Water, Wastewater and Irrigation Performance Report 2011

May 2012

Economic Regulation Authority
WESTERN AUSTRALIA

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For further information, contact:

Economic Regulation Authority
Perth, Western Australia
Phone: (08) 6557 7900

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Executive Summary

This 2010/11 report continues the Authority's oversight of the performance of water, sewerage, irrigation and drainage service providers. Unlike previous years, this report only contains performance information for water and sewerage supply schemes that supply more than 1,000 connected properties and the two largest irrigators. The reason for the change in the Authority's approach to reporting is that the smaller service providers are only required to provide a limited sub-set of the performance information that is provided by the larger service providers. Accordingly, the Authority has decided that it is more appropriate to present the performance of the small service providers in a set of data tables that are separately published on the Authority's website.[1]

Drinking Water Supply

In 2010/11, the number of potable (drinking) water supply schemes in the State (32) with more than 1,000 connected properties was unchanged from the previous year.

Compared to 2009/10, the state-wide total volume of water sourced for drinking water fell by 0.8% (from 360,260ML to 357,214ML); both Perth and regional towns reported similar falls in sourced water.

The proportion of drinking water sourced from surface water fell from 39.4% (2009/10) to 29.4% (2010/11), while the proportion of water source from groundwater increased from 44.1% (2009/10) to 54.9% (2010/11). The switch to groundwater was repeated in Perth, where the proportion of groundwater increased from 40.8% to 55.8% over the same period.

The third source of water in Perth and regional towns was quite different; in 2010/11, desalination supplied 10.9% of Perth's drinking water,[2] while water provided by bulk water providers supplied 17.8% of drinking water in regional towns.

Compared to 2009/10, the state-wide total volume of urban water supplied fell by 1.7% (from 339,195ML to 333,283ML). Over the same period, the average annual water consumption per property in Perth also fell by 4.3% (from 276kL to 264kL), while average consumption in regional towns fell by 9.2% (from 360kL to 327kL). Water consumption levels across the State continued to vary between the warmer north and the cooler south; the highest consumption in 2010/11 was in Port Hedland (588kL), and the lowest consumption was in Denmark (146kL).

The size of water supply networks, measured as the total length of water mains, grew for the fifth consecutive year. In 2010/11, the state-wide total length of mains grew by 1.7% (from 18,618 to 18,930km), taking to average annual growth in mains over the past five years to 1.5%.

The state-wide total number of connected properties grew by 3.0% (from 896,000 to 923,000 properties) in 2010/11. The average annual growth in connected properties over the past six years was 2.5%, comprising annual growth of 2.2% in Perth and 3.7% growth in regional towns.

[1] http://www.erawa.com.au/2/429/51/water_licensing__licence_statistics.pm

[2] Water Corporation reported that desalination production was 52,010ML; an estimated 28,541ML was supplied directly to customers with the remainder being transferred to surface water storage.

There has been a significant reduction in the state-wide total number of water service complaints. The number of complaints (per 1,000 connected properties) in 2010/11 was 51% lower than the previous year. This is the second consecutive year in which the number of complaints has been substantially lower than in the previous year. The cause of these reductions is changes to the way that Water Corporation has reported complaints since 2009/10.[3]

Sewerage Services

In 2010/11, the number of sewerage schemes in the State (22) with more than 1,000 connected properties was unchanged from the previous year.

Compared to 2009/10, the state-wide volume of sewage collected fell by 1.2% (from 148,650ML to 146,837ML). In 2010/11, sewage collected in Perth accounted for 83.6% of the state-wide total volume.

The state-wide average annual volume of sewage collected per property fell by 5.4% (from 185kL to 175kL) during 2010/11; the volume collected in Perth and the average regional town both fell, by 3.7% and 5.4% respectively.

In 2010/11, the percentage of treated effluent that was supplied as recycled water rose across the State. Over the past four years, the percentage of treated effluent that is used to produce recycled water in regional towns is much higher than in Perth; in 2010/11, the average regional town recycled 52.6% of treated effluent compared to 7.4% in Perth.

The size of sewerage networks, measured as the total length of sewer mains, continues to grow across the State. In 2010/11, the state-wide total length of sewer mains increased by 1.7% (from 14,062 to 14,211km), taking the annual growth in sewer mains over the past seven years to 1.9%.

The state-wide total number of connected properties grew by 3.2% (from 801,000 to 824,000 properties) in 2010/11. The average annual growth in connected properties over the past four years was 3.2%, comprising annual growth of 2.9% in Perth and 4.7% growth in regional towns.

The state-wide total number of sewerage service complaints (per 1,000 connected properties) fell by 14.8% during 2010/11. This is the second consecutive year in which the number of complaints has been substantially lower than in the previous year; in 2010/11, the number of complaints was the lowest to date. The cause of the reduction is changes made to the way that Water Corporation has reported complaints (see the previous section for more information).

Irrigation Services

There have been significant changes made to the performance reporting framework for irrigators following the release of the 2010/11 NWI Rural Framework in May 2011. The revised Framework substantially reduced the number of performance indicators and also amalgamated other indicators. The Authority has decided to remove all historical data for indicators that have been deleted from the Framework from this report, which has reduced the number of performance indicators to four: volume of water supplied, customer service points, carrier length and complaints.

[3] Water Corporation revised its methodology of reporting customer complaints in 2009/10 and results are now more in line with industry standards and the definition in the NWI urban reporting framework.

Compared to 2009/10, the total volume of irrigation water supplied fell by 2.1% (from 181,014 to 177,245ML), driven by a 7GL reduction in the volume of water supplied by Harvey Water. In 2010/11, Ord Irrigation supplied 66.2% (117,369ML) of the total water supplied.

There has been a change in the way that irrigators report the number of customer connections (service points) on their network. Up until 2010/11, irrigators reported separate values for irrigation water supply and non-potable (stockfeed and process water) service points. The 2010/11 NWI Rural Framework only requires irrigators to report on irrigation service points. The historical data for customer service points has been adjusted accordingly.

Compared to 2009/10, the total number of customer service points on the Harvey Water network increased by 9.2% (from 1,591 to 1,744), while the number of service points on the Ord Irrigation network remained unchanged at 283.

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Purpose

The purpose of this report is to bring transparency and accountability to the performance of the providers of water, wastewater and irrigation services in Western Australia.

The objectives of this report are to:

- report on the performance of water, wastewater and irrigation supply schemes operated by Western Australian water service providers that are licensed by the Economic Regulation Authority (Authority);
- highlight comparative performance outcomes for the different towns covered by the report; and
- examine service performance over time.

This report focuses on water service supply schemes (towns) with greater than 1,000 connected properties, see Part B and Part C for details of these schemes. Data for water service providers and supply schemes with less than 1,000 connected properties can be found on the Authority's website.

Throughout the report, the term 'all towns' refers to all of the towns that are captured by the indicator in question, *including* Perth. The term 'regional towns' means all of the towns that are captured by the indicator in question, *excluding* Perth.

Background

Water Services Licences

The *Water Services Licensing Act 1995* (**Act**) includes provisions for the licensing of water services.

Part 2 of the Act includes provisions for the Authority to administer the licensing scheme provided for in Part 3 of the Act, and to monitor the performance of the providers of water services.

Part 3, Division 1 of the Act deals with the classification of controlled areas of the State. Controlled areas are classified into:

- water supply services (covers both potable and non-potable services);
- sewerage services;
- irrigation services; or
- drainage services.

It is possible for controlled areas of different classes to overlap each other, if fact this is the case in a number of areas of the State. It is also possible for controlled areas of a particular class to be non-contiguous; there are a number of "islanded" control areas currently declared, particularly for water services and sewerage in remote areas.

