclusive.

Employee entitlements

We recognise a provision for employee entitlements as a liability in respect of benefits earned by employees, but not yet received at balance date. Employee benefits include salaries, annual leave and long service leave. Where we expect to pay for the benefits within 12 months of balance date, the provision is the estimated amount that we expect to pay. We state the provision for other employee benefits at the present value of the future cash outflows that we expect to incur. We recognise obligations for contributions to defined contribution superannuation schemes as an expense in the Income Statement as incurred.

Funding statement

The following are the definitions of the terms used in the funding statement:

- Cash means cash balances on hand, held in bank accounts, demand deposits and other highly-liquid investments in which the Utilities and Services group invests as part of its day-to-day cash management
- Operating activities include cash received from all income sources of the Utilities and Services group and the cash payments made for the supply of goods and services
- Investing activities are those activities relating to the acquisition and disposal of non-current assets
- Financing activities comprise the change in equity and debt capital structure

Changes in accounting policies

There have been no changes from the accounting policies adopted in the last audited financial statements.

2. INTERNAL CONSULTANT COSTS AND REVENUE

We have eliminated all significant internal charges between departments of GW Water Supply. The internal consultant costs and revenue lines arise from GW Water Supply's activities with other groups within Greater Wellington Regional Council.

3. OPERATING EXPENDITURE

Operating expenditure comprises payments for transportation costs plus materials and supplies, such as chemicals and power.

4. BALANCE SHEET – PRESENTATION OF WORKING CAPITAL

GW Water Supply does not operate a separate bank account. All transactions are processed through the Greater Wellington Regional Council accounts. Such amounts are described as GWRC treasury payables.

5. LONG-TERM PUBLIC DEBT

	2010 Actual $000	2009 Actual $000
Balance at 1 July	42,287	42,710
New loans	6,037	4,983
Operating cash surplus applied to debt repayment	(6,128)	(5,406)
Balance at 30 June	**42,196**	**42,287**

All public debt obligations are fully secured against the rateable property of Greater Wellington Regional Council. The interest rate charged on the facility at 30 June 2010 was 7.00% per annum (7.00% per annum at 30 June 2009). GW Water Supply uses any operating cash surpluses to retire debt.

6. PROPERTY, PLANT AND EQUIPMENT

2010	Deemed cost $000	Revaluation reserve $000	Accumulated depreciation $000	Net book value $000
Land	2,925	4,941	–	7,866
Water supply infrastructure	236,462	96,458	14,780	318,140
Office equipment	304	–	198	106
Plant and equipment	370	–	315	55
Motor vehicles	1,366	–	976	390
Work in progress	2,529	–	–	2,529
	243,956	**101,399**	**16,269**	**329,086**

2009	Deemed cost $000	Revaluation reserve $000	Accumulated depreciation $000	Net book value $000
Land	2,925	4,941	–	7,866
Water supply infrastructure	231,845	96,520	7,225	321,140
Office equipment	307	–	169	138
Plant and equipment	366	–	292	74
Motor vehicles	1,284	–	893	391
Work in progress	1,623	–	–	1,623
	238,350	**101,461**	**8,579**	**331,232**

The registered plant and machinery valuer John Freeman (FPINZ, TechRICS, MACostE) – a director of CB Richard Ellis – revalued the regional water supply plant and equipment assets at 30 June 2008 using Optimised Depreciated Replacement Cost (ODRC) methodology. The registered valuer Paul Butcher (BBS, FPINZ) – a director of CB Richard Ellis – revalued the regional water supply buildings at 30 June 2008 using ODRC methodology.

We have planned further regular asset revaluations. We define water supply infrastructure assets as those assets that make up the supply and distribution of water and these are valued at their component levels respectively. Greater Wellington Water Supply's asset information system holds detailed valuation information on each item. We have accounted for property, plant and equipment in accordance with NZ IAS 16.

7. INTANGIBLE ASSETS

2010	Deemed cost $000	Revaluation reserve $000	Accumulated depreciation $000	Net book value $000
Computer software	1,389	–	842	547

2009	Deemed cost $000	Revaluation reserve $000	Accumulated depreciation $000	Net book value $000
Computer software	1,022	–	747	275

8. INVESTMENTS

	2010 Actual $000	2009 Actual $000
Asset rehabilitation fund	15,612	14,454
General reserve	162	24
	15,774	**14,478**

The interest rate charged on the facility as at 30 June 2010 was 6.63% per annum (30 June 2009: 7.07% per annum).

9. STOCKS

	2010 Actual $000	2009 Actual $000
Chemicals	339	188
Capital spares	1,668	1,614
	2,007	**1,802**

10. RECONCILIATION OF FUNDS FROM OPERATIONS TO OPERATING SURPLUS

	2010 Actual $000	2009 Actual $000
Reported surplus/(deficit)	(502)	(116)
Add/(less) non-cash items:		
Depreciation	7,953	7,529
Loss/(gain) on sale	126	165
Total non-cash items	**8,079**	**7,694**
Net cash flow from operating activities	**7,577**	**7,578**

11. FINANCIAL INSTRUMENTS

Currency risk

Foreign exchange currency contracts have a fair value of $15,673. Based on a current valuation, a foreign exchange rate movement of plus 10% results in an additional charge of $42,060 and if the rate reduces by 10%, costs reduce by $51,407.

