

ANALYSING THE AUCKLAND WATER ANNUAL PERFORMANCE REPORT: HIGHLIGHTING EFFECTIVE MANAGEMENT PRACTICES

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ABSTRACT

The Auckland Water Group (AWG) has been actively involved in the development and publication of the Auckland Water Industry Operators (AWIO) Annual Performance Review Report for the past 6 years. Participants of this annual performance review project were extended to all water utility operations within the Auckland Region including organisations which are not currently members of AWG. The group represents a critical component of the New Zealand Water Industry comprising:

- 1.42 million people served
- \$667 million turnover
- 141 million cubic meters of water produced
- 144 million cubic meters of wastewater produced
- 22,135 km of pipes
- 870 full time employees
- Over 1000 contractors.

The annual performance review is a voluntary collaborative initiative involving eleven different water organizations in the Auckland Region, reporting their performance across key areas, including environmental, social, cultural and economic. The main objectives of the AWIO Report are (AWG 2008):

- Bringing greater transparency and accountability to the performance of the water industry;
- Stimulating “competition by comparison”;
- Providing incentives for organisations to improve their performance relative to others;
- Informing customers about the service levels they receive.

Recently the AWG published its 2007/2008 Annual Performance Review Report, highlighting achievements of the participants for the 2007/2008 financial year. A series of performance measures were collected from participants, the majority of which were adopted from performance measures of previous reporting years for uniformity. The presentation of these performance measures in the latest report was improved to flow more logically within the four main categories of Environmental, Customer Service, Quality of Service and Cost and Value.

This paper will provide a brief review of the AWG Performance Report to highlight the critical performance measures that are essential for effective utility management. The paper will also identify the core attributes that could provide a succinct indication of where efficiently managed water utilities should focus and what they should strive to achieve, taking into consideration the Auckland example.

KEY WORDS

Utility, performance, efficiency, effectiveness, transparency, benchmarking, continuous improvement, best practices

INTRODUCTION– HOW DO YOU MEASURE GOOD PERFORMANCE?

How do water and wastewater utility customers know they are getting good performance; that their utility providers are giving them best value for money? The short answer is they don't, unless they can see how their utility compares with their counterparts in other areas/centres.

The Auckland Water Group (AWG) led the way in New Zealand with its first benchmarking publication of the Auckland Water Industry Operators (AWIO) Annual Performance Review Report in 2004. A total of eleven organisations participated in this benchmarking exercise to bring greater transparency and accountability to the services they provide. This included members and non-members of utility operators in the Auckland Region. The objective was to stimulate competition by comparison, such that incentives were provided for organisations to improve their performance relative to others. It has now become an annual exercise that objectively compares the performance of participating water companies in terms of their core results for Environmental, Customer Service, Quality of Service and Cost and Value.

The AWG Performance Report contains data for 134 performance indicators presented in a series of comparative tables and figures supported by explanatory comments. In addition, each organisation provides a summary overview of its activities during the reporting period including highlights, achievements and key projects. The performance measures adopted in this annual review were based mainly on the Water Services Association of Australia (WSAA) Benchmarking Model, with finer adjustments in definition through the years to adapt to local requirements and the changing needs of the industry.

This annual performance review in the Auckland region is a good example to demonstrate the benefits of benchmarking.