The declaration of a controlled area is done by the Governor publishing an order in the *Government Gazette*. The map in Appendix 1 shows the controlled areas that are currently in force.

In order to provide a water, sewerage, irrigation or drainage service in a controlled area, an operating licence is required. The remainder of Part 3 of the Act deals with the licensing of water services. Part 3, Division 2 of the Act defines four classes of water operating licence:

- water supply services (covers both potable and non-potable services);
- sewerage services;
- irrigation services; and
- drainage services.

The remainder of Part 3 of the Act deals with requires a licence to provide a water service in a controlled area of the State, the granting of licences and the obligations on the service provider. The latter includes the obligation to provide services in accordance with the licence and the requirement for regular independent audits of the licensee's compliance with the licence and the effectiveness of the system used to manage the assets covered by the licence.[4]

Section 24 and Schedule 1(h) of the Act make provision for water operating licences to include conditions requiring licensees to provide to the Authority, in the manner and form approved by the Authority, specified information on any matter relevant to the operation of the licence, the operation of the licensing scheme or the performance of the Authority's functions under the Act. Water supply, sewerage, irrigation and drainage licences include conditions requiring the licensee to provide to the Authority non-financial performance data on an annual basis. The data to be provided by licensees is defined in the Authority's Water Compliance Reporting Manual (**Reporting Manual**).[5]

Current Structure of Water Services Industry in WA

There are a total of 31 water service providers licensed to operate in Western Australia:

- The Water Corporation: water supply, sewerage, irrigation and drainage services;
- Bunbury Water Board (trading as Aqwest): water supply services;
- Busselton Water: water supply services;
- Moama Lifestyle Villages Pty Ltd: non-potable water supply and sewerage services;[6]
- Rottnest Island Authority (RIA): water supply, sewerage and drainage services;
- Hamersley Iron: water supply and sewerage services.
- Peel Water: potable and non-potable water supply services;
- The Shire of Denmark: non-potable water supply services;
- 19 local government authorities: non-potable water supply and sewerage services;[7] and

[4] The Act specifies the independent audits must be conducted at least once every 24 months, or any longer period approved by the Authority.

[5] See section titled 'Water Compliance Reporting Manual' for further details on the manual.

[6] Moama Lifestyle Villages Pty Ltd was issued with a water services operating licence on 7 September 2010.

[7] A list of the local government licensees supplying non-potable water and sewerage services is available in the Small Sewerage Service Provider Performance section of this report.

- Gascoyne Water Cooperative (Gascoyne Water), South West Irrigation Management Cooperative (Harvey Water), Ord Irrigation Cooperative (Ord Irrigation) and Preston Valley Irrigation Cooperative (Preston Valley): non-potable water supply and irrigation services.

The four largest water services providers in the State are the Water Corporation, Aqwest, Busselton Water and the City of Kalgoorlie-Boulder.

The Water Corporation is trading enterprise owned by the Western Australian Government that was established by the *Water Corporation Act 1995*. The Water Corporation is Western Australia's largest water service provider, servicing 972,000 connected properties and managing more than $13.9 billion of water supply, wastewater, drainage and bulk water (for irrigation) infrastructure.[8]

Aqwest and Busselton Water are government statutory authorities operating under the *Water Boards Act 1904*. Aqwest and Busselton Water service approximately 16,000 and 11,000 connected properties, and manage infrastructure of approximately $94 million and $49 million, respectively.[9]

The City of Kalgoorlie-Boulder provides sewerage services to the town of Kalgoorlie-Boulder. The City of Kalgoorlie-Boulder services approximately 14,000 connected properties and manages approximately $26.7 million in sewerage and effluent infrastructure.

The RIA operates water and electricity services on Rottnest Island.

Hamersley Iron operates water supply and sewerage services in Tom Price, Paraburdoo and Dampier. Pilbara Iron, a division of Rio Tinto, is the asset manager for the water supply schemes operated by Hamersley Iron.

[8] See the Water Corporation 2011 Annual Report, available at http://www.watercorporation.com.au for more details.

[9] See the Busselton Water 2010 - 11 Annual Report, available at http://www.busseltonwater.wa.gov.au and the Aqwest 2011 Annual Report, available at http://www.aqwest.wa.gov.au for more details.

Performance Reporting Obligations

National Water Initiative Agreement

In April 2006, Western Australia became a signatory of the National Water Initiative Agreement (**NWI Agreement**), joining the Commonwealth and the other States and Territories. The Commonwealth is represented by the National Water Commission (**NWC**) and the States and Territories are represented by the agencies that are responsible for regulating water supply services in that jurisdiction. The Authority performs the roles of both the Data Coordinator and Audit Coordinator for Western Australia.

Under the NWI Agreement, the signatories agreed to report independently, publicly and on an annual basis, benchmarking data on the pricing and service quality of urban and rural water delivery agencies. The signatories to the NWI Agreement have developed performance reporting frameworks for urban utilities (**Urban Framework**) and for rural water delivery agencies (**Rural Framework**). The Urban and Rural Frameworks each comprise a handbook with performance indicators and definitions, which are revised and published annually. Further information on the NWI Agreement and the performance reporting frameworks can be found on the National Water Commission's website.[10]

The Urban Framework captures all urban utilities that service 10,000 or more connected properties. In Western Australia there are four licensees that are captured by the Urban Framework: Aqwest (water only), Busselton Water (water only), City of Kalgoorlie-Boulder (sewerage only) and the Water Corporation (water and sewerage).[11]

The Rural Framework captures all rural water service delivery agencies that provide more than 4GL of water for irrigation services. In Western Australia there are two licensees that are captured by the Rural Framework: Harvey Water and Ord Irrigation.[12]

The licences of the service providers that are captured by the NWI Urban and Rural Frameworks include a condition requiring these licensees to provide the Authority with annual performance data in accordance with the relevant framework.

Water Compliance Reporting Manual

The current Reporting Manual was published by the Authority in May 2011. The Reporting Manual sets out standard performance reporting obligations for each type of supply service: potable water, non-potable water, sewerage and irrigation.[13] In the case of service providers, who are captured by the NWI Agreement, the reporting requirements are aligned with the Urban Framework and Rural Framework.

[10] http://www.nwc.gov.au

[11] The Water Corporation services 6 towns that are captured by the Urban Framework: Albany, Bunbury (sewerage only), Geraldton, Kalgoorlie-Boulder (water only), Mandurah and Perth.

[12] Irrigators for whom the additional recurrent expenditure on collecting and supplying performance data exceeds more than 1% of total revenue are not required to report. For this reason, Gascoyne Water is not subject to the Rural Framework.

[13] Drainage licences include service and performance standards in relation to drainage services, however, licensees are not required to include these in their annual licence performance report.

PART A: WATER PERFORMANCE INFORMATION

Covered Water Supply Schemes

Water supply schemes with greater than 1,000 connected properties in Western Australia are:

Table 1: Water supply schemes with 1,000 or more connected properties

Albany Scheme	**Denmark**	**Kalgoorlie-Boulder**	**Narrogin**
Australind-Eaton	**Derby**	**Karratha**	**Newman**
Bridgetown-Hester	**Dongara -Denison**	**Katanning**	**Northam**
Broome	**Dunsborough**	**Kununurra**	**Perth**
Bunbury	**Esperance**	**Mandurah Scheme**	**Pinjarra**
Busselton	**Geraldton**	**Manjimup**	**Port Hedland**
Carnarvon	**Harvey-Wokalup**	**Margaret River Scheme**	**South Hedland**
Collie	**Jurien**	**Merredin**	**York**

With the exception of Bunbury and Busselton, which are supplied by Aqwest and Busselton Water respectively, all of the town water supply schemes are supplied by the Water Corporation.

