Queensland's Urban Potable Water and Sewerage Benchmarking Report 2011/12

This is the second annual Urban Potable Water and Sewerage Benchmarking Report to be produced by ***qldwater*** for Queensland. It contains a suite of indicators and benchmarking data for all QLD urban water/sewerage utilities that reported data via the Statewide Water Information Management system (SWIM) in 2011/12. The data is presented in figures which provide comparative information to enable each Service Provider to benchmark its performance against that of similar sized Service Providers.

The report is divided into two areas (i.e. Sewerage Services and Potable Water Supply) and looks at aspects of capacity and viability, customer service, condition of assets, and performance. Data from the previous (2010/11) reporting year is provided in Appendix 1 for comparison with data provided here. Trend analysis will be undertaken in future years.

qldwater strongly supports the use of performance reporting and benchmarking to promote transparency and assist Service Providers in the continuous improvement of the services they provide to their community. Performance reporting and benchmarking provides valuable comparative data. This data enables each Service Provider to critically examine its performance by investigating trends in its indicators and by benchmarking these against those of similar Service Providers, and particularly against high-performing Service Providers and implementing the best-practices identified. This report also provides a strong foundation for negotiation with the State which is currently considering mandatory performance indicators as part of a broader suite of regulatory simplification.

External factors potentially influencing performance

There are a wide range of 'external' factors which can influence a Service Provider's performance. These factors include things such as:

- climate (e.g. rainfall patterns, evaporation, temperature)
- geography (e.g. geology (i.e. soil reactivity (shrink-swell)), typology (i.e. mountains, flood plain)
- size (e.g. population, number of connections, size and number of schemes each Service Provider manages, area covered)
- location (e.g. SEQ vs. Western Qld, dense urban vs. rural urban)
- services provided (e.g. water treatment vs. treated water imported from other supplier)
- water supply (e.g. river vs. dam vs. bore water may require different treatment, distance to supply)
- asset age (e.g. old assets may require more maintenance/repairs and be less efficient)
- regulatory requirements (e.g. fluoridation, sewerage treatment levels)

It is important to take into account these factors when comparing performance with other Service Providers.

One way for Service Providers to limit the effects of these external factors is to benchmark their own performance indicators over time at the level of the individual scheme. This is facilitated using the anonymous 'Comparative Report' function in SWIM. It must be remembered though, that there may be changes in the external factors over time as well (e.g. wet vs. dry years).

Service Provider size as a factor in assessing Statewide 'benchmark' performance

It is important to note that the figures for smaller Service Providers may be skewed towards higher values for indicators that standardise data by 'per property', 'per connection' or 'per 100 km of mains'. This is due to these smaller Service Providers having very low populations and relatively short main lengths which means that even small figures can be magnified when compared with larger organisations. This means that these indicators can result in small organisations comparing poorly with larger ones and benchmarking is only useful against Service Providers of a similar size. This is particularly problematic for Service Providers with numerous small schemes which consequently may appear as a poor-performing Service Provider when data for the whole organisation is combined. Performance of smaller Service Providers should be further examined at the scale of individual schemes.

Sewerage Services

Capacity and viability

The total reported capital expenditure on sewerage infrastructure in Queensland was $471,225,999 for 2011/12. The Statewide median average capital expenditure was $237 per property. In addition, the total reported operating costs to collect and treat sewerage from across the State was $417,452,364 at a median average cost of $416 per property for the State. The median value of the typical residential bill for sewerage services was $516.

Capital expenditure

Capital expenditure will vary markedly from year-to-year, particularly for Service Providers with a smaller number of sewerage assets, but still provides a snapshot of investment across the industry.

Operating costs

The 'operating cost (sewerage) per property' is a good indication of the routine activities of a Service Provider. The components of operating cost (operation, maintenance and administration) are:

- Charges for bulk treatment/transfer of sewerage
- Salaries and wages
- Overheads on salaries and wages
- Materials/chemicals/energy
- Contracts
- Accommodation
- All other operating costs that would normally be reported
- Items expensed from work in progress (capitalised expense items) and pensioner remission expenses
- Competitive neutrality adjustments, they may include but not be limited to, land tax, debits tax, stamp duties and council rates

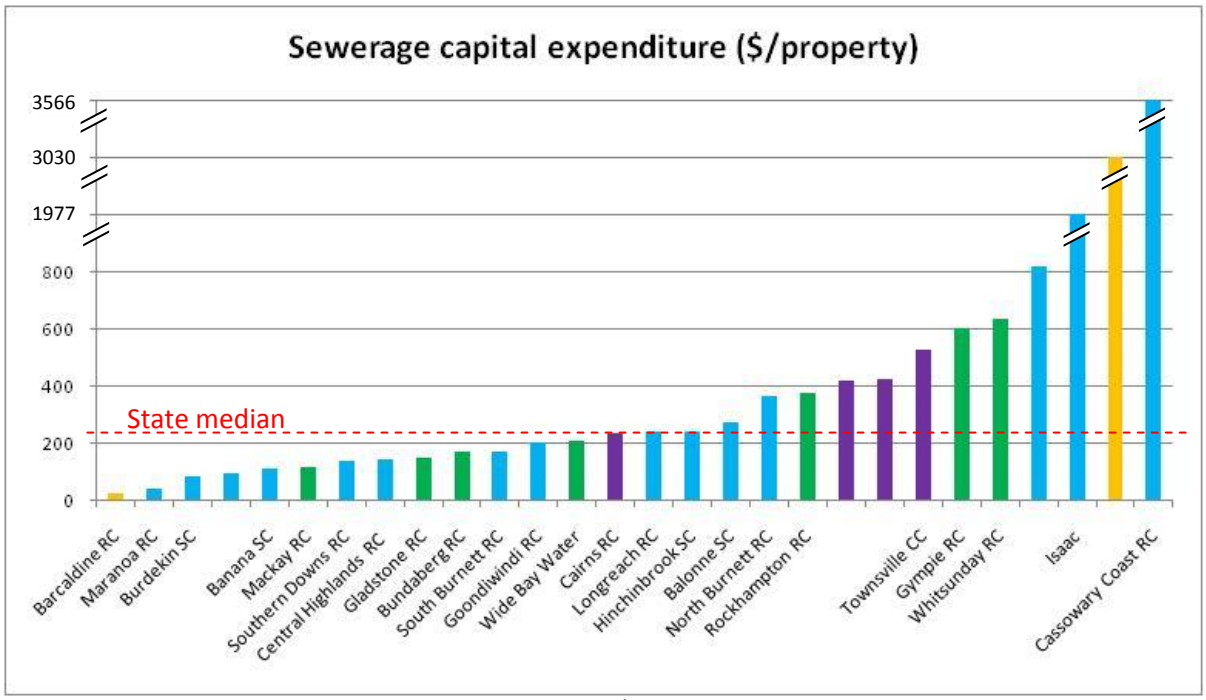

Figure 1. Sewerage capital expenditure ($/property)[1].

Note: This figure shows ranked values of sewerage capital expenditure ($/property) for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 sewerage connections (**orange**), medium SP with between 1,000 and 9,999 sewerage connections (**blue**), large SP with between 10,000 and 50,000 sewerage connections (**green**), and extra-large SP with more than 50,000 sewerage connections (**purple**). The 2011/12 Statewide median value for sewerage capital expenditure is $237 per property. Each bar represents one SP.

The type of treatment as well as the level of treatment (related to the discharge requirements) of sewerage will affect the operation costs. With higher levels of sewerage treatment come associated increases in other costs, particularly energy.

Topography will also affect operation costs through the amount of pumping needed to move the sewage to the treatment plant. High levels of sewage pumping increase energy costs.

Service Providers with a number of separate sewerage systems, larger areas of low density service (i.e. low numbers of properties serviced per km of main) and those with higher numbers of, and smaller, sewerage treatment plants will generally need more employees to effectively manage their systems and thus have higher costs.

Maintenance costs of sewerage infrastructure are related to several factors, such as the age and condition of the assets, the soil reactivity (shrink-swell rating) and the density of connected properties.

Typical residential bill

The 'typical residential bill – sewerage' is the dollar amount of the typical residential sewerage bill for the financial year, including special levies. If the bill is cost-reflective and a Service Providers' operations are run as effectively and efficiently as possible then the typical residential bill should be minimised so that the Service Provider is providing value for money to the community. The aim for a

[1] Note: figures for smaller SPs may be skewed towards higher values due to their very low populations.

Service Provider should be to provide agreed levels of service at the lowest, but sustainable (including recovery of renewal and capital replacement costs), price.