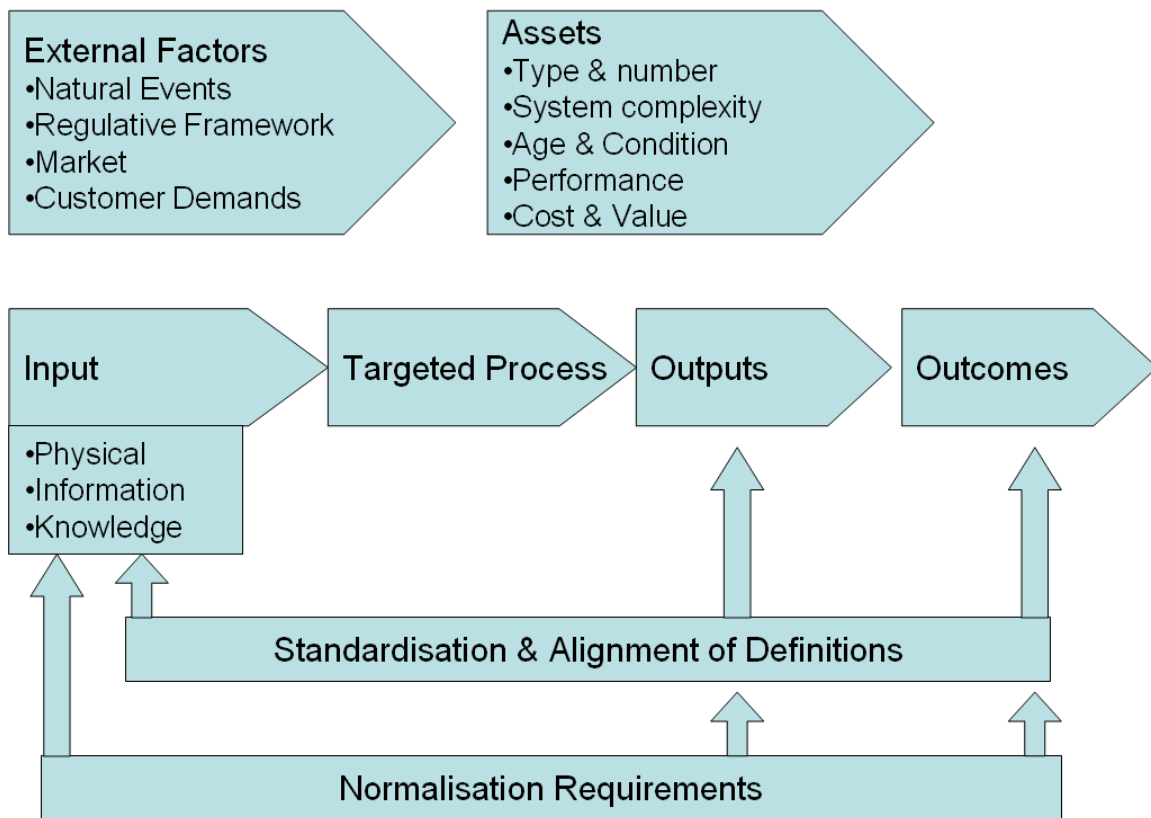
1 BENCHMARKING – ADOPT, ADAPT, IMPROVE

Benchmarking is a valuable tool for organisations to identify best practice, and determine whether or not they are performing at an appropriate level.

Benchmarking should not be regarded as copying what others do but rather learning from them and adapting superior practices that improve the overall performance of the business. The philosophy of benchmarking is to *adopt, adapt, and improve*. It involves the continuous process of measuring performance and comparing against relevant best practices, with the aim of continuous improvement, within and across organisations and industries (GHD 1999). Analysing results identifies what works in other organisations. Understanding why it works can help determine if the principle might apply to your organisation. Through benchmarking, organisations are exposed to opportunities to move forward from dated work practices to a situation where responsiveness to existing customer needs; staff development and job satisfaction; asset performance and maintenance; and overall corporate goals are being tangibly satisfied.

Best Practice benchmarking can be on a national or international basis. The aim is to ensure that operating practices are comparable with the “best”, thus maintaining a competitive market position. Benchmarking outputs should be linked to business process, while outcomes arise from matching customers/clients needs and the level to which products and services have satisfied those needs (GHD 1999). Figure 1 outlines the balancing of business system parameters to achieve the desired outcomes.

Figure 1: Benchmarking – Balancing the Business System Parameters



It is important to focus on critical measures when it comes to benchmarking as the magnitude of options available can be tremendous. Being focused can identify best practice examples of superior performance and also identify performance gaps. Performance measures can be qualitative or quantitative. Benchmarking qualitative measures can identify effectiveness improvements and benchmarking quantitative measures can identify efficiency.

It is essential that benchmarking compares like to like. The data with which we are benchmarking must be developed using identical definitions, processes and calculations to derive the figures by which we compare performance. The performance measures definitions were reviewed every year and revised to adapt to local requirements and the changing needs of the industry. These changes were achievable because the captured data and their definitions from previous years were retained for comparative analysis if required.