Water is supplied from a number of different sources, which comprise the following[14]:

- Groundwater - potable and non-potable water abstracted from aquifers and other 'below ground' water sources. This excludes volumes sourced from groundwater supplies that have been artificially recharged using sources of water that have been counted elsewhere i.e., from rivers, desalination plants or sewage plants (recycling).
- Surface water - potable and non-potable water abstracted from surface water sources such as dams, rivers or irrigation channels.
- Desalination - potable and non-potable water sourced from desalination plants.
- Bulk supplier - potable and non-potable water purchased from another utility or entity outside a utility's geographic area of responsibility. The volume of water may include water which is subsequently exported (sold) to another utility.
- Recycling - treated effluent that is used by either the water utility itself, a business supplied by the water utility or supplied through a third party pipe system for urban reuse.

[14] More detailed definitions of water sources can be found in Appendix 2.

Sources of Water

Total sourced water includes water abstracted from water sources that include surface water, groundwater, desalination, recycled water and water received from a bulk supplier.

Figure 1 shows that total water sourced for all towns in 2010/11 has decreased by 0.8% (from 360,260 to 357,214 ML), compared to 2009/10. The 0.8% reduction comprised a 0.7% fall in water sourced for Perth and a 1.1% fall in water sourced for other towns

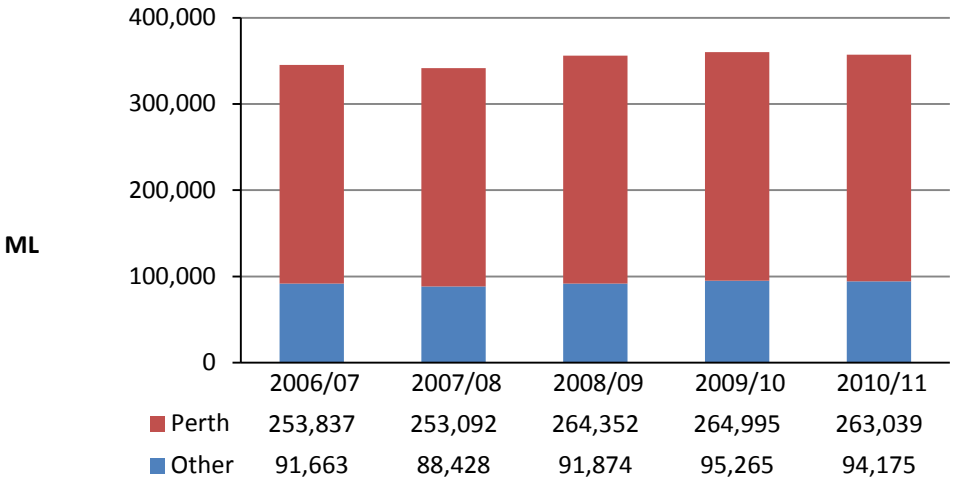


Figure 1: Total volume of water sourced from all sources

Figure 2 and Figure 3 detail the sources of water for all towns (Perth and the regional towns combined). In 2010/11, the volume of water sourced from surface water has decreased by 13.5%, and the volume of water sourced from groundwater has increased by 23.5%, compared to 2009/10. This reverses the situation in 2009/10, where water sourced from surface water increased and that from groundwater fell, which reflects the relative availability of surface water and groundwater in each of the past two years.

Compared to 2009/10, the proportion of the state-wide total drinking water sourced from ground water rose from 44.1% to 54.9%, while the proportion sourced from surface water fell from 39.4% to 29.4%. The volume of drinking water sourced from desalination declined for the second successive year; in 2010/11, desalination accounted for 8% of the total sourced water, down from a peak of 9.3% in 2008/09.[15]

The proportion of water sourced from recycling continues to represent the smallest of the five water sources, although in 2010/11 the proportion of water sourced from recycling reached a five-year high of 3.0% of the total sourced water.

[15] Water Corporation reported that desalination production was 52,010ML; an estimated 28,541ML was supplied directly to customers with the remainder being transferred to surface water storage.

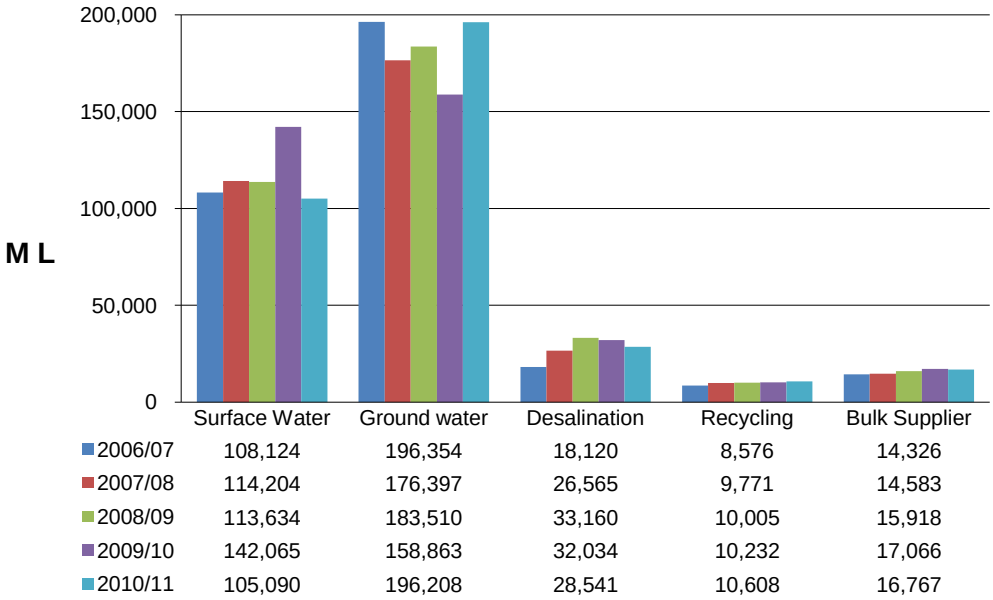


Figure 2: Sources of water by volume (all towns)

