

Water Conservation and Efficiency Plan annual report 2012-13

1. Purpose of report

Report back to Council on water consumption trending and the progress of the Water Conservation and Efficiency Plan (WCEP) activities for 2012-13.

2. Executive summary

Wellington City's gross water consumption continues to trend downwards over the previous year (-2.3%), down from 27,212 million litres in 2011/12 to 26,593 million litres in 2012-13. Based on regional consumption which is at the lowest level in approximately 40 years, despite a 25% increase in population, gross consumption is unlikely to drop any further without significant investment in all areas of conservation, efficiencies and leakage management.

Overall the gross per capita consumption for 2012-13 has been reduced by -2.9% from 377 litres per person per day in 2011-12 to 366 litres per person per day in 2012-13. Domestic consumption is about 220 litres per person per day, down from 225 in 2011-12.

This reduction is summarised as follows:

1. Slight (-1.6%) reductions in overall residential consumption. This level of residential consumption is likely to be the lowest we can expect to get for the resources that we currently devote to water conservation.
2. Slight decrease (-2.2%) in metered commercial consumption.
3. Network improvements continue to generate significant reductions of approximately 4.1% unaccounted-for water losses in the network through the leak detection programme and renewals. The leakage levels appear to be down to an economic leakage level, which means it is unlikely that UFW will decrease further without significant increased resourcing.
4. Due to the 36 day dry spell last summer, water restrictions were put in place between 9 March and 9 April 2013 together with an intensive media awareness campaign. Regionally, water consumption dropped from about 155 million litres per day in the first two weeks of March to about 125 million litres per day in the last two weeks of March although there was 80 mm of rainfall on the 18th and 19th of March which contributed to the demand reduction.

The latest advice from Greater Wellington Regional Council indicates that the region's "savings" in deferred interest costs from funding the next major stage of bulk supply capacity would be between roughly \$2M and \$7M per annum, depending on the option chosen. Wellington City's portion of these savings would be approximately \$1M to \$3.8M per annum.

We have continued to collaborate with councils to share knowledge and maintain consistency in approach, and in activities such as demonstrating the Aquarius education tool, providing water conservation messages in rates bills and providing support to the Home Energy Saver Programme to install water efficient shower heads.

3. Discussion

Wellington City's gross water consumption continues to trend downwards over the previous year (-2.3%). Consumption reduced from 27,212 million litres in 2011-12 to 26,593 million litres in 2012-13. Based on regional consumption which is at the lowest level in approximately 40 years, despite a 25% increase in population, gross consumption is unlikely to drop any further without significant investment in all areas of conservation, efficiencies and leakage management.

The gross per capita consumption for 2012-13 has been reduced by -2.3% from 377 litres per person per day in 2011-12 to 366 litres per person per day in 2012-13. Domestic consumption is about 220 litres per person per day, down from 225 litres per person per day in 2011-12.

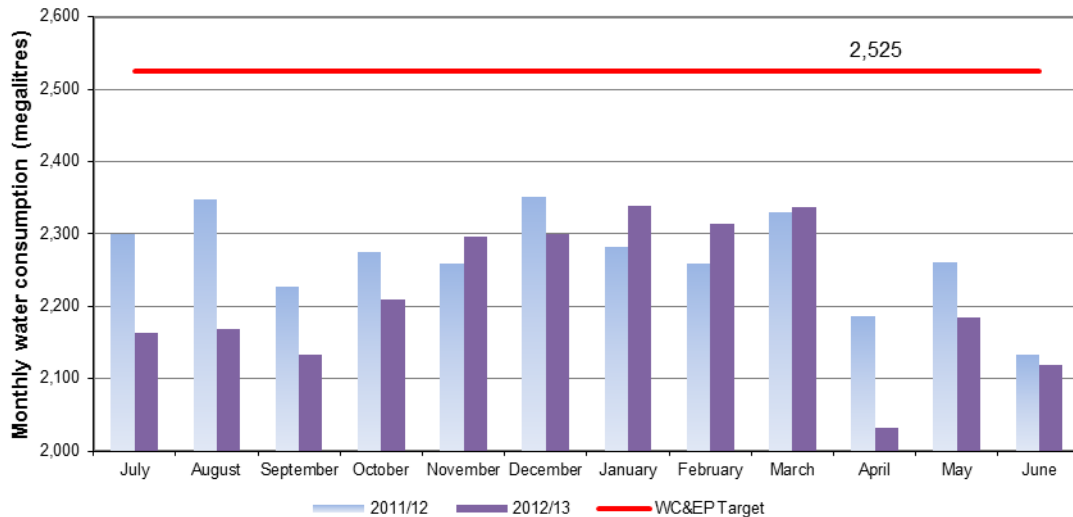
This reduction is made up as follows:

1. Slight (-1.6%) reductions in overall residential consumption, which reduced from 16,254 million litres in 2011-12 to 16,002 million litres in 2012-13. The general trends suggest we have reached the lowest levels of residential consumption for the resources that we devote to water conservation. For example, comparable figures for Auckland indicate about 20% lower residential consumption.
2. Slight decrease (-2.2%) in metered commercial consumption, which reduced from 7,101 million litres in 2011-12 to 6,947 million litres in 2012-13. This is in spite of Taylor Preston's increased water usage required due to the significant extra number of animals processed over the summer drought period.
3. Network improvements continue to generate significant reductions of approximately 4.1% unaccounted-for water losses (UFW) in the network through the leak detection programme and renewals. UFW reduced from 3,313 million litres in 2011-12 to 3,178 million litres in 2012-13. These leakage levels appear to be down to an economic leakage level, which means it is unlikely that UFW will decrease further without significant increased resourcing.

Monthly gross consumption figures (2012-13 and 2011-12)

The following graph shows Wellington city's gross water consumption by month for the 2011-12 and 2012-13 compared to the WCEP target. It shows overall lower consumption with a distinct decrease in April. Gross consumption is well below the initial target. We will review the target in the 2013-14 year.

Wellington City Gross Water Consumption by Month (2011-12 vs 2012-13) and the WCEP Target



The 2012-13 summer dry spell

This summer saw a dry period, with a period of 36 days without rain recorded at Kaitoke (9 February – 17 March). A sprinkler and irrigation system ban was implemented on Saturday 9 March. This was followed by an outdoor water use ban on Saturday 16 March. Regionally, water consumption dropped from about 155 million litres per day in the first two weeks of March to about 125 million litres per day in the last two weeks of March although there was 80 mm of rainfall on the 18th and 19th of March which contributed to the demand reduction.

Unaccounted-for Water (UFW)

Table 1 demonstrates the reduction in UFW for Wellington City over the past five years.

Table 1: Unaccounted-for water for the last 5 years

	Gross Consumption (ML)	Unaccounted-for Water (ML)	Unaccounted-for Water (%)
2008-09	29,134	4,879	16.7%
2009-10	28,511	4,392	15.4%
2010-11	28,441	4,066	14.3%
2011-12	27,212	3,313	12.2%
2012-13	26,593	3,178	12.0%

The percentage of physical losses can be influenced by the age, condition and material types found in the network, the total amount of water used, the system pressure, and the degree of supply continuity. Capacity's on-going leak detection programmes and network improvement have mitigated the impacts of these factors and brought leakage levels down to an economic leakage level. It is unlikely that UFW will decrease further without significant increased resourcing.

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The percentage of administrative losses depends on the degree of effort exerted in identifying illegal connections, repairing meters and managing unauthorised consumption.

Consumption figures for the "top 25" commercial users for 2012-13

Identification and trending of the "Top 25" commercial customers is Activity 6 of the WCEP. This approach can be used to identify leaks on commercial premises (where analysis has been undertaken) or where there may be a need to repair or replace a water meter.

The overall metered commercial consumption has reduced nearly 11% over three years. The top 25 users reduced their consumption by about 8%. As a proportion of total commercial consumption this is an increase of about 2%, which is insignificant and could be due to a variety of reasons. We work with and monitor major users' consumption to help identify problems to be fixed.

Table 2 shows the role of the top 25 commercial customers' water consumption in relation to the overall commercial consumption.

Table 2: "Top 25" Commercial customers as a percentage of overall commercial consumption

	Commercial Consumption (ML)	"Top 25" Commercial Consumption (ML)	"Top 25" Commercial Consumption (%) ¹
2010-11	7,795	3,159	39.67%
2011-12	7,406	2,972	40.13%
2012-13	6,947	2,892	41.63%

Water Conservation and Efficiency Plan activity status

Table 3 indicates the current status of the seven activities in the WCEP.