2 BENEFITS OF THE AUCKLAND ANNUAL PERFORMANCE REVIEW

The Auckland annual performance review used transparency as an instrument to drive improved efficiency and effectiveness in water service providers in the Auckland Region. Participants benefit from it by gaining a better understanding of all aspects of their business, leading to opportunities for improvement.

2.1 TRANSPARENCY HELPS TO DEMONSTRATE VALUE FOR MONEY

Water-related service providers are often viewed with some scepticism by their customers who perceive them as monopolies. In addition the customers often fail to realise the costs involved in providing quality services. Transparency is therefore essential to demonstrate accountability of service providers. With respect to the Auckland example, transparency in pricing and costs demonstrated the value for money to customers, and transparency in environmental performance demonstrated the environmental stewardship of water service providers.

2.1.1 TRANSPARENCY OF PRICING AND COSTS IN AUCKLAND

The value of water services is apparent when comparing the average annual water and wastewater charges with other services, such as telecommunications and petrol. Water charges are at least half that of telecommunication charges, and a third of petrol.

The regional average charges for water and wastewater services can be compared against the Consumer Price Index (CPI). The cumulative CPI increase from 1999 to 2007/08 is 20.6% and the cumulative nominal cost increase in the weighted average standard residential water and wastewater bill is only 17.2% over the same period. Comparing the CPI increase with the residential water and wastewater price increase, there was an effective price decrease of 3.4% across the region over the past nine years.

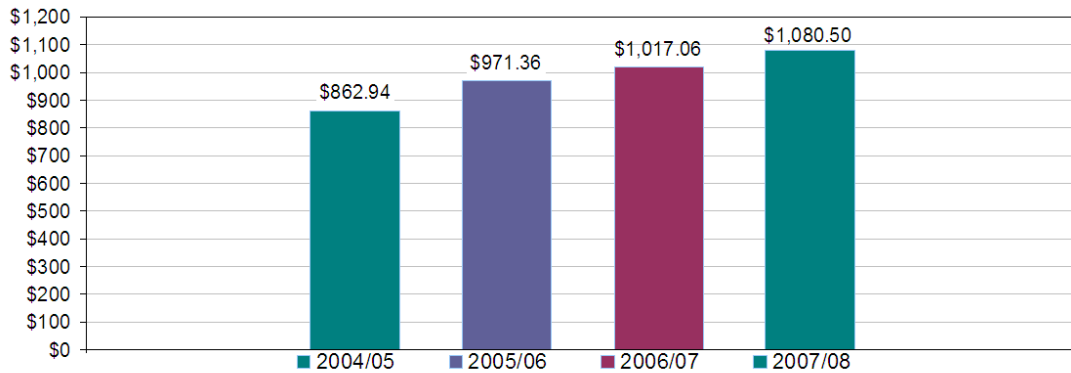
The price of water in Auckland can be broken down into three components – Minimum Charge, Fixed Charge and User Charges. The seven retail water supply organisations in the region each have their distinct pricing mechanism utilising these three components. To be able to compare the price between organisations, two measures were reported, namely the “Annual Bill based on 200 m³/yr Consumption” and the “Property Weighted Average Annual Bill based on 200 m³/yr”.

All water charges in Auckland are based on consumption measured by water meters. The property weighted average annual bill for the region based on 200 m³/yr consumption is \$283.20 this year, up from \$270.05 last year.

Similarly, the price of wastewater in Auckland can be broken down into five components – Minimum Charge, Fixed or Volumetric Charge, Average Annual Rates or Fixed Uniform Annual Charge. From this the performance measure “Property Weighted Average Annual Bill based on 200 m³/yr Water Consumption” is calculated, which is \$400.90 this year, up slightly from \$400.04 last year.