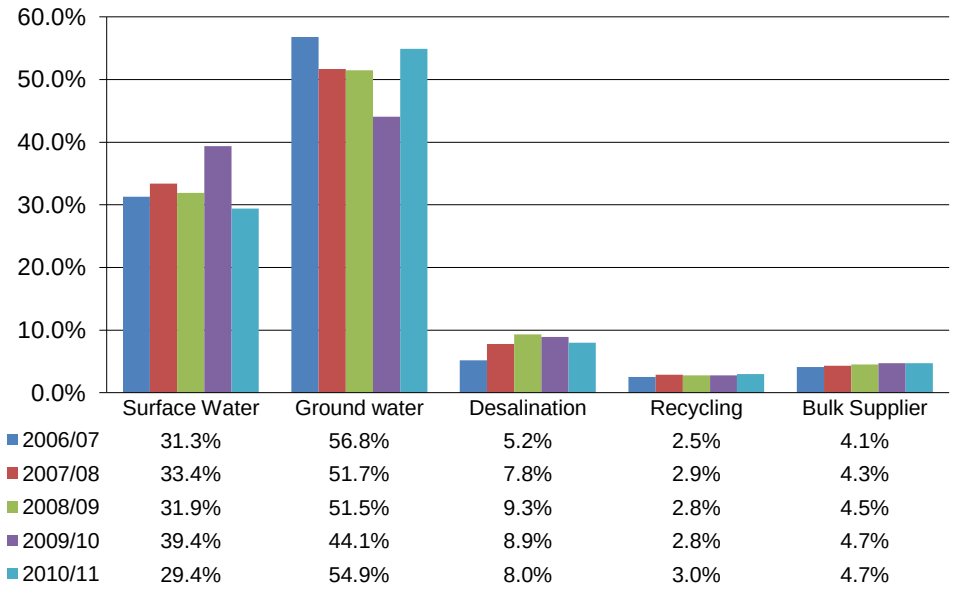
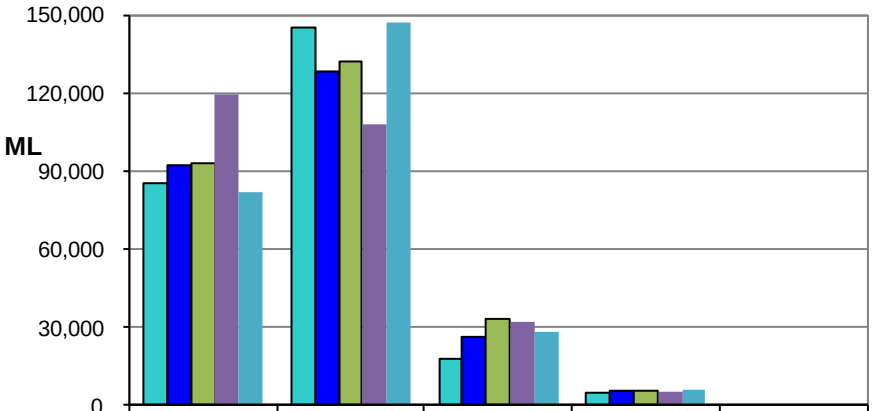


Figure 3: Sources of water by percentage (all towns)

Figure 4 and Figure 5 detail the sources of drinking water for Perth. In 2010/11, groundwater and surface water together accounted for almost 87% of Perth's total sourced water, and desalination accounted for a further 10.9% of the total.[16]

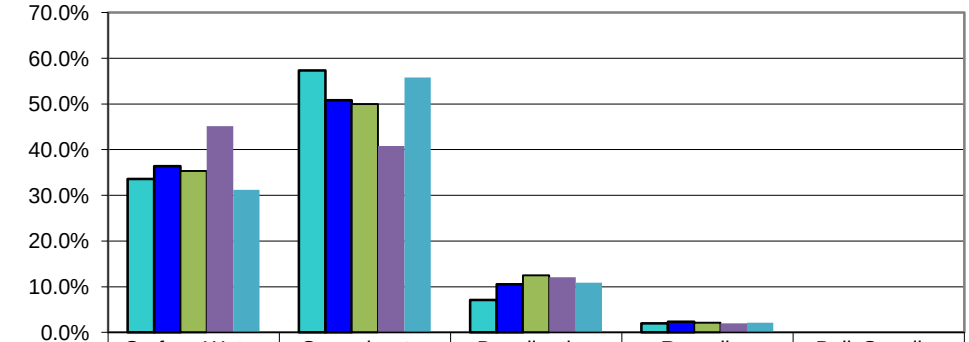
[16] Water Corporation reported that desalination production was 52,010ML, with an estimated 28,541ML supplied directly to customers. The remaining 23,469ML was transferred to surface water storage and has not been counted in the amount of sourced surface water for Perth or the state because this indicator only measures the amount of water that has been supplied to customers directly from the water source. The water transferred from desalination to surface water storage has been stored rather than supplied, so it is excluded from the water supplied from desalination or surface water.

Comparing 2010/11 with 2009/10, it can be seen that the relative proportion of Perth's drinking water produced from surface water and groundwater followed the all towns pattern (Figure 3 and Figure 4), in that surface water was the largest component of sourced water in 2009/10, while groundwater was the largest component in 2010/11.



	Surface Water	Ground water	Desalination	Recycling	Bulk Supplier
2006/07	85,233	145,533	18,120	4,951	0
2007/08	92,141	128,452	26,565	5,934	0
2008/09	93,266	132,298	33,160	5,628	0
2009/10	119,469	108,104	32,034	5,388	0
2010/11	82,117	146,745	28,541	5,636	0

Figure 4: Sources of Water by volume (Perth only)

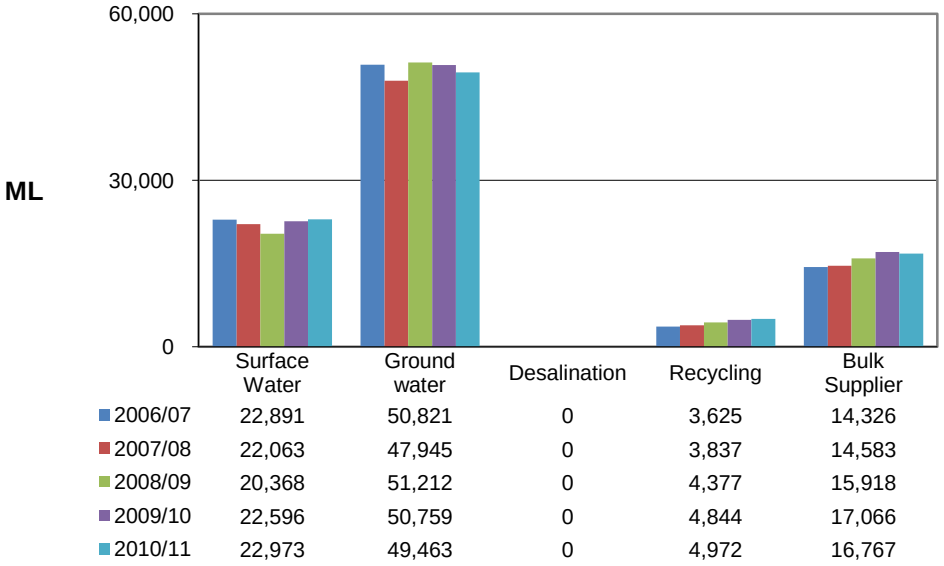


	Surface Water	Ground water	Desalination	Recycling	Bulk Supplier
2006/07	33.6%	57.3%	7.1%	2.0%	0.0%
2007/08	36.4%	50.8%	10.5%	2.3%	0.0%
2008/09	35.3%	50.0%	12.5%	2.1%	0.0%
2009/10	45.1%	40.8%	12.1%	2.0%	0.0%
2010/11	31.2%	55.8%	10.9%	2.1%	0.0%

Figure 5: Sources of water by percentage (Perth only)

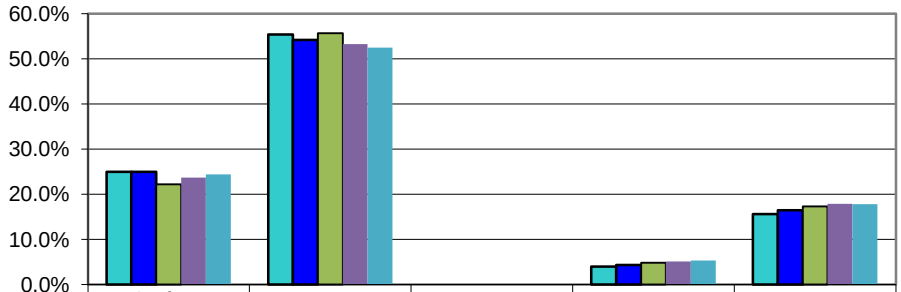
Figure 6 and Figure 7 detail the sources of drinking water for regional towns. The total volume of water supplied to regional towns has remained relatively unchanged (averaging approximately 92GL) over the past five years.