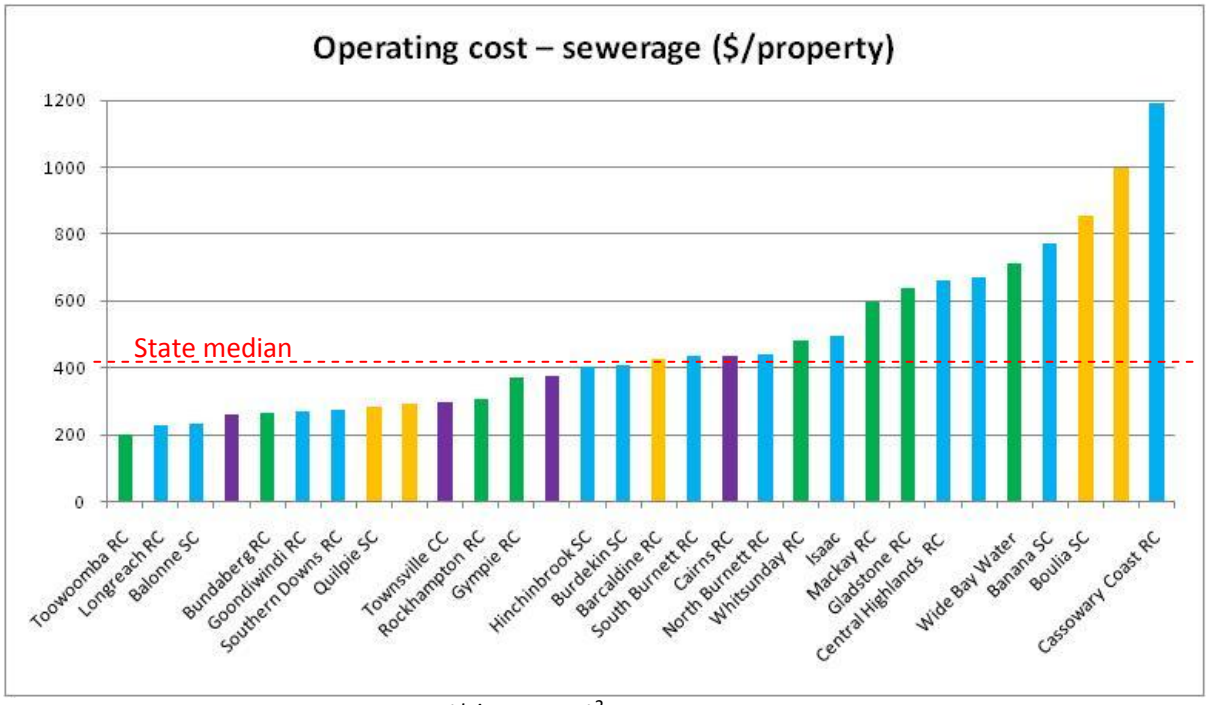

Figure 2. Operating costs – sewerage ($/property)[2].

Note: This figure shows ranked values of operating costs – sewerage ($/property) for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 sewerage connections (**orange**), medium SP with between 1,000 and 9,999 sewerage connections (**blue**), large SP with between 10,000 and 50,000 sewerage connections (**green**), and extra-large SP with more than 50,000 sewerage connections (**purple**). The 2011/12 Statewide median value for operating costs – sewerage is $416 per property. Each bar represents one SP.

Economic real rate of return

The financial performance of Service Providers is often intricately meshed with that of the owner councils. This makes determining the financial performance of the sewerage operations, as an individual business unit, hard to assess.

In addition, an important distinction must be made between the category of (usually large) councils that can be categorised as financially sustainable and the small (and often) remote councils. In the latter, small populations (and thus rate bases) can mean that capital investment in sewerage infrastructure is difficult or impossible and relies on funding assistance and subsidies from other council income or other sources. In some cases even operating costs can be difficult to manage.

One comparator of financial performance is the Economic Real Rate of Return (ERRR). The ERRR (sewerage) is the revenue from sewerage business operations less operating expenses for the sewerage business divided by written down replacement cost of operational assets. An appropriate target value for ERRR is difficult to determine for Service Providers but should be at least positive with a margin to allow for return on capital (NWC, 2011). OTTER (2011) suggested that an ERRR of around 7% was required for full cost recovery in the Tasmanian urban water industry while NWC (2011, p. 386) questioned the appropriateness of NWC and NSW Office of Water definitions of full cost recovery as an ERRR “greater than or equal to zero”.

[2] Note: figures for smaller SPs may be skewed towards higher values due to their very low populations.

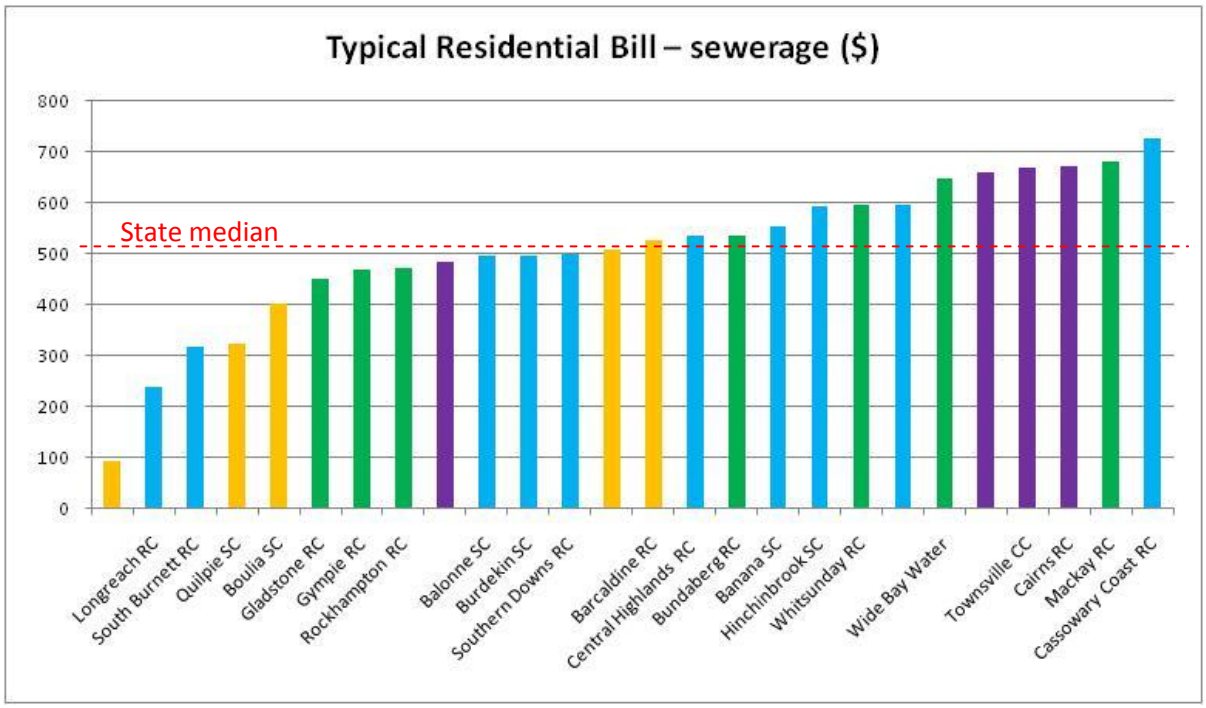

Figure 3. Typical residential bill – sewerage ($).

Note: This figure shows ranked values of the typical residential bill – sewerage ($) for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 sewerage connections (**orange**), medium SP with between 1,000 and 9,999 sewerage connections (**blue**), large SP with between 10,000 and 50,000 sewerage connections (**green**), and extra-large SP with more than 50,000 sewerage connections (**purple**). The 2011/12 Statewide median value for the typical residential bill – sewerage is $516. Each bar represents one SP.

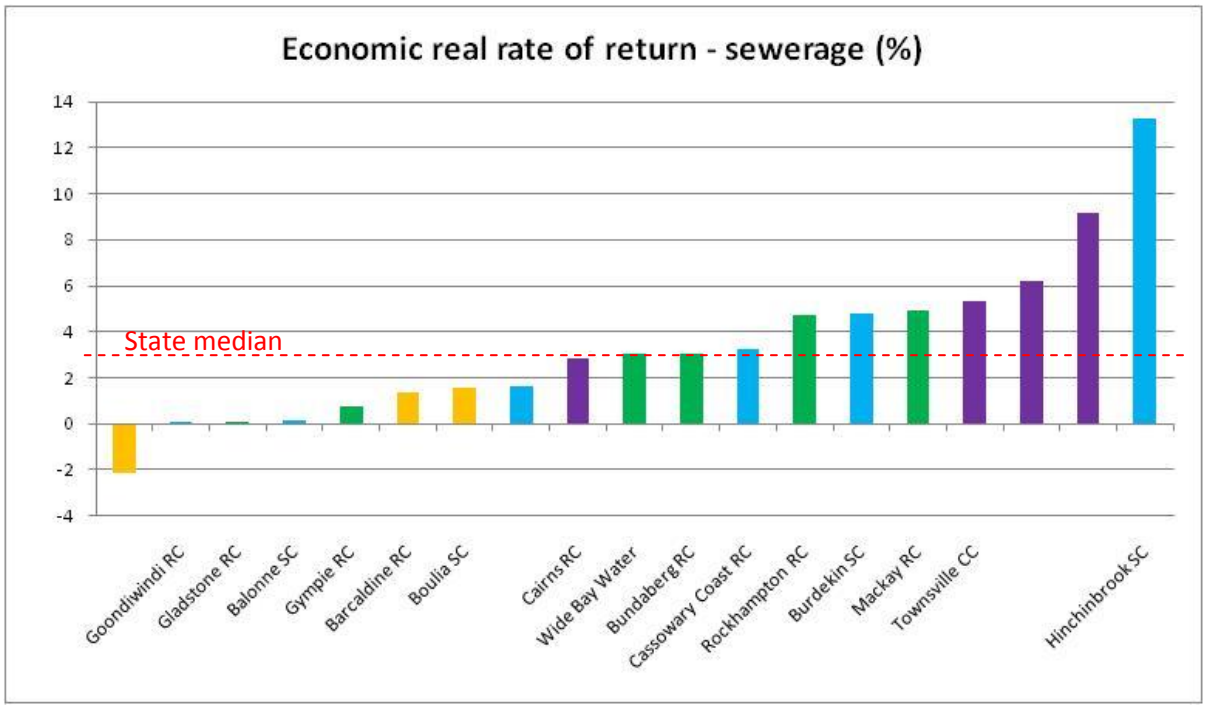

Figure 4. Economic real rate of return (ERRR) – sewerage (%).