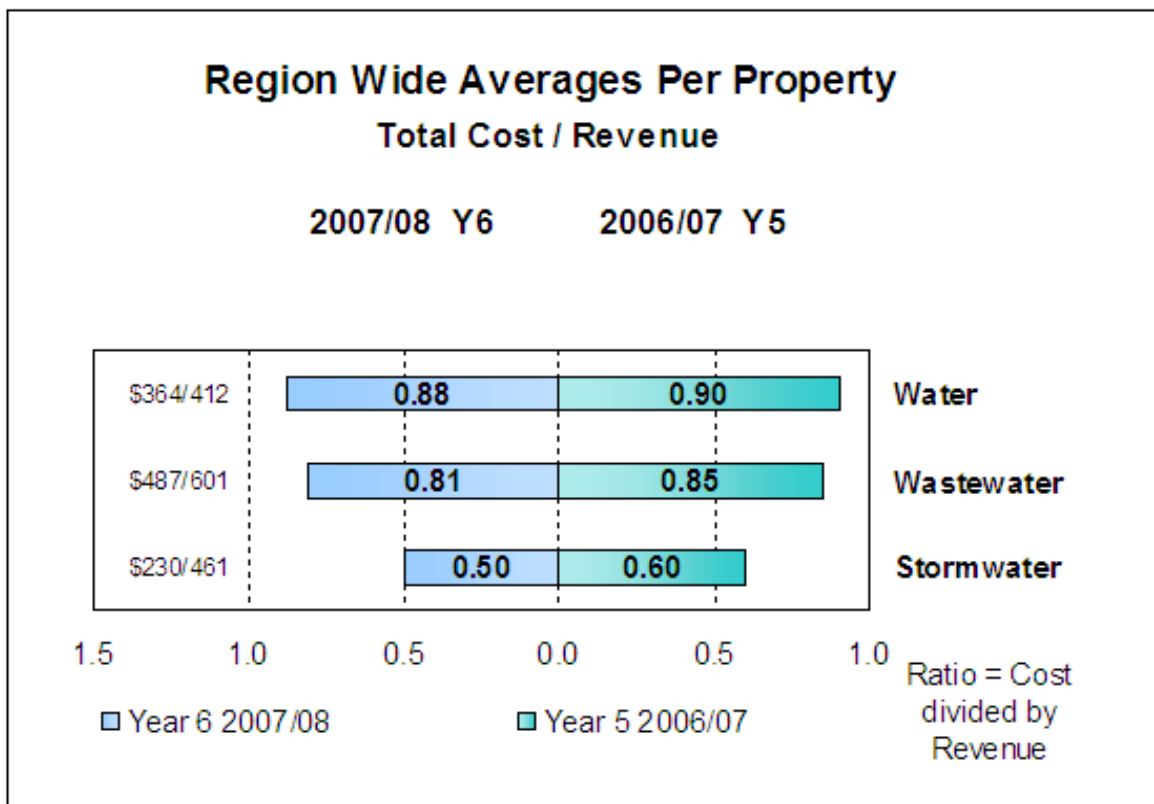
As the public’s demand for world class infrastructure increases, so do the costs associated with building and maintaining the infrastructure. In line with the Government’s commitment to maintaining and growing New Zealand’s infrastructure, the Auckland water industry has planned for new infrastructure to be built, providing relief for other sectors as projects progress. Organisations in the Auckland water industry continue to balance infrastructure maintenance with cost and risk. Optimising the costs of operating older systems, adopting new technologies and minimising replacement costs continue to be a challenge, as indicated in Figure 2 below, showing the overall regional cost trends for water, wastewater and stormwater services.

Figure 2: Costs for water, wastewater and stormwater services in the Auckland Region



Overall trends were further broken down for water, wastewater and stormwater costs, comparing the ratio of cost to revenue per property, as indicated in Figure 3 below.

Figure 3: Cost/Revenue Ratio



The above region-wide overview shows the average per property cost/revenue ratios e.g. 0.88 means that average costs were 88% of revenue. The **Total Cost** includes Operating Cost + Depreciation + Interest. The **Total Revenue** represents the total income i.e. operating revenue + developer revenue.

Ideally the ratios should be less than 1 (i.e. total costs are less than 100% of revenue).

The cost to revenue ratios can be further examined for each organisation to determine where available resources can be better utilised.

From a regional perspective, the ratios have improved from last year. There may be many factors contributing to the lower ratios in stormwater compared to water and wastewater services, one of which is the association of stormwater to roading projects. The overview chart highlights the need to focus on stormwater, where extra funding is available and currently underutilised.