Figure 7 shows that the relative proportion of water from each of the four water sources has also remained relatively unchanged over the past five years for regional towns. Comparing Figure 7 with Figure 5, it can be seen that, whereas desalination is the third largest water source in Perth (the Kwinana desalination plant directly fed into the IWSS[17] to supply the Perth metropolitan area),[18] it is water supplied by bulk water providers that is the third largest source of water in regional towns.



	Surface Water	Ground water	Desalination	Recycling	Bulk Supplier
2006/07	22,891	50,821	0	3,625	14,326
2007/08	22,063	47,945	0	3,837	14,583
2008/09	20,368	51,212	0	4,377	15,918
2009/10	22,596	50,759	0	4,844	17,066
2010/11	22,973	49,463	0	4,972	16,767

Figure 6: Sources of Water by Volume (regional towns only)



	Surface Water	Ground water	Desalination	Recycling	Bulk Supplier
2006/07	25.0%	55.4%	0.0%	4.0%	15.6%
2007/08	25.0%	54.2%	0.0%	4.3%	16.5%
2008/09	22.2%	55.7%	0.0%	4.8%	17.3%
2009/10	23.7%	53.3%	0.0%	5.1%	17.9%
2010/11	24.4%	52.5%	0.0%	5.3%	17.8%

Figure 7: Sources of Water by Percentage (regional towns only)

[17] Integrated Water Supply Scheme, a network of water sources, storages and transfer mains that supply the Perth Metropolitan area and the Agricultural, Goldfields, Wheatbelt and South-West regions.

[18] Refer to Footnote 16.

Uses of Water Supplied

Total Urban Water Supplied

Total urban water supplied is defined as the total metered volume of water (potable or non-potable), supplied to customers over the reporting period, plus estimated non-metered water supplied. Total urban water comprises the sum of residential, commercial, municipal and industrial water supplied and estimated water supplied for other purposes.

Figure 8 shows that the total urban water supplied for all towns in 2010/11 was 333,283ML, of which 74.2% was supplied to Perth. Compared to 2009/10, the total volume of water supplied fell by 1.7%, comprising a 0.9% fall in the volume of water supplied to Perth and a 4.0% fall in the volume supplied to regional towns.

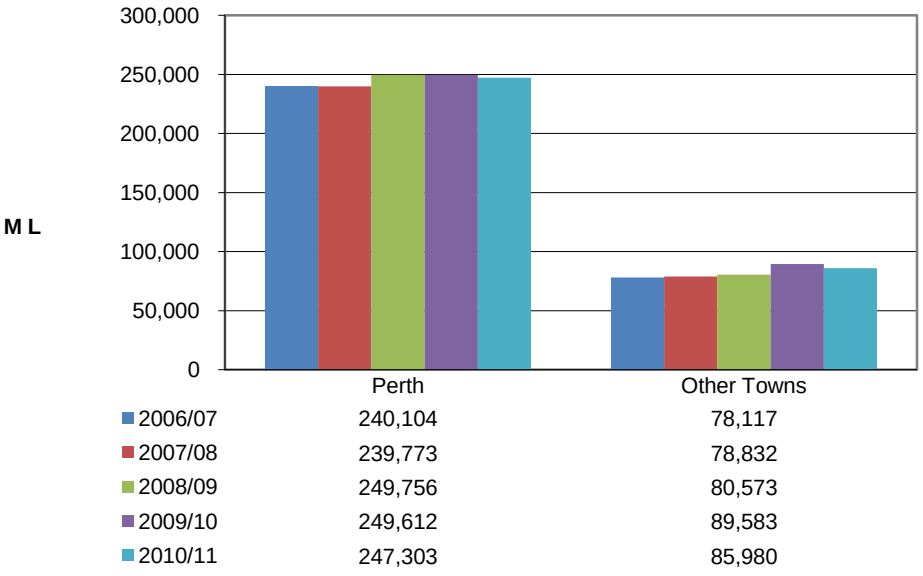


Figure 8: Total Urban Water Supplied

Average Annual Residential Water Supplied

Table 2 details the average annual residential water supplied for the four years to 2010/11. In 2010/11, the average annual residential water supplied per property in regional towns (327kL) was 19.3% higher than in Perth (264kL). The 2010/11 average annual residential water supplied in Perth and the average regional town were at the lowest level since reporting began in 2007/08.

Table 2: Average annual residential water supplied per property

Data	Average annual residential water supplied per property (kL/property)				Percentage Change
	2007/08	2008/09	2009/10	2010/11	%
Perth	268	277	276	264	-4.3
All Town Average	352	346	357	325	-9.0
Regional Town Average	355	348	360	327	-9.2

Compared to 2009/10, the residential water supplied per property fell across the State, with the percentage reduction in the average regional town (9.2%) being over twice that of the average Perth property (4.3%).

In 2010/11, Port Hedland recorded the highest average annual residential water consumption (588kL), while Denmark had the lowest consumption per property (146kL). The difference in the water consumption patterns for these two towns is representative of the contrasting climatic conditions across the State. Towns in the north of the State have higher annual average temperatures than towns in the South-West. Generally, residents in hotter climates tend to have higher water consumption that those in cooler climates.

Asset Data

Water Mains

In 2010/11, the length of water mains was 13,198km in Perth and 5,732km in regional towns, an increase of 1.5% and 2.0% respectively, compared to the previous year. The total length of water mains across the state in 2010/11 was 6.3% higher than in 2006/07, which is equivalent to an average annual growth rate of 1.5%.

Table 3: Length of water mains (km)

Data	Length of water mains (km)				
	2006/07	2007/08	2008/09	2009/10	2010/11
Perth	12,527	12,737	12,861	12,997	13,198
Regional Towns	5,279	5,433	5,543	5,621	5,732
Total	17,806	18,170	18,404	18,618	18,930

Properties Connected per km of Water Main

The purpose of this indicator is to report on the spatial density of properties served by water mains. Table 4 shows that, in 2010/11, the spatial density of properties served by water mains in Perth was 70% higher than in the average regional town.

Over the past four years the growth in the spatial density of properties served by water mains in regional towns (6.7%) is nearly twice that in Perth (3.7%).[19] It is probable that part of the difference in the growth rates can be attributed to the significant amount of new development that has been taking place in some regional towns. Another factor is that the majority of Perth's established suburbs have similar property densities to the new suburbs that are being developed.

Table 4: Properties served (per km of water main)

Data	Properties served (per km of water main)				Percentage Change
	2007/08	2008/09	2009/10	2010/11	%
Perth	54	55	56	56	0.0
All Town Average	31	32	32	33	10.56
Regional Town Average	30	31	31	32	0.0

In 2010/11, Newman had the highest density of properties served (84 per km of main), while Merredin and Carnarvon shared the lowest density (13 per km of main).

Water Main Breaks

The level of water main breaks is influenced by a number of factors, including the type of mains infrastructure (above ground and below ground), the age of the mains, the standard of

[19] There is a similar difference in the spatial density, and the relative growth rates of spatial densities, of properties served by sewer mains (Table 14).

maintenance carried out by the service provider and local geological conditions, particularly soil types.

Table 5 shows that, in the four years to 2010/11 the level of mains breaks in Perth reached the lowest level since 2007/08, while the level of breaks in the average regional town was relatively unchanged from the previous two years.

Table 5: Water main breaks (per 100km of water main)

Data	Water Main Breaks (per 100 km of Water Main)				Percentage Change
	2007/08	2008/09	2009/10	2010/11	%
Perth	14.0	15.3	13.4	12.7	-5.2
All Town Average	17.5	18.6	18.5	18.6	0.5
Regional Town Average	17.6	18.7	18.7	18.8	0.5

In 2010/11, Jurien had the lowest level of water main breaks (4.9 per 100km of main), while Port Hedland had the greatest number of water main breaks (70.1 per 100km of main).