Note: This figure shows ranked values of the ERRR – sewerage (%) for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 sewerage connections (**orange**), medium SP with between 1,000 and 9,999 sewerage connections (**blue**), large SP with between 10,000 and 50,000 sewerage connections (**green**), and extra-large SP with more than 50,000 sewerage connections (**purple**). The 2011/12 Statewide median value for the ERRR – sewerage is 3.01%. Each bar represents one SP.

Conclusive comparisons are difficult because of the range and diversity of service providers listed and the small number of data, but it appears that the larger the Service Provider the more likely it will have a positive (>0) ERRR (sewerage) value. The Statewide median value for ERRR (sewerage) was 3.01%.

Customer service

Sewerage service complaints

During 2011/12 a total of 3,247 sewerage service related complaints were reported across the State. The Statewide median number of complaints per 1,000 connections was 3.8. Sewerage service complaints are highly affected by weather and are expected to be higher in wet years.

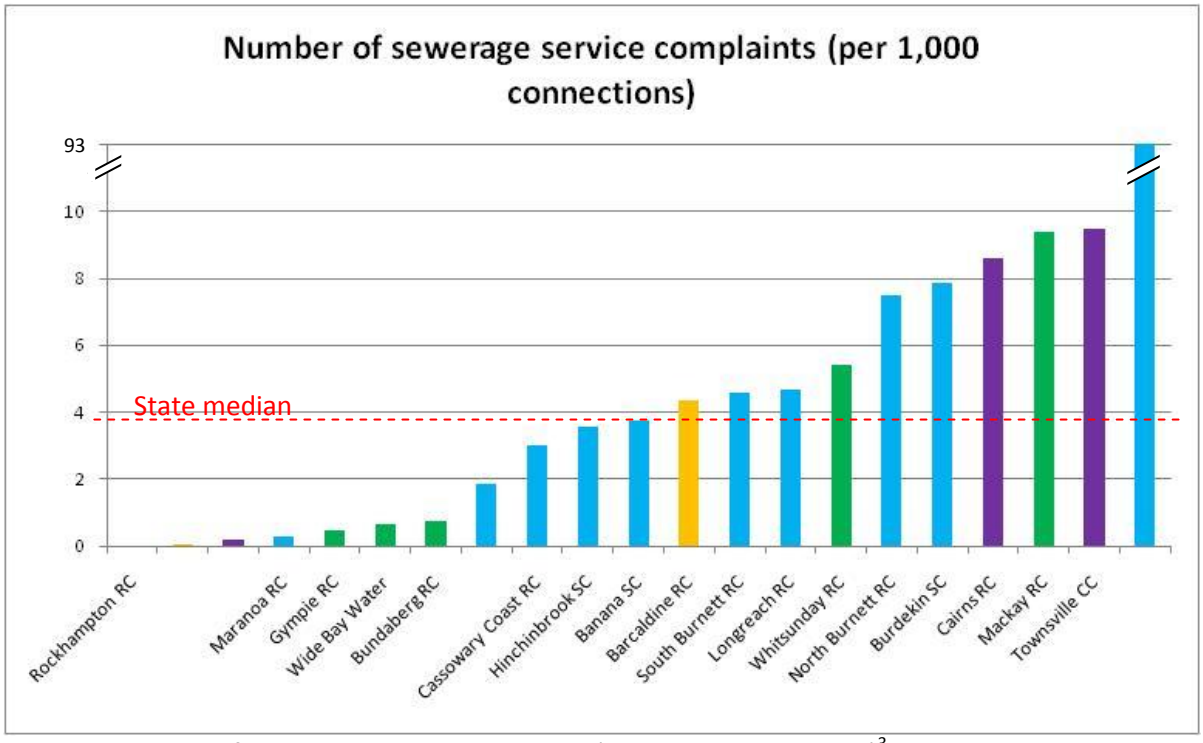

Figure 5. Number of sewerage service complaints (per 1,000 connections)[3].

Note: This figure shows ranked values for the number of sewerage service complaints per 1,000 connections for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 sewerage connections (**orange**), medium SP with between 1,000 and 9,999 sewerage connections (**blue**), large SP with between 10,000 and 50,000 sewerage connections (**green**), and extra-large SP with more than 50,000 sewerage connections (**purple**). The 2011/12 Statewide median value for the number of sewerage service complaints per 1,000 connections is 3.8. Each bar represents one SP.

Response time to sewerage incidents

The Statewide median for the average response time for sewerage incidence was 37 minutes. It should be noted that this indicator may be higher for Service Providers that manage multiple schemes separated by large distance.

[3] Note: figures for smaller SPs may be skewed towards higher values due to their very low populations.

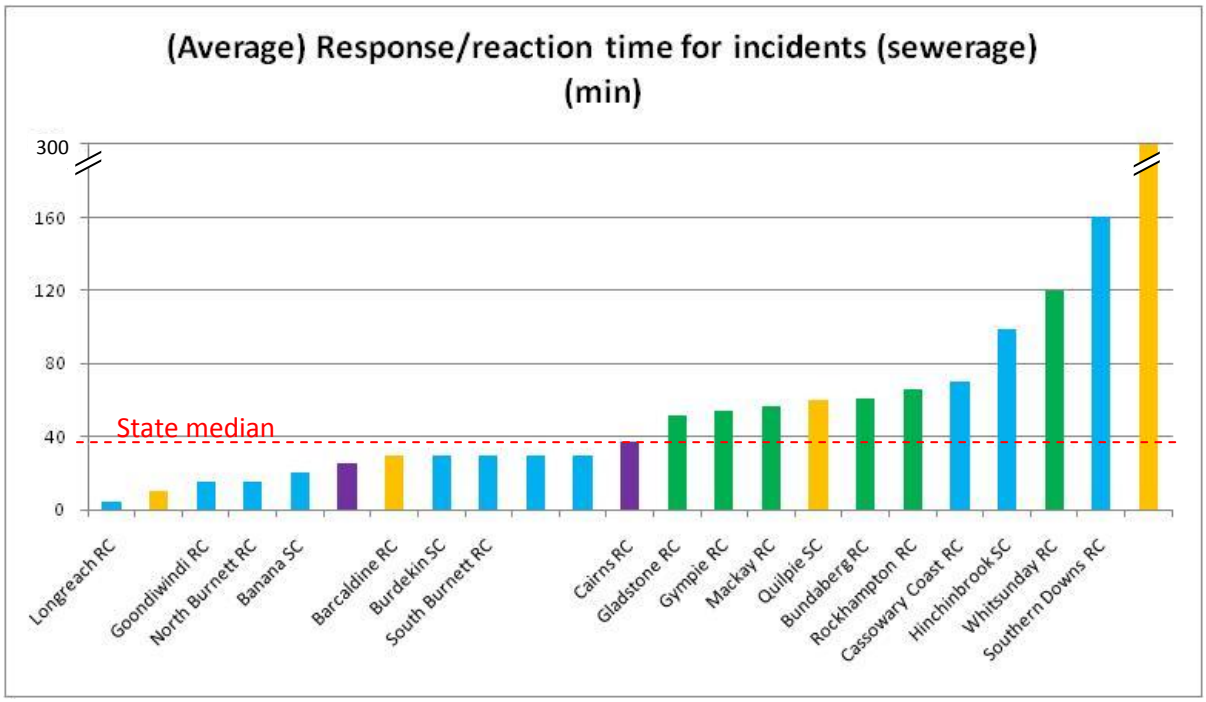

Figure 6. (Average) Response/reaction time for incidents (sewerage) (min).

Note: This figure shows ranked values for the (average) response/reaction time for incidents (sewerage) (min) for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 sewerage connections (**orange**), medium SP with between 1,000 and 9,999 sewerage connections (**blue**), large SP with between 10,000 and 50,000 sewerage connections (**green**), and extra-large SP with more than 50,000 sewerage connections (**purple**). The 2011/12 Statewide median value for the (average) response/reaction time for incidents (sewerage) is 37 minutes. Each bar represents one SP.