2.1.2 TRANSPARENCY OF ENVIRONMENTAL PERFORMANCE IN AUCKLAND

From the total of 53 data measures collected this year in the environmental category (AWG 2009), 22 measures were selected for detailed comment in the AWG Performance Report, mainly concerning clean beaches, sewer overflow events and infringement notices.

The Auckland City isthmus has 256 km of combined sewers (down from 321 km in year 2004). These combined sewers are progressively being separated into dedicated stormwater and wastewater systems that will provide significant environmental improvements to the receiving waters. Project CARE, a programme of wastewater system improvements on the North Shore, will also reduce the number of overflows to streams and beaches in that area.

Under Part XII of the Resource Management Act, Auckland Regional Council or Environment Waikato can issue infringement notices, including enforcement orders and abatement notices, upon any person or organisation that contravenes environmental standards or provisions of the Act.

All 11 organisations reported zero infringement notices received during the reporting year (AWG 2009).

2.2 EFFICIENCY AND EFFECTIVENESS

It is important to differentiate between efficiency and effectiveness. Efficiency is “doing things right” and effectiveness is “doing the right things”.

With respect to the Auckland example, the reduction in water consumption achieved, the provision of reliable services, and the commitment of the Auckland industry to continuous improvement demonstrated efficiency and effectiveness in the industry operators.

2.2.1 WATER CONSUMPTION – CONSISTENT REDUCTION IN THE AUCKLAND REGION

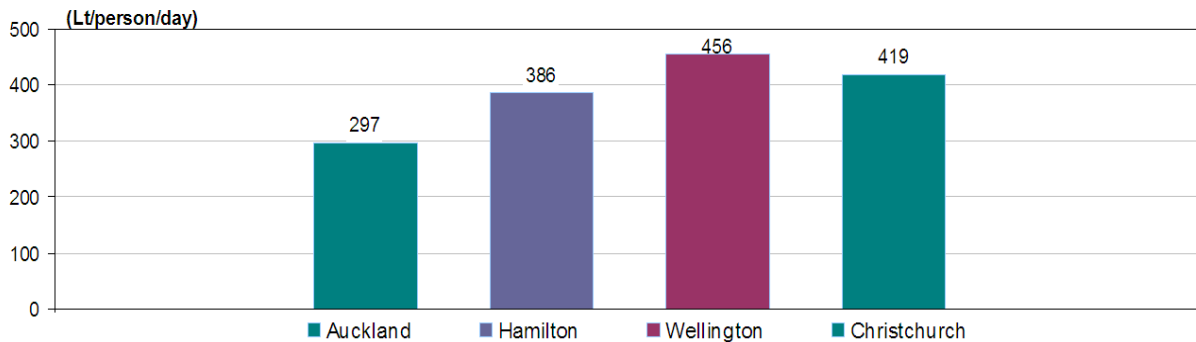
Water consumption per capita across the region has decreased consistently over the past four years (AWG 2009). This is an important indicator emphasising water demand management to defer the capital expenditure to develop a new water source for the Auckland region. The cost and timing of developing this new water source was estimated at \$300 million in 2026 if water demand continues to grow in line with current population and water use forecasts. The main factors influential in deferring this expenditure beyond 2026 would be the effective use of water resourced from current sources, and the efficient supply of water in utility operations.

Although water supply has increased marginally over the last year at +0.4%, the population increase has been greater. A new measure of average daily consumption in litres per person per day, supersedes the previous measure of litres per connection per day in the 2007/08 performance review, as it is more indicative of demand per population. The general reduction in overall water consumption over the past four years is within the “From the Sky to the Sea” regional target of 4.5% gross per capita reduction from 2004 through to 2024.

Comparing the Auckland performance data from the AWIO report against the Water New Zealand latest performance benchmarking for eight larger provincial cities show that Auckland has the lowest daily water consumption per capita of the four largest New Zealand cities, as shown in Figure 4 below:

Figure 4: Per capita demand comparisons for the four largest New Zealand cities

Gross per capita water consumption - Regional Comparisons
Average Daily consumption, litres per person



Using resources wisely is a measure of effectiveness and one indicator is the reduction of non-revenue water and water loss. Non-revenue water is a measure of the volume of water in the water distribution network that is not billed. It can be expressed as the volume for each organisation and also as a percentage of the Total Bulk Water Supplied.