Connected Properties

The definition of a connected water property can be found in Appendix 2. Figure 9 details the number of connected properties over the six years to 2010/11.

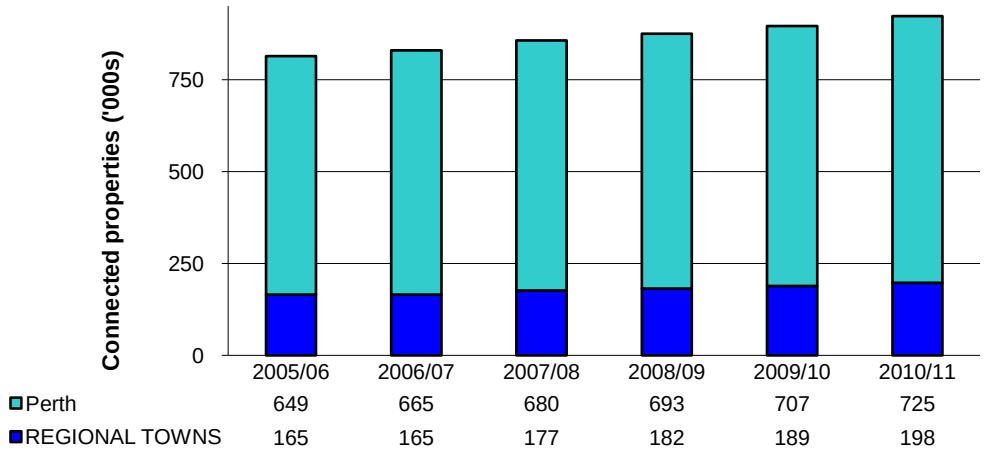


Figure 9: Number of connected properties - water supply

Compared to 2009/10, the total number of connected properties in the state grew by 3.0% to 923,000 properties. The number of connected properties in Perth increased by 2.5% and in regional towns by 4.8%, giving a state-wide increase of 3.0%. Since 2005/06, the average annual growth in total connected properties was 2.5%, while growth in Perth and the regional towns was 2.2% and 3.7% respectively.

Customer Service

Water Quality Complaints

Water quality complaints include any complaint regarding discolouration, taste, odour, stained washing, illness or cloudy water (Appendix 2). The level of complaints is normalised to per 1,000 connected properties.

Table 6 details the level of water quality complaints for the four years to 2010/11. In 2010/11, the total number of complaints averaged across all towns decreased by 5.4%, driven by a 15.2% fall in the number of complaints in Perth. The average number of complaints in regional towns (3.5 per 1,000 properties) was the lowest recorded over the past four years.

Table 6: Water quality complaints (per 1,000 properties)

Data	Water Quality Complaints (per 1,000 properties)				Percentage Change
	2007/08	2008/09	2009/10	2010/11	%
Perth	6.0	6.5	7.9	6.7	-15.2
All Town Average	4.3	3.7	3.9	3.6	-7.7
Regional Town Average	4.3	3.6	3.7	3.5	-5.4

In 2010/11, Australind-Eaton had the highest number of water quality complaints (15.4 per 1000 properties), while Newman had the lowest number (0.2 complaints per 1000 properties). Carnarvon recorded the largest increase in water quality complaints (863%), rising from 2 in 2009/10 to 20 in 2010/11, due to the flooding that occurred in the town in 2011.

Water Service Complaints

Water service complaints include all complaints related to bursts, leaks, service interruptions, adequacy of service, water pressure and water reliability (Appendix 2). The level of complaints is normalised to per 1,000 connected properties.

Table 7 details the level of water service complaints for the four years to 2010/11.

Table 7: Water service complaints (per 1,000 properties)

Data	Water Service Complaints (per 1,000 properties)				Percentage Change
	2007/08	2008/09	2009/10	2010/11	%
Perth	21.5	24.4	5.8	2.7	-53.4
All Town Average	29.3	18.2	5.0	2.4	-52.0
Regional Town Average	29.5	18.0	4.9	2.4	-51.0

Compared to 2009/10, there was a significant reduction in the level of water service complaints for Perth and the average regional town. In 2010/11, the number of complaints for all towns was close to 10% of the levels recorded in 2007/08. The substantial reduction in the

number of complaints is due to changes in the way that Water Corporation reported complaints since 2009/10.[20]

The highest number of complaints received was in Harvey/Wokalup (6.9 per 1000 properties), while Manjimup recorded the lowest level of complaints (0.4 per 1000 properties).

Average Duration of an Unplanned Water Supply Interruption

An unplanned water supply interruption is defined as an interruption where the customer has not received at least 24 hours notification of the interruption to supply. The average duration that a customer is without a drinking water supply is a partial indicator of: service quality, the condition of the water network and the standard of network management. Table 8 details the average duration of unplanned interruptions for the four years to 2010/11.

Table 8: Average duration of an unplanned water supply interruption

Data	Average Duration of an Unplanned Water Supply Interruption (minutes)				Percentage Change
	2007/08	2008/09	2009/10	2010/11	%
Perth	132.4	141.0	125.4	114.0	-9.1
All Town Average	99.7	91.5[21]	82.8	89.1	7.6
Regional Town Average	98.7	89.9	81.4	88.2	8.4

Compared to 2009/10, the average duration of an unplanned water supply interruption fell by 9.1% in Perth, but increased by 8.4% in regional towns. The average duration of an interruption in Perth during 2010/11 (114 minutes) was the shortest reported to date.

In 2010/11, the longest average unplanned water supply interruption was in Katanning (261 minutes) and the shortest was in Kalgoorlie (28 minutes).

Average Frequency of Unplanned Interruptions

The average frequency of unplanned interruptions measures the average number of times the water supply to a customer is interrupted without at least 24 hours notice, which is a partial indicator of service quality, reliability and customer satisfaction.

Table 9 shows that, in 2010/11, the average frequency of unplanned interruptions per 100 properties in both Perth and in regional towns was the highest recorded to date.

Table 9: Average frequency of unplanned interruptions (per 1,000 properties)

Data	Average frequency of unplanned interruptions (per 1,000 properties)				Percentage Change
	2007/08	2008/09	2009/10	2010/11	%
Perth	66.0	67.5	65.6	94.3	43.8
All Town Average	132.4	165.2	122.3	167.5	37.0
Regional Town Average	134.6	168.4	124.1	169.8	36.8

In 2010/11, Port Hedland recorded the highest frequency of unplanned interruptions (546 per 1000 properties) and Busselton recorded the lowest frequency (4.4 per 1000 properties).

[20] Water Corporation revised its methodology of reporting customer complaints in 2009/10 and results are now more in line with industry standards and the definition in the NWI urban reporting framework.

[21] This figure was reported incorrectly in the 2008/2009 report as 91.0.

Health

Water Quality Compliance

The definition of a water supply zone can be found in Appendix 2.

Table 10 details the number of zones, and the percentage of the population resident in those zones, where the water supply complied with the microbiological and chemical health standards during 2010/11. All of the 60 zones measured during 2010/11 achieved 100% compliance with the standards, which is the sixth consecutive year that 100% compliance has been achieved.