Condition of assets

Sewerage main breaks and chokes

The Statewide median for the number of sewer main breaks and chokes reported per 100 km of sewer mains during 2011/12 was 15.9. This indicator can provide an approximate surrogate indicator of the condition and age of sewerage network infrastructure. However, breaks are also highly influenced by soil type. This means that pipes of the same age and maintenance will be more likely to break when buried in highly reactive soils (i.e. high shrink-swell ratios) than those in non-reactive soils.

Performance

Sewage overflows

During 2011/12 Service Providers reported that a total of 341 sewerage overflow events were reported to DEHP with a Statewide median of 0 events per 100 km of mains, indicating that more than half of the SPs did not have any reported overflows. Overflows at pumping stations may occur in wet weather when sewage flows are increased from illegal connections to the sewer and because of stormwater infiltration. Overflows can also be caused by mechanical or power failures or blockages. Pumping stations are designed with a capacity to overflow at such times to prevent back-up of sewage and potential overflows to private premises. Sewage overflows are more common in wet years and when flooding occurs.

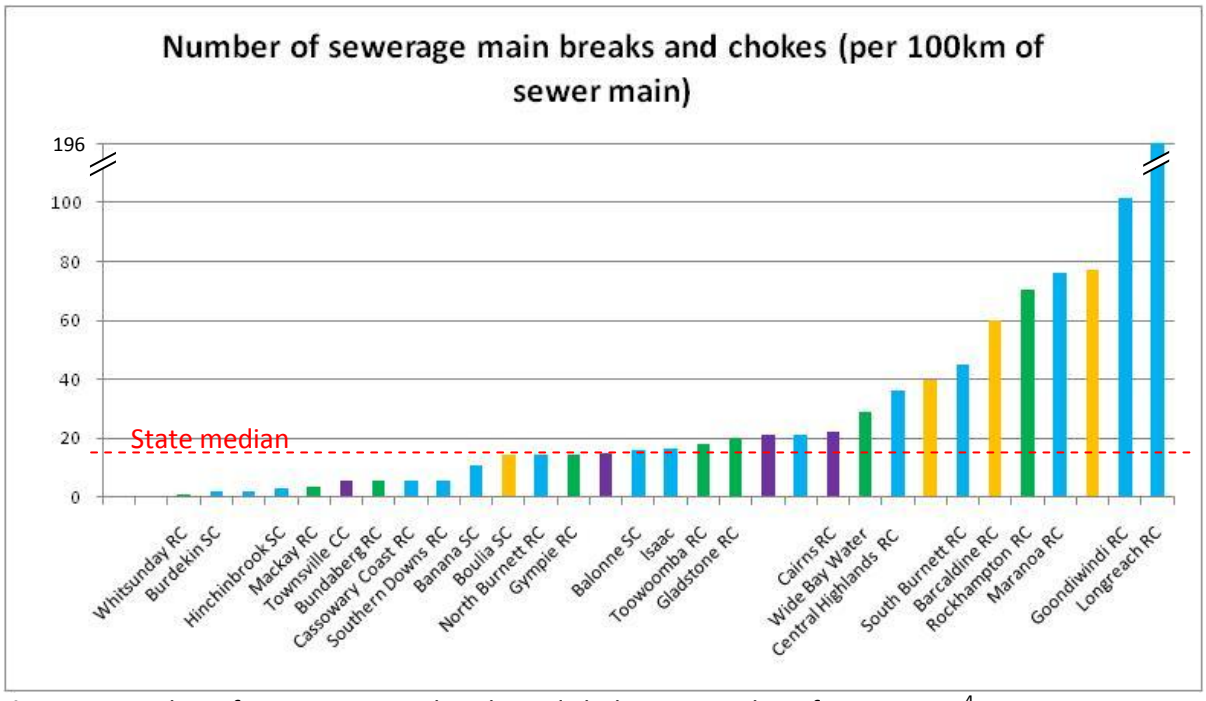

Figure 7. Number of sewerage main breaks and chokes per 100km of sewer main[4].

Note: This figure shows ranked values for the number of sewerage main breaks and chokes per 100km of sewer mains for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 sewerage connections (**orange**), medium SP with between 1,000 and 9,999 sewerage connections (**blue**), large SP with between 10,000 and 50,000 sewerage connections (**green**), and extra-large SP with more than 50,000 sewerage connections (**purple**). The 2011/12 Statewide median value for the number of sewerage main breaks and chokes is 15.9 per 100km of sewer main. Each bar represents one SP.

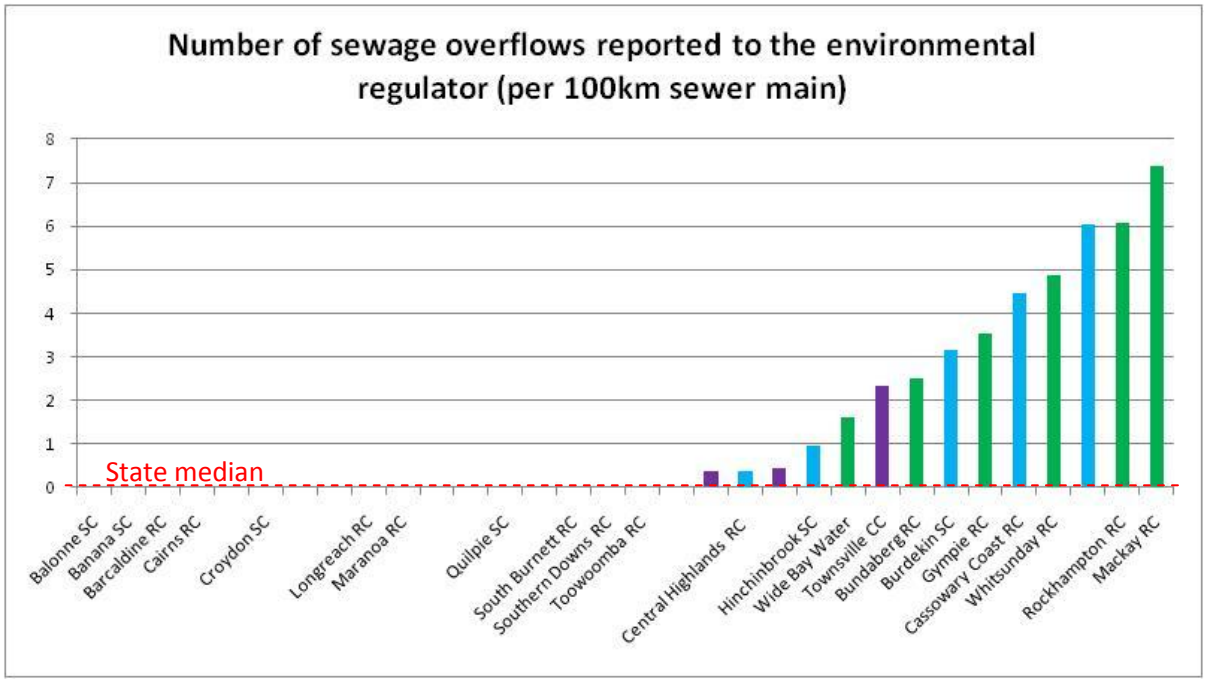

Figure 8. Number of sewage overflows reported to the environmental regulator (per 100km sewer main)[5].

[4] Note: figures for smaller SPs may be skewed towards higher values due to their relatively short main lengths.
[5] Note: figures for smaller SPs may be skewed towards higher values due to their relatively short main lengths.

Note: This figure shows ranked values for the number of sewage overflows reported to the environmental regulator (per 100km sewer main) for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 sewerage connections (**orange**), medium SP with between 1,000 and 9,999 sewerage connections (**blue**), large SP with between 10,000 and 50,000 sewerage connections (**green**), and extra-large SP with more than 50,000 sewerage connections (**purple**). The 2011/12 Statewide median value for the number of sewage overflows reported to the environmental regulator (total, annual) is 0 per 100km sewer main. Each bar represents one SP.

Compliance of treated sewage

The 2011/12 Statewide median for the amount of sewage treated that was compliant with current licence limits was 98.6%.