Credit risk

Financial instruments that expose GW Water Supply to credit risk are principally bank balances, receivables and investments. We maintain and monitor on a regular basis a provision for doubtful receivables. We hold bank accounts with New Zealand-registered banks in accordance with GW Water Supply policy.

Concentration of credit risk

GW Water Supply derives the majority of its income from the regional wholesale water supply levy. We collect regional wholesale water supply levies from the region's four metropolitan city councils.

Interest rate risk

The GWRC Internal Treasury unit manages GW Water Supply's debt. Internal Treasury charges a fixed rate of interest, which minimises the exposure of GW Water Supply to interest rate fluctuations.

Fair values

The estimated fair values of all of the financial instruments of GW Water Supply are the book value of those investments.

12. RELATED PARTIES

GW Water Supply contracts other groups of Greater Wellington Regional Council for some operational services. All such transactions are carried out on normal commercial terms.

13. CONTINGENCIES

GW Water Supply had contingent liabilities of $264,000 at 30 June 2010 (nil at 30 June 2009).

14. COMMITMENTS

GW Water Supply leases Level 4 of the Regional Council Centre from Greater Wellington Regional Council on an arms-length basis. As at 30 June 2010 GW Water Supply had capital works programme-related contractual commitments of $1,936,000 (nil at 30 June 2009).

Benchmarking of costs

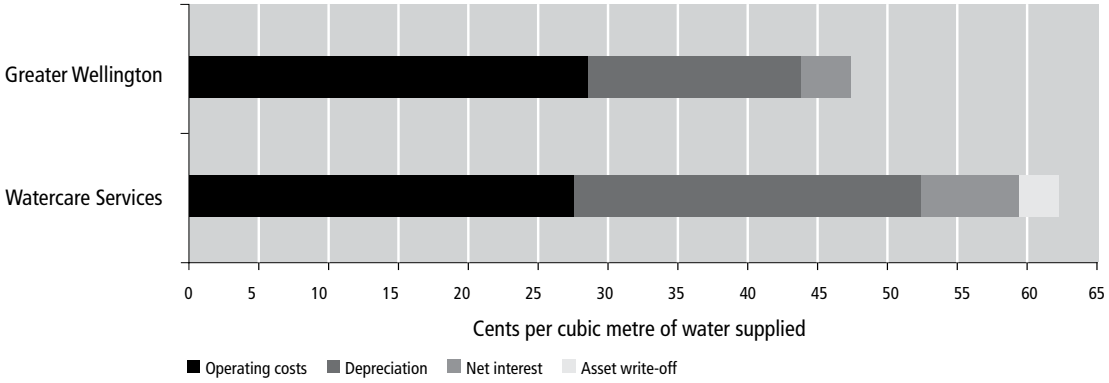
We have shown for comparative purposes the summary costs for water collection, treatment and distribution of GW Water Supply and Watercare Services Limited (Auckland). Watercare is the only other water supplier in New Zealand that sells water to territorial authorities or their agents for on-sale, rather than selling to consumers directly. Although the two organisations work under very different conditions, Watercare provides the most meaningful performance comparison currently available to us. We acknowledge their support in providing comparative information.

We have compared operating costs, depreciation, net interest and the write-down of assets. We have not included any taxation charges, because the structures of the two entities differ.

The total costs for GW Water Supply equate to 47.4 cents per cubic metre of water supplied to the region's four cities. These costs result in a deficit relative to the water levy of 3.1 cents per cubic metre of supply. If we include all income, the deficit is 0.9 cents per cubic metre.

Watercare's equivalent costs equal 62.4 cents per cubic metre of water supplied.

POTABLE WATER SUPPLY COSTS
For the year ended 30 June 2010



Regional Sustainability Committee members

The Regional Sustainability Committee comprises eight members. Its membership for the year to 30 June 2010 was:

Cr Chris Laidlaw (Chair)

Cr Paul Bruce (Deputy Chair)

Cr Judith Aitken

Cr Sally Baber

Cr John Burke

Cr Barbara Donaldson

Cr Rex Kirton

Cr Fran Wilde

Alan McKenzie
Appointee, representing the Department of Conservation, with speaking rights only

Liz Mellish
Appointee, representing the interests of the Iwi of the Wellington region

Water Supply management team

At 30 June 2010, the management team members of the Utilities and Services group with responsibilities for wholesale water supply were:

Murray Kennedy
(Group general manager)

Chris Laidlow
(Water Supply manager)

Tony Shaw
(Development and Strategy manager)

Amanda Cox
(Marketing and Design manager)

Richard Waddy
(Finance and Support manager)

Water, air, earth and energy – elements in Greater Wellington's logo combine to create and sustain life. Greater Wellington promotes **Quality for Life** by ensuring your environment is protected while meeting the economic, cultural and social needs of the community

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