Table 10: Zones and populations (%) where microbiological compliance was achieved

Data	Number of zones where microbiological compliance was achieved – 2010/11	Percentage of population where microbiological compliance was achieved – 2010/11
All Towns	60	100.0
Perth	24	100.0
Regional Towns	36	100.0

PART B: WASTEWATER PERFORMANCE INFORMATION

Covered Wastewater Schemes

The report captures wastewater supply schemes with more than 1,000 connected properties, which includes the following 22 towns:

Albany	**Collie**	**Kalgoorlie-Boulder**	**Manjimup**	**Perth**
Australind-Eaton	**Dunsborough**	**Karratha**	**Merredin**	**South Hedland**
Broome	**Esperance**	**Katanning**	**Narrogin**	
Bunbury	**Geraldton**	**Kununurra**	**Newman**	
Busselton	**Jurien**	**Mandurah**	**Northam**	

All of the wastewater schemes are managed by the Water Corporation, with the exception of Kalgoorlie-Boulder, which is managed by the City of Kalgoorlie-Boulder.

For a number of wastewater indicators, data is not available for Newman and occasionally other towns.[22] Where this is the case, the average has been calculated by excluding those towns.

Sewage Collected per Property

Sewage collected is defined as the total volume of sewage collected by the utility, measured as treatment plant inflow, plus sewage treated by another business on behalf of the water utility, e.g. a wholesaler.

During 2010/11, the state-wide total volume of sewage collected decreased by 1.2%, from 148,650ML to 146,837ML. The total volume of sewage collected in Perth was 122,765ML of the total volume collected.

Table 11 details the annual volume of sewage collected per property for the four years to 2010/11. Compared to 2009/10, the average volume of sewage collected per property in Perth and regional towns fell, by 3.7% and 5.4% respectively. Of the 21 regional towns, 14 towns reported decreases and seven towns reported increases in the volume of sewage collected per property.

Table 11: Sewage Collected per Property

Data	Sewage collected per property (kL per property)				Percentage Change
	2007/08	2008/09	2009/10	2010/11	%
Perth	198	191	189	182	-3.7
All Towns Average	194	189	185	175	-5.4
Regional Town Average[23]	194	189	185	175	--5.4

In 2010/11, the town with the largest volume of sewerage collected per property was Kununurra (318kL), and the town with the smallest volume of sewerage collected was Jurien (73kL).

[22] Data for Newman is unavailable on some indicators because the Water Corporation only manages the wastewater collection system while the wastewater treatment plant is managed by the Shire of East Pilbara.

[23] The Regional Town Average was reported incorrectly for 2007/08, 2008/09 and 2009/10.

Recycled Water (% of Effluent Recycled)

This indicator measures the percentage of treated sewage (effluent) that is used to supply recycled water. Table 12 details the proportion of sewage effluent that was used to produce recycled water for the four years to 2010/11.

In 2010/11, the percentage of treated effluent that was supplied as recycled water in Perth increased compared to the previous three years, while in regional towns the percentage was relatively unchanged. Over the past four years, the proportion of effluent that is used to produce recycled water in regional towns is much higher than in Perth. This partly reflects the much higher volumes of effluent that are produced by Perth's sewage treatment plants compared to regional treatment plants and the preference for using recycled water to irrigate public open spaces in regional towns to minimise the use of potable water.

Table 12: Recycled Water (% of Effluent Recycled)

Data	Recycled Water (% of Effluent Recycled)				Change from previous year
	2007/08	2008/09	2009/10	2010/11	
Perth	6.4	6.2	6.1	7.4	1.3
All Town Average	44.5	48.9[24]	50.0	50.5	0.5
Regional Town Average	46.4	51.0[25]	52.2	52.6	0.4

In 2010/11, four towns (Manjimup, Australind/Eaton, Katanning and Merredin) recycled 100% of their treated effluent and three towns (Collie, Jurien and Kununurra) did not recycle any treated effluent.

[24] This figure was reported incorrectly in the 2008-09 report as 49.5.

[25] This figure was reported incorrectly in the 2008-09 report as 51.7.

Asset Data

Length of Sewerage Mains and Channels (km)

Sewer mains include all trunk, pressure and reticulation mains. Table 13 details the length of the sewer main and channel network for the seven years to 2010/11.

Compared to 2009/10, the total length of sewerage mains and channels for all towns increased by 1.7%, comprising a 1.7% increase in Perth and a 1.9% increase in regional towns. Since 2004/05, the average annual growth in the length of sewer mains in Perth and regional towns is 1.8% and 3.4% respectively.

Table 13: Length of Sewerage Mains and Channels

Data	Length of Sewerage Mains and Channels (km)						
	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Perth	10,032	10,273	10,502	10,716	10,886	11,007	11,198
Regional Towns	2,669	2,800	2,917	3,077	3,176	3,204	3,265
Total	12,701	13,073	13,419	13,793	14,062	14,211	14,463

Properties served per km of Sewer Main

The purpose of this indicator is to report on the spatial density of properties served by sewerage mains. Table 14 details the properties served per km of sewer main for the four years to 2010/11.

Over the past four years the growth in the spatial density of properties served by sewer mains in regional towns (6.8%) is over twice that in Perth (3.3%).[26] It is probable that part of the difference in the growth rates can be attributed to the significant amount of new development that has been taking place in some regional towns. Another factor is that the majority of Perth's established suburbs have similar property densities to the new suburbs that are being developed.

Table 14: Properties served per km of Sewer Main

Data	Properties Served per km of Sewer Main				Percentage Change
	2007/08	2008/09	2009/10	2010/11	%
Perth	58	59	60	60	0
Average All Towns	43	43	45	46	2.2
Regional Town Average	42	43	44	45	2.3

Newman recorded the highest density of properties served by sewer mains (102 per km of main), while Jurien reported the lowest density (21 properties per km of main).

[26] There is a similar difference in the spatial density, and the relative growth rates of spatial densities, of properties served by water mains (Table 4).

Sewer Main Breaks and Chokes

The purpose of this indicator is to report on the number of sewer main breaks and chokes in the sewerage system operated by the water utility. It is a partial indicator of customer service and the condition of the sewerage network. A choke is defined as a confirmed partial or total blockage that may or may not result in a spill from the sewer system to the external environment.

Table 15 compares the number of sewer main breaks and chokes in 2010/11 with the previous year.[27]

Table 15: Sewer main breaks and chokes (per 100km of sewer main)

Data	Sewer Main Breaks and Chokes (No. per 100 km)		Percentage Change
	2009/10	2010/11	%
Perth	22.2	19.3	-13.1
Average All Towns	24.2	25.7	6.2
Regional Town Average	24.3	26.1	7.4

[27] The definition of this indicator changed in 2009/10. Consequently, it is not possible to compare performance for the years immediately following the definition change with the years prior to the change.