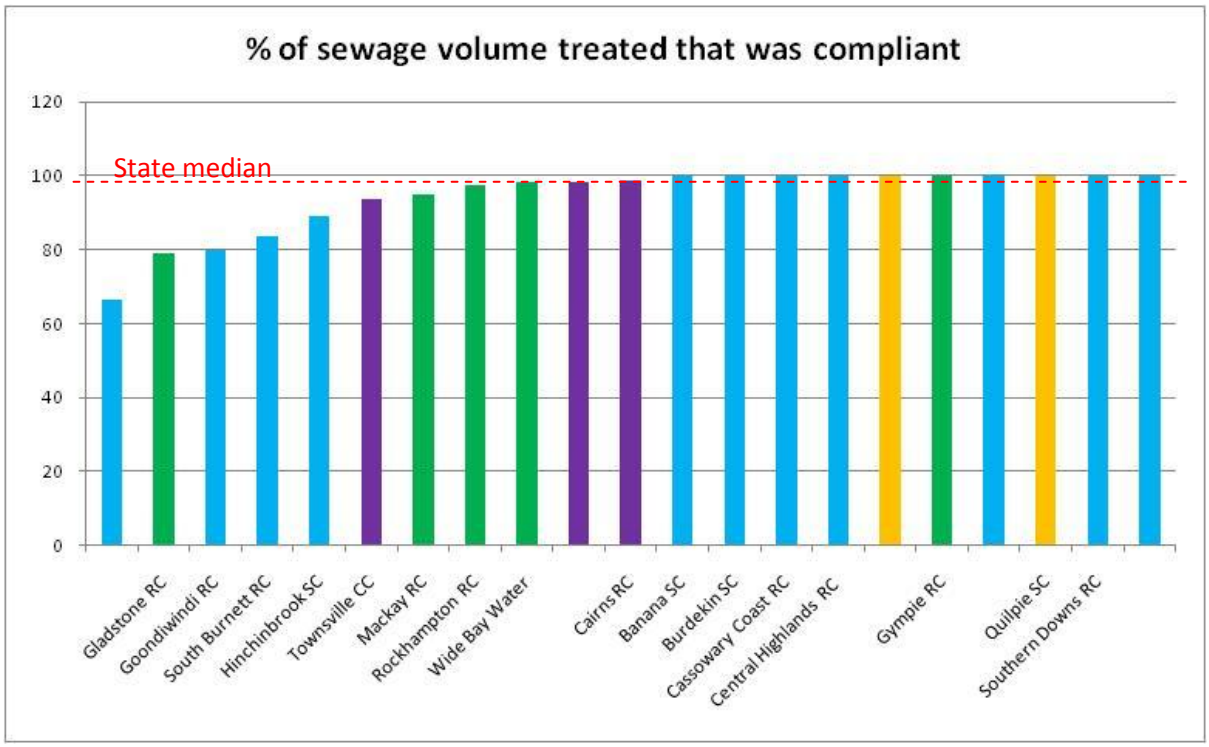

Figure 9. Percent of sewage volume treated that was compliant.

Note: This figure shows ranked values for the percent of sewage volume treated that was compliant for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 sewerage connections (**orange**), medium SP with between 1,000 and 9,999 sewerage connections (**blue**), large SP with between 10,000 and 50,000 sewerage connections (**green**), and extra-large SP with more than 50,000 sewerage connections (**purple**). The 2011/12 Statewide median value for the percent of sewage volume treated that was compliant is 98.6%. Each bar represents one SP.

Potable Water Supply

Capacity and viability

The average reported annual potable water supplied per connection for the State was 507 kL in 2011/12 which is less than the 2010-11 value of 543 kL.

The reported total capital expenditure on water supply was $224,198,460 for 2011/12. The Statewide median for average capital expenditure was $219 per property. In addition, the reported total operating costs to supply water from across the State was $680,095,556 at a median average cost of $575 per property for the State. The median typical residential bill for water supply was $598.

Capital expenditure

Capital expenditure will vary markedly from year-to-year, particularly for Service Providers with a smaller number of water assets, but still provides a snapshot of investment across the industry.

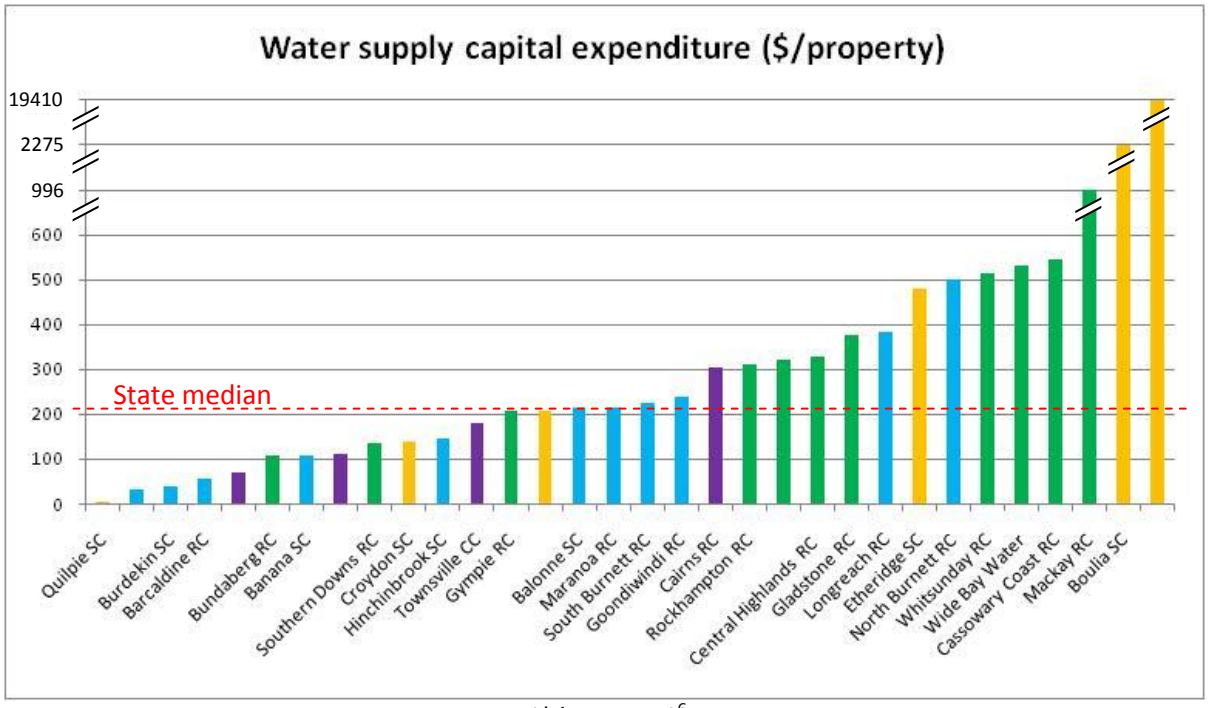

Figure 10. Water supply capital expenditure ($/property)[6].

Note: This figure shows ranked values of water supply capital expenditure ($/property) for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 water connections (orange), medium SP with between 1,000 and 9,999 water connections (blue), large SP with between 10,000 and 50,000 water connections (green), and extra-large SP with more than 50,000 water connections (purple). The 2011/12 Statewide median value for water supply capital expenditure is $219 per property. Each bar represents one SP.

Operating costs

Service Providers with effective and efficient systems will have lower operating costs and thus provide better value for money to their customers. The components of operating cost (operation, maintenance and administration) are:

- Water resource access charge or resource rent tax
- Purchases of raw, treated or recycled water
- Salaries and wages
- Overheads on salaries and wages
- Materials/chemicals/energy
- Contracts
- Accommodation
- All other operating costs that would normally be reported
- Items expensed from work in progress (capitalised expense items) and pensioner remission expenses
- Competitive neutrality adjustments, they may include but not be limited to, land tax, debits tax, stamp duties and council rates

[6] Note: figures for smaller SPs may be skewed towards higher values due to their very low populations.

Service Providers that maintain major storage dams for their water supply have larger capital expenditure and operating costs.

The amount of treatment needed for the water sourced will affect the operational costs. However, larger water treatment plants can generally reduce this cost, relatively, through economies of scale.

The topography and location of the water supply will also affect operational costs through the amount of pumping needed to move the water to the treatment plant and then onto the customer. Again, high density connections provide economies of scale which will help to reduce this cost, relatively. High volumes of water pumping (e.g. in hilly areas) cause increased energy costs.

Service Providers with a number of separate water supply systems, larger areas of low density service (i.e. low numbers of properties serviced per km of main) and those with higher numbers of, and smaller, water treatment plants will generally need more employees to effectively manage their systems and thus have higher costs.

Maintenance costs of water supply infrastructure is related to several factors, such as the age and condition of the assets, the soil reactivity (shrink-swell rating), water pressures and the density of connected properties.