Water Loss refers to the volume of treated drinking water that is actually “lost” from the organisation’s reticulation system before delivery to customers. This is a measure of efficiency. The water loss measure was previously expressed in terms of cubic metres per 100 kilometres, but has been changed this year to litres per connection per day. Losses can be ‘real’ i.e. water that escapes from the pipe system through leaks and bursts, or ‘apparent’ i.e. errors in meter readings, or unauthorised use.

Levels of leakage can be shown in different ways. Methods involve calculating (AWG 2009):

- The quantities that are lost over the total length of pipe in the system – the more pipes there are the harder it can be to find leaks
- The quantities lost over the number of properties supplied – the greater the number of connections to properties, the higher the leakage is likely to be as experience shows that losses occur at joints. Therefore the higher the number of joints the higher the leakage.

Using these measures to compare with others around the world indicates that Auckland has lower leakage levels than many cities. The majority of the Local Network Operators, with the exception of two, have had significant reductions in non-revenue water and real system water losses over the past year (AWG 2009).

2.2.2 SERVICE RELIABILITY – A KEY PERFORMANCE INDICATOR OF EFFICIENCY

Two specific indicators of service reliability are “water interruption and duration” and “sewer breaks and chokes”.

As with any reticulated product a certain number of unplanned interruptions to supply will occur during the year. In the case of water supply, this will usually involve a burst main either by natural causes or accidental breakage.

The water interruptions measure has changed this year (from interruptions per 1000 properties) to interruptions per 1000 connections (AWG 2009). This measure is more accurate, based on the actual number of interruptions, rather than the number of properties affected, which previously needed to be estimated.

Region-wide, the number of reported interruptions has decreased significantly over past years, with only two organisations reporting a marginal increase. Watercare, as the wholesale bulk water provider to much of the region, had no unplanned interruptions affecting any properties over the last two years.

As in the water supply network, a certain level of unplanned ‘interruptions’ has to be expected with in-ground sewer reticulation. Ground movement or surface loading accounts for most pipe breakages and tree root intrusion is the biggest cause of blockages or ‘chokes’ that may or may not result in an overflow or spill.

Excluding Watercare (bulk wastewater carrier) Auckland wastewater service providers reported an average of 7.5 unplanned interruptions per 1000 properties, down from 9.0 in the previous year.

3 CONCLUSIONS

The Auckland Water Group members continue to improve their performance as they benchmark themselves against each other and their international counterparts. Although members continue to service their own regions in ways that suit their customers, they are also working together in areas they have in common.

The Auckland annual performance review used transparency as an instrument to drive improved efficiency and effectiveness in water service providers in the Auckland Region. Participants benefit from it by having better understanding of their business, leading to opportunities for improvement. This annual performance review in the Auckland region is a good example to demonstrate the benefits of benchmarking.

Transparency in pricing and costs demonstrated the value for money to customers, and transparency in environmental performance demonstrated environmental stewardship of water service providers. The reduction in water consumption achieved, the provision of reliable services, and the commitment of the Auckland industry in continuous improvement demonstrated efficiency and effectiveness in the industry operators.

Continual improvement was also evidenced in the fine-tuning of measures in the latest AWIO annual performance review report e.g. new water consumption measure of litres per person per day superseding previous measure of litres per connection per day; water interruptions measure changed from interruptions per 1000 properties to interruptions per 1000 connections and water loss measure previously expressed in terms of cubic metres per 100 kilometres, changed this year to litres per connection per day.

Financial viability requires understanding the full life-cycle of the utility to establish and maintain an effective balance between long-term debt, asset values, operations and maintenance expenditures and operating revenues (Effective Utility Management Steering Committee 2007). From this, pricing mechanisms can be established, consistent with community expectations and acceptability, adequate to recover costs, provide for reserves and plan and invest for future needs. The purpose of benchmarking is not to control but to improve the processes and practices, allocating resources in order to enhance the productivity, effectiveness and efficiency of an organisation.

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