Table 3: Water Conservation and Efficiency Plan activity status and work planned for 2013-14

Activity	Status	Work in 2012-13 & 2013-14 work streams	Priority
1. Community engagement, education & information programme	Underway	A joint approach with GW and other councils has created a consistent approach. A flyer about water restrictions and the need to conserve water was included in the November 2012 rates demand. Summer outdoor watering restrictions were advertised. Water consumption dropped from about 155 million litres per day in the first two weeks of March to about 125 million litres per day in the last two weeks of March. Capacity contributed to the WCC "Home & Dry" energy and water audit programme, which installed about 250 low-flow shower	High (2)

¹ As a percentage of gross consumption

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	Activity	Status	Work in 2012-13 & 2013-14 work streams	Priority
			<p>roses and 180 aerator inserts.</p> <p>The “Aquarius” education tool was demonstrated at two schools and three regional events during the year.</p> <p>In 2013-14 we intend to encourage greater use of the Aquarius tool, have greater liaison with GW and initiate new mechanisms for community engagement.</p>	
2.	Establish a water supply bylaw	Completed	<p>The Water Bylaw came into effect in June 2012.</p> <p>An amendment to the bylaw to enable restrictions to be enacted by the Chief Executive was agreed by Council on 1 August 2013.</p>	Medium (3)
3.	Analysis and publication of Wellington’s water consumption figures	Underway	<p>Analysis of 2012-13 consumption has been done at a high level – these figures are being drafted into an article for the Our Wellington Page, intended for immediate release and to be repeated in early summer.</p>	Medium (1)
4.	Engage retailers and service providers in order to advance water efficiency and conservation goods and services.	Not started	<p>The Water Efficiency Labelling Scheme (WELS) standard is being amended to include definitions of models for WELS products and to mandate the registration of flow controllers. Comments on the draft amendment closed 20 May 2013. We are monitoring changes. In 2013-14 we will consider how this will affect any co-promotion activity, as we need to work with GW and other councils on this. We also intend to investigate other ways of engaging with retailers.</p>	Medium (4)
5.	Investigating the scope and options for supporting the implementation of water conservation initiatives.	Started	<p>To date work in this area has been limited to the removal of the need for a building consent for rainwater tanks that are not connected to the building’s plumbing.</p> <p>Financial support was given to the Home Energy Saver Programme to install water efficient shower heads and water aerators.</p> <p>Some research has been done with councils on the effectiveness of distributing shower-timers, aerators and shower flow-measuring bags. We will continue to collaborate with councils to share knowledge and maintain consistency in approach.</p>	Low
6.	Targeting “top 25” commercial users to establish opportunities to make their operation more water efficient.	Underway	<p>Analysis of two years of consumption within this group and early discussions with three of the top consumers has led to installation of equipment monitoring daily use and providing alerts when unusual patterns occur.</p> <p>In 2013-14 we intend to visit these top three consumers to discuss possibilities for increasing water efficiency.</p>	High (1)

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	Activity	Status	Work in 2012-13 & 2013-14 work streams	Priority
			A plan will be developed to engage with the remaining high users in 2013-14.	
7.	On-going analysis of active leak detection and cost / benefit for pressure management within the public network.	Underway	<p>Leak detection surveys were completed in 51 out of the 70 zones in the 2012-13 year. The budget for new meter installations was deferred to 2015-16 but 1 new zone in Karori and 2 new zones in Tawa were created by changes in valving.</p> <p>Zones are selected for leak surveys at least once every two years by analysing the area meters and suburban usage trends. Additional leak surveys are completed for zones with high usage. The CBD area is surveyed once a year.</p> <p>The cost of finding and fixing leaks is about one third of the value of the water saved. We have now reduced leakage to the economic leakage level where the rate of leakage is unlikely to drop any further without uneconomic further expenditure.</p>	Medium (2)

Financial considerations

The work planned over the following year is contained within existing budgets.

4. Conclusion

Although Wellington's water consumption continues to trend downward it is clear that there are more gains that can be made in both the communication of the water conservation and efficiency message and the levels of consumption in the commercial sector.

The dry spell showed that consumers can reduce their use in an emergency and they do respond to intensive media campaigns.

Overall the consumption continues to fall - however it is important that work continues so that a wider base of water conservation and efficiency efforts is created to enable a sustainable level of consumption across the city.

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