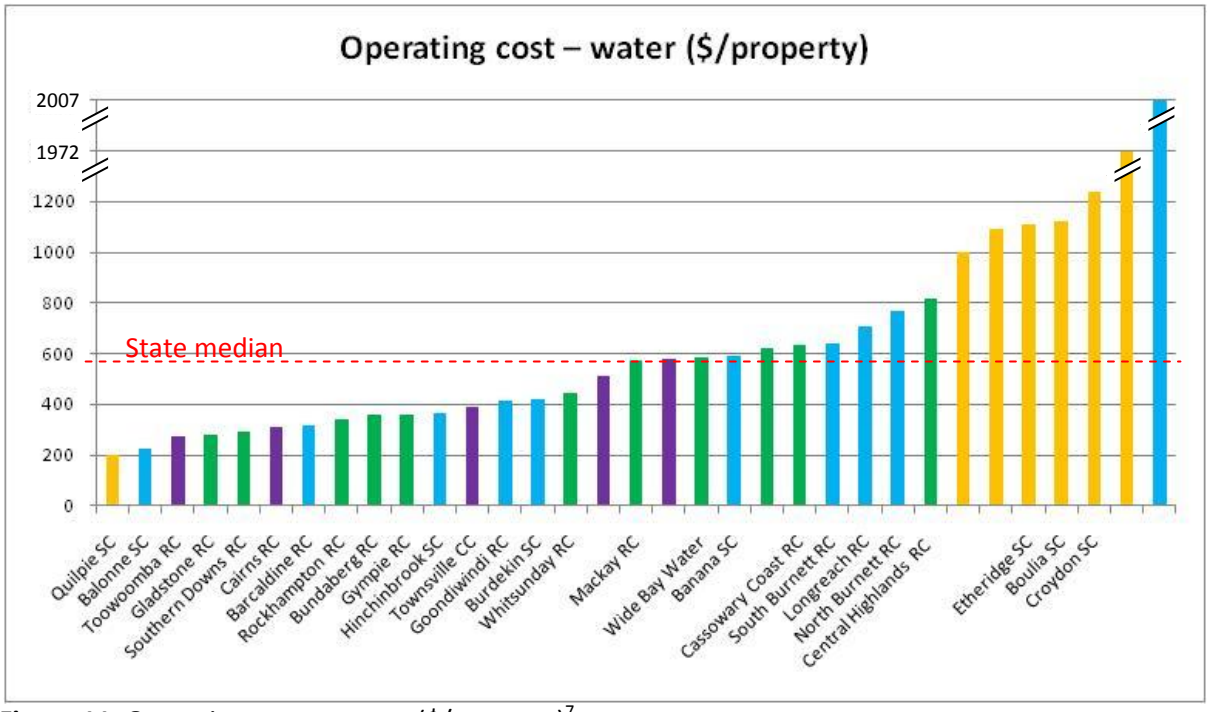

Figure 11. Operating costs – water ($/property)[7].

Note: This figure shows ranked values of operating costs – water ($/property) for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 water connections (orange), medium SP with between 1,000 and 9,999 water connections (blue), large SP with between 10,000 and 50,000 water connections (green), and extra-large SP with more than 50,000 water connections (purple). The 2011/12 Statewide median value for operating costs – water is $575 per property. Each bar represents one SP.

Typical residential bill

The 'typical residential bill – water' is the dollar amount of the typical residential water bill for the financial year, including special levies. If the bill is cost-reflective and a Service Providers' operations

[7] Note: figures for smaller SPs may be skewed towards higher values due to their very low populations.

are run as effectively and efficiently as possible, then the typical residential bill should be minimised and the Service Provider is thus providing value for money to the community. The aim for a Service Provider should be to provide satisfactory levels of service at the lowest, but sustainable (including recovery of renewal and capital replacement costs), price.

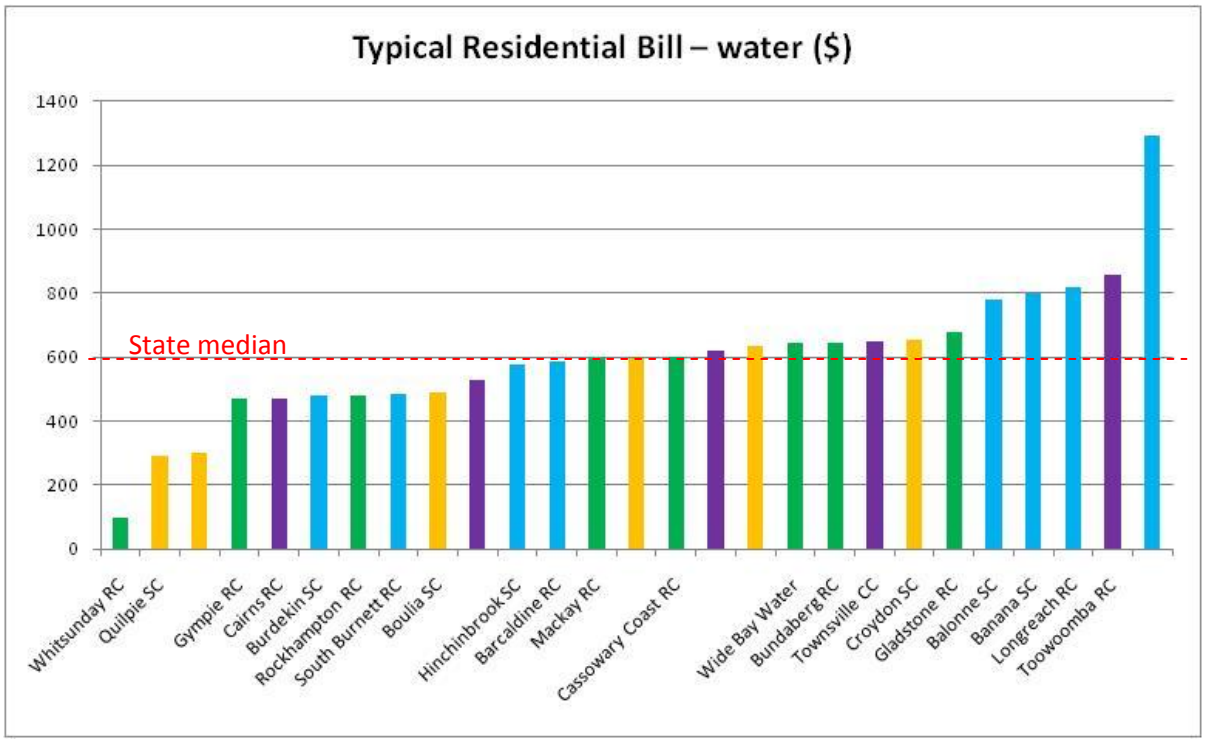

Figure 12. Typical residential bill – water ($).

Note: This figure shows ranked values of the typical residential bill – water ($) for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 water connections (orange), medium SP with between 1,000 and 9,999 water connections (blue), large SP with between 10,000 and 50,000 water connections (green), and extra-large SP with more than 50,000 water connections (purple). The 2011/12 Statewide median value for the typical residential bill – water is $598. Each bar represents one SP.

Economic real rate of return

The financial performance of Service Providers is often intricately linked with their owner councils, making it difficult to assess the financial performance of the water supply operations.

In addition, an important distinction must be made between the category of (usually large) councils that can be categorised as financially sustainable, and the smaller and often remote councils. In the latter, small populations (and thus rate bases) can mean that capital investment in water infrastructure is difficult or impossible and relies on funding assistance and subsidies from other council income or other sources. In some cases even operating costs can be difficult to manage.

One comparator of financial performance is the Economic Real Rate of Return (ERRR). The ERRR (water) is the revenue from water business operations less operating expenses for the water business divided by written down replacement cost of operational water assets. An appropriate value for ERRR is difficult to determine for Service Providers but should be at least positive with a margin to allow for return on capital (NWC, 2011). OTTER (2011) suggested that an ERRR of around 7% was required for full cost recovery in the Tasmanian urban water industry while NWC (2011, p. 386) questioned the appropriateness of NWC and NSW Office of Water definitions of full cost recovery as an ERRR “greater than or equal to zero”.

Conclusive comparisons are hard to be drawn because of the range and diversity of service providers listed and the small number of data, but it appears that the larger the Service Provider the more likely it will have a positive (>0) ERRR (water) value. The Statewide median value for ERRR (water) was 3.75%.

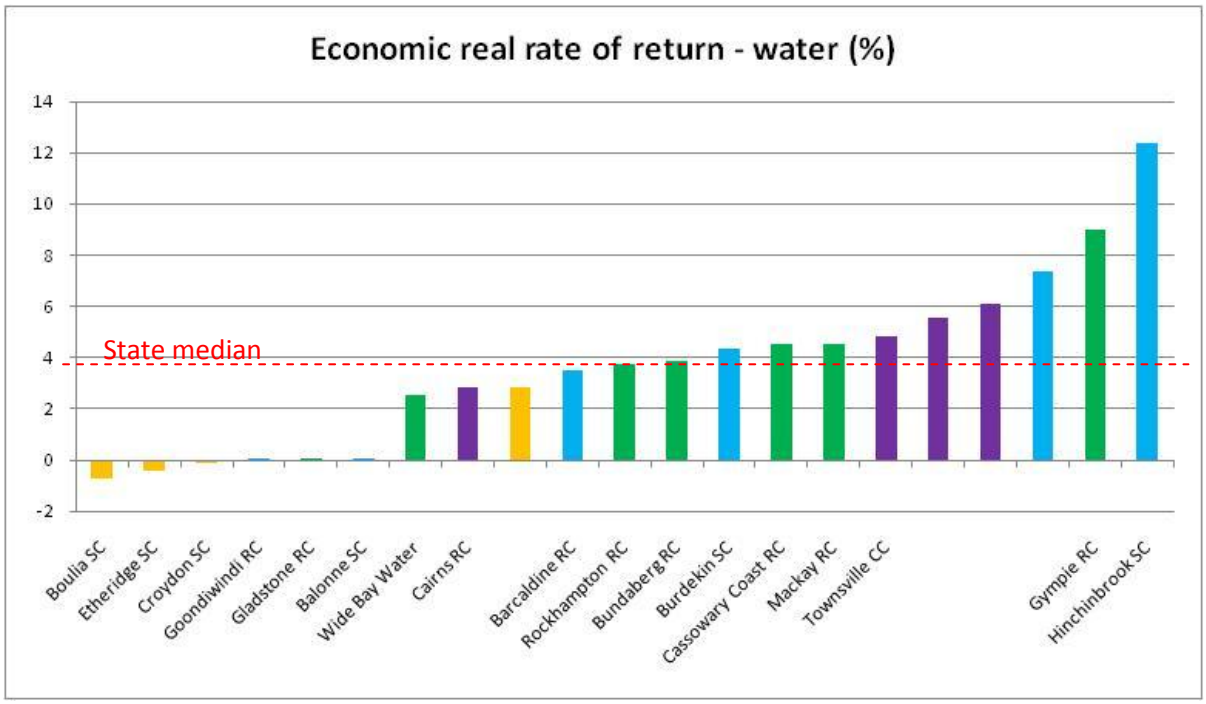

Figure 13. Economic real rate of return (ERRR) – water (%).