Customers

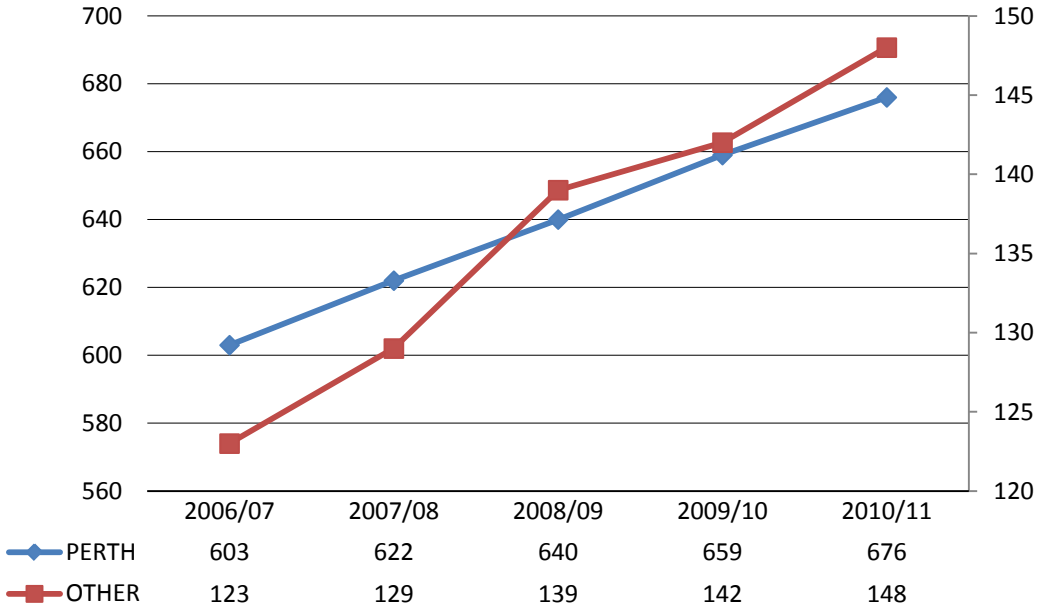
Total Connected Properties – Sewerage

The definition of a connected sewerage property can be found in Appendix 2. Figure 10 details the number of connected properties for the five years to 2010/11.

The number of connected properties in Perth and regional towns continued to rise, as it has done for the past five years. Compared to 2009/10, the number of connected properties in Perth increased by 2.9% and in regional towns by 5.7%, giving a state-wide increase of 3.2%.

Since 2006/07, the average annual growth in total connected properties was 3.2%; growth in Perth and in regional towns was 2.9% and 4.7% respectively.

Figure 10: Total connected properties – sewerage



Sewerage Service Complaints

The purpose of this indicator is to report customer satisfaction with sewerage services and provide a partial indicator of service quality and reliability. Sewerage service complaints include all complaints concerning sewer blockages and spills, trade waste services, sewerage system reliability, sewage odours and all other sewerage issues. It does not include complaints relating to government pricing policy, tariff structures or other non applicable areas of the business. The level of complaints is normalised to per 1,000 connected properties.

Table 16 details the number of sewerage service complaints (per 1,000 connected properties) received by service providers over the four years to 2010/11. Compared to 2009/10, the state-wide level of sewerage service complaints decreased by 14.8%. Perth recorded a 50.0% reduction in complaints and the average regional town recorded a 11.1% reduction in complaints. The substantial reduction in the number of complaints is due to changes in the way that Water Corporation reported complaints since 2009/10.[28]

Table 16: Sewerage Service Complaints (per 1,000 properties)

Data	Number of Sewerage Service Complaints (per 1,000 properties)				Percentage Change
	2007/08	2008/09	2009/10	2010/11	%
Perth	6.8	6.2	2.1	1.4	-50.0
Average All Towns	7.9	7.4	2.7	2.3	-14.8
Regional Town Average	8.0	7.5	2.7	2.4	-11.1

In 2010/11, Kalgoorlie-Boulder[29] recorded the highest number of sewerage service complaints (24.6 per 1000 properties), while Jurien recorded zero sewerage service complaints.

[28] Water Corporation revised its methodology of reporting customer complaints in 2009/10 and results are now more in line with industry standards and the definition in the NWI urban reporting framework.

[29] The sewerage service in Kalgoorlie-Boulder is provided by the City of Kalgoorlie-Boulder.

Environment

Comparative Sewage Treatment Levels

The purpose of these indicators is to report on the degree to which sewage requires treatment. This is an important cost driver for a water utility with respect to both capital costs and operating costs, as higher order treatment processes are more expensive than lower order processes. Definitions of the different levels of sewage treatment can be found in Appendix 2.

Figure 11 provides a breakdown of the average of percentage of sewage that was treated to a primary, secondary or tertiary level in 2010/11. The proportion of sewage treated to a tertiary level (the highest order treatment) in Perth and the average regional town was 95% and 40% respectively.

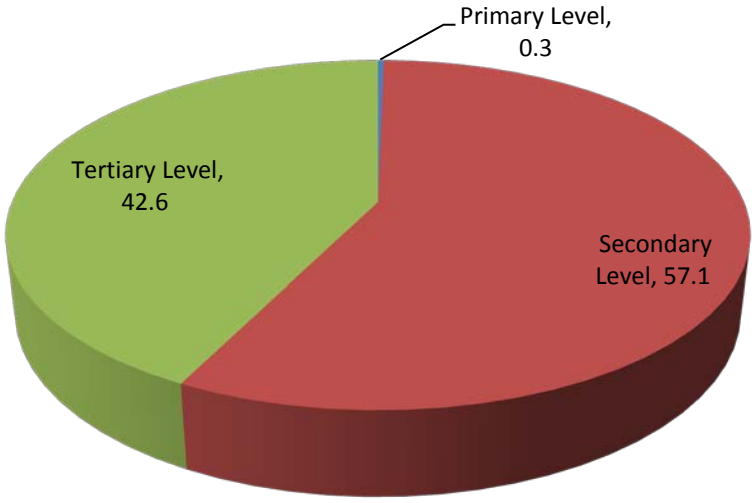


Figure 11: Percent of sewage treated by treatment level

Percent of Sewage Treated Volume Compliant

The purpose of this indicator is to demonstrate the water utility's ongoing compliance with environmental standards in relation to the environment into which the treated effluent from a treatment plant is discharged. The sewage treatment plant compliance percentage is calculated from the number of scheduled samples that complied with the environmental standards divided by the total number of scheduled samples in the reporting period.

In 2009/10, the following 20 towns achieved 100% compliance:

Albany	**Esperance**	**Manjimup**
Australind/Eaton	**Geraldton**	**Merredin**
Broome	**Jurien**	**Narrogin**
Bunbury/Dalyellup	**Karratha**	**Northam**
Busselton	**Katanning**	**Perth**
Collie	**Kununurra**	**South Hedland**
Dunsborough/Yallingup	**Mandurah**	

In 2010/11, 96.4% of the volume of sewage treated in regional towns was compliant with environmental standards, down slightly from the 97.1% compliance achieved in 2009/10 (Kalgoorlie-Boulder and Mandurah were the towns that did not achieve 100% compliance).

Table 17: Percent of Sewage Treated Volume that was Compliant

Data	Percentage of Sewage Volume Treated Compliant (%)			
	2007/08	2008/09	2009/10	2010/11
Perth	100	100.0	100	100
Average All Towns	94.5	96.3	97.2	96.6
Regional Town Average	94.3	96.2	97.1	96.4

Number of Sewage Treatment Plants Compliant at All Times

The purpose of this indicator is to report on the number of sewage treatment plants that were compliant with the environmental licence conditions related to sewage treatment plant effluent discharge at all times during the reporting period. This gives an indication of the overall performance of the utility's sewage treatment and, if problems exist, whether they are localised or more widespread.

In 2010/11, 33 of the 34 monitored sewerage treatment plants were reported compliant at all times with the exception of Mandurah where there was one instance of a licence parameter being exceeded at one treatment plant.

Sewer Overflows Reported to the Environmental Regulator (per 100 km of main)

The purpose of this indicator is to report sewer overflows that may adversely impact on water quality, human health and ecosystem stability (where they occur in sensitive areas). The number of overflows may be used as an indicator of the condition of the sewerage network and an indication of how effectively the network is being managed.

Figure 12 details the number of sewer overflows that have been reported to the environmental regulator during the past three years. It can be seen that the data varies quite widely between towns and across the years, which suggests that the causes of the overflows are more likely to be one-off events (such as severe weather or flooding) than poorly maintained sewer infrastructure.