Note: This figure shows ranked values of the ERRR – water (%) for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 water connections (**orange**), medium SP with between 1,000 and 9,999 water connections (**blue**), large SP with between 10,000 and 50,000 water connections (**green**), and extra-large SP with more than 50,000 water connections (**purple**). The 2011/12 Statewide median value for the ERRR – water is 3.75%. Each bar represents one SP.

Customer service

Water service complaints

During 2011/12 a total of 14,649 water related complaints were reported across the State. The Statewide median number of complaints per 1,000 connections was 13.4.

Condition of assets

Water main breaks

The Statewide median for the number of water main breaks that were recorded per 100 km of main during 2011/12 was 16.5. This indicator can provide an approximate surrogate indicator of the condition and age of the water network infrastructure. However, breaks are also highly influenced by soil type. This means that pipes of the same age and maintenance will be more likely to break when buried in highly reactive soils (i.e. high shrink-swell ratios) than those in non-reactive soils.

Real water losses

The Statewide median for the amount of reported real water losses for 2011/12 was 146 litres per service connection per day.

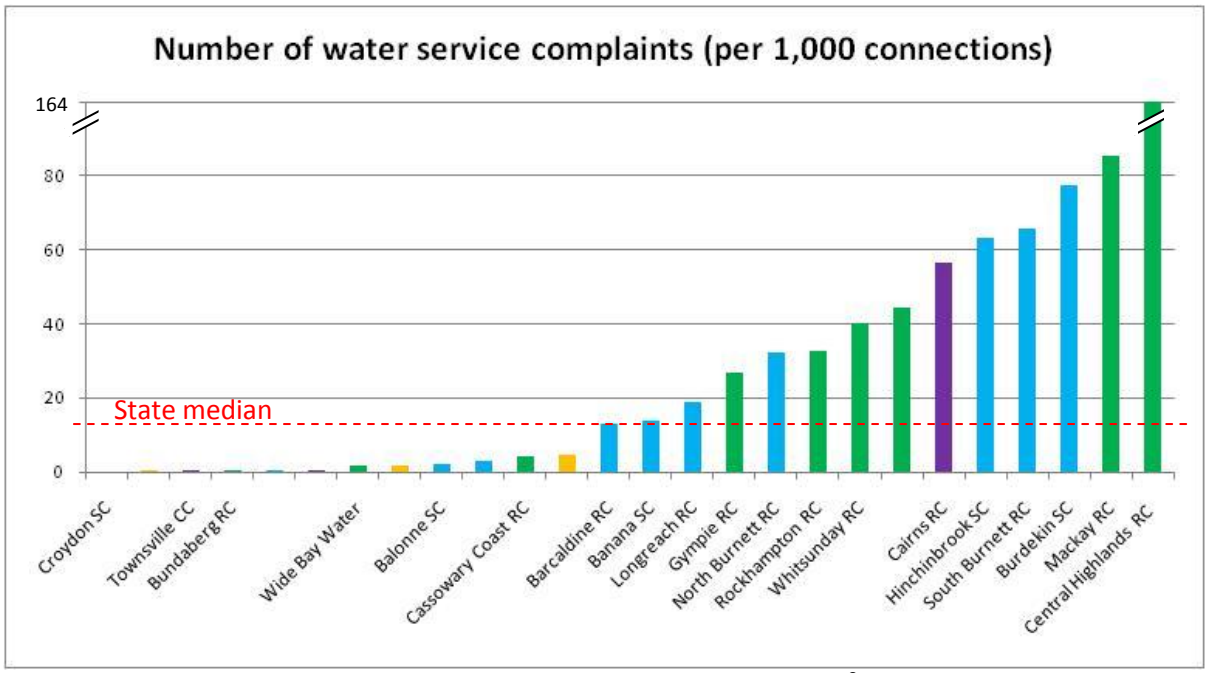

Figure 14. Number of water service complaints (per 1,000 connections)[8].

Note: This figure shows ranked values for the number of water service complaints per 1,000 connections for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 water connections (orange), medium SP with between 1,000 and 9,999 water connections (blue), large SP with between 10,000 and 50,000 water connections (green), and extra-large SP with more than 50,000 water connections (purple). The 2011/12 Statewide median value for number of water service complaints per 1,000 connections is 13.4. Each bar represents one SP.

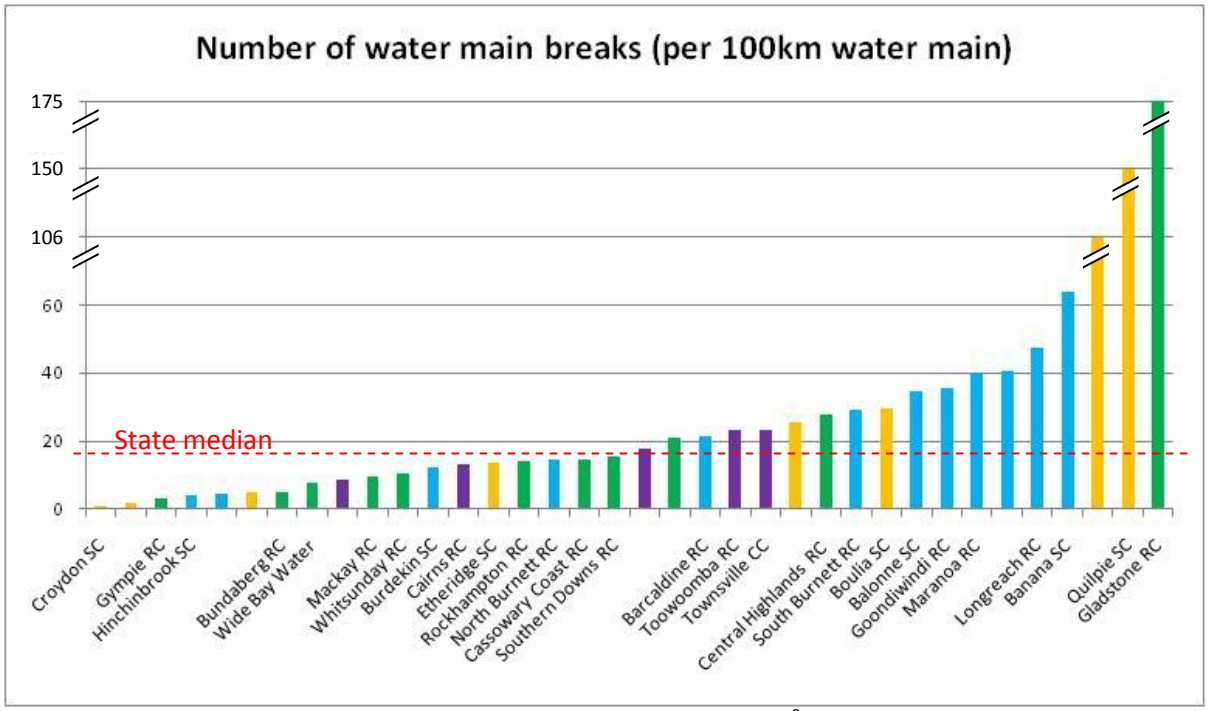

Figure 15. Number of water main breaks per 100km of water main[9].

Note: This figure shows ranked values for the number of water main breaks per 100km of water main for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 water connections (orange), medium SP with between 1,000 and 9,999 water connections (blue), large SP

[8] Note: figures for smaller SPs may be skewed towards higher values due to their very low populations.
[9] Note: figures for smaller SPs may be skewed towards higher values due to their relatively short main lengths.

with between 10,000 and 50,000 water connections (**green**), and extra-large SP with more than 50,000 water connections (**purple**). The 2011/12 Statewide median value for the number of water main breaks is 16.5 per 100km of water main. Each bar represents one SP.

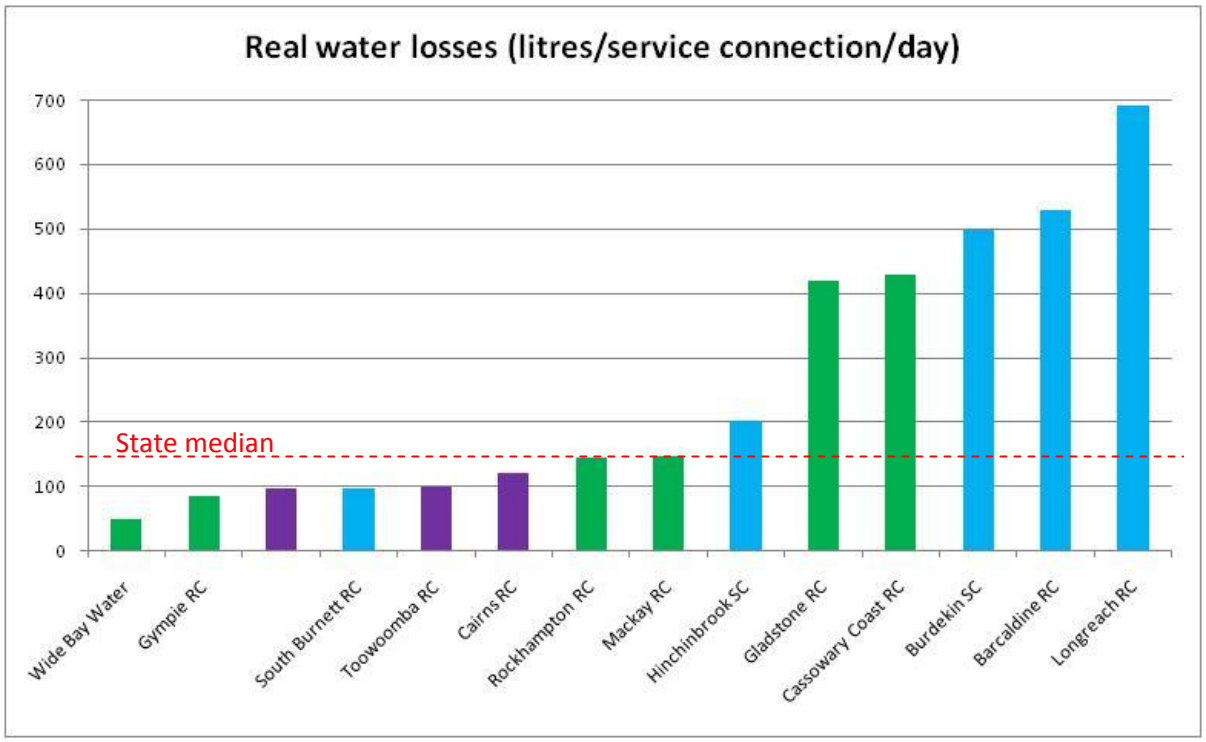

Figure 16. Real water losses (litres/service connection/day).

Note: This figure shows ranked values for real water losses (litres/service connection/day) for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 water connections (**orange**), medium SP with between 1,000 and 9,999 water connections (**blue**), large SP with between 10,000 and 50,000 water connections (**green**), and extra-large SP with more than 50,000 water connections (**purple**). The 2011/12 Statewide median value for real water losses (litres/service connection/day) is 146 litres per service connection per day. Each bar represents one SP.

Performance

Microbiological compliance

The Statewide median for the percent of total population where microbiological compliance was achieved in 2011/12 was 100%, indicating that the majority of SPs achieved full compliance.

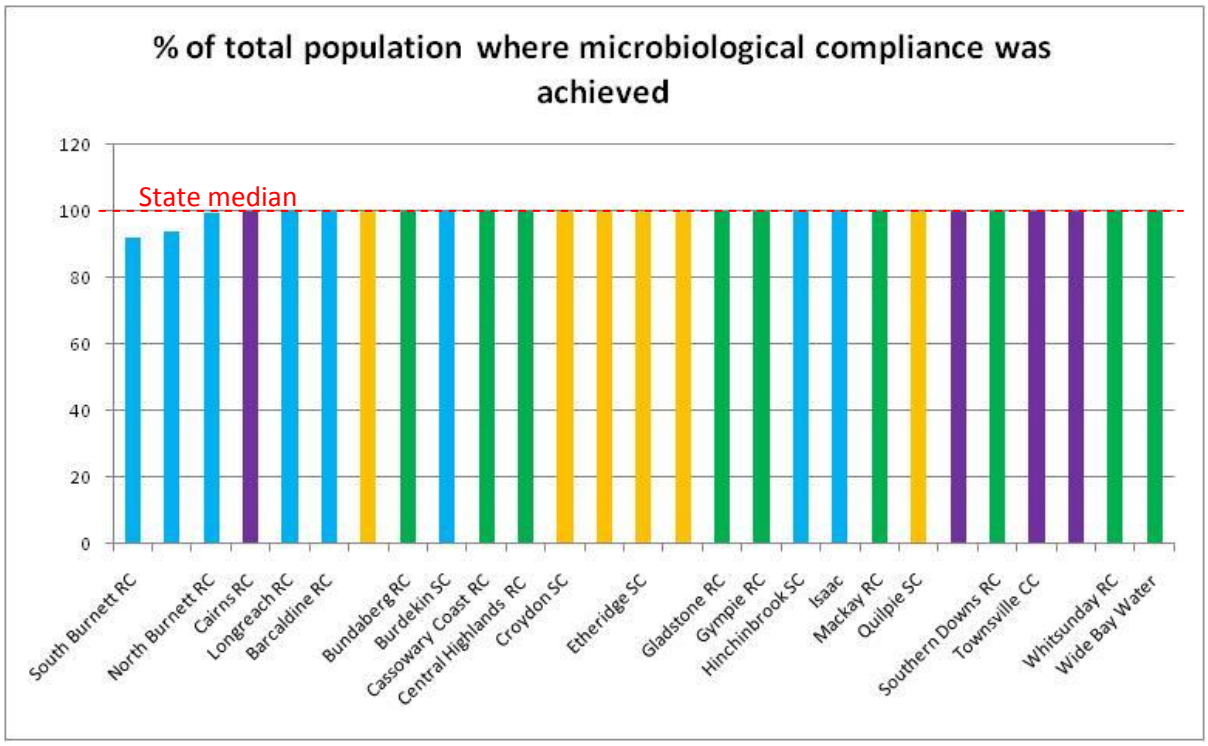

Figure 17. Percent of total population where microbiological compliance was achieved.

Note: This figure shows ranked values for the percent of total population where microbiological compliance was achieved for each Service Provider (SP) who reported in 2011/12 in 4 groups based on the number of connected properties served – small SP with less than 1,000 water connections (**orange**), medium SP with between 1,000 and 9,999 water connections (**blue**), large SP with between 10,000 and 50,000 water connections (**green**), and extra-large SP with more than 50,000 water connections (**purple**). The 2011/12 Statewide median value for the percent of total population where microbiological compliance was achieved is 100%. Each bar represents one SP.

References

NWC (National Water Commission). 2011. Urban Water in Australia: Future Directions. NWC, Canberra.

OTTER (Office of the Tasmanian Economic Regulator). 2011. Tasmanian Water and Sewerage State of the Industry Report 2009-10. Tasmanian Government, Hobart.

Final data used in this report was extracted from the SWIM database on 26/2/2013. Data may be subject to change and updates.

Appendices

Appendix 1. Data comparison from the previous year.

It is important to note that direct comparisons of statewide data between years cannot be made and should be considered as a rough guide only. This is because reporting is voluntary and Service Providers may or may not provide data for any or all indicators in any one year.

Indicator	2010-11	2011-12
Total sewerage capital expenditure ($)	473,740,715	471,225,999
Median value for sewerage capital expenditure ($) per connection	190	237
Total sewerage operating cost ($)	312,295,368	417,452,364
Median value for sewerage operating cost ($) per connection	413	416
Median value for typical residential sewerage bill ($)	492	516
Median value for economic real rate of return for sewerage services (%)	0.08	3.01
Total of all sewerage service complaints (all aspects of sewerage business)	4,748	3,247
Median number of sewerage service complaints per 1,000 connections	4.6	3.8
Median value for (average) response/reaction time for sewerage incidents (min)	45	37
Median number of sewerage mains breaks and chokes per 100km of sewer main	15.8	15.9
Total number of sewage overflows reported to environmental regulator	457	341
Median number of sewage overflows reported to the environmental regulator per 100km of sewer main	0.14	0
Median value for per cent of sewage volume treated that was compliant	96	98.6
Average for the annual potable water supplied per connection	543	507
Total water supply capital expenditure ($)	188,345,849	224,198,460
Median value for water supply capital expenditure ($) per connection	193	219
Total water operating cost ($)	517,975,831	680,095,556
Median value for water operating cost ($) per connection	446	575
Median value for typical residential water bill ($)	546	598
Median value for economic real rate of return for water services (%)	0.91	3.75
Total number of water service complaints	14,647	14,649
Median number of water service complaints per 1,000 connections	25.2	13.4
Median number of water main breaks per 100km of water main	19.1	16.5
Median value for real water losses (litres/service connection/day)	105	146
Median value for the per cent of total population where microbiological compliance was achieved	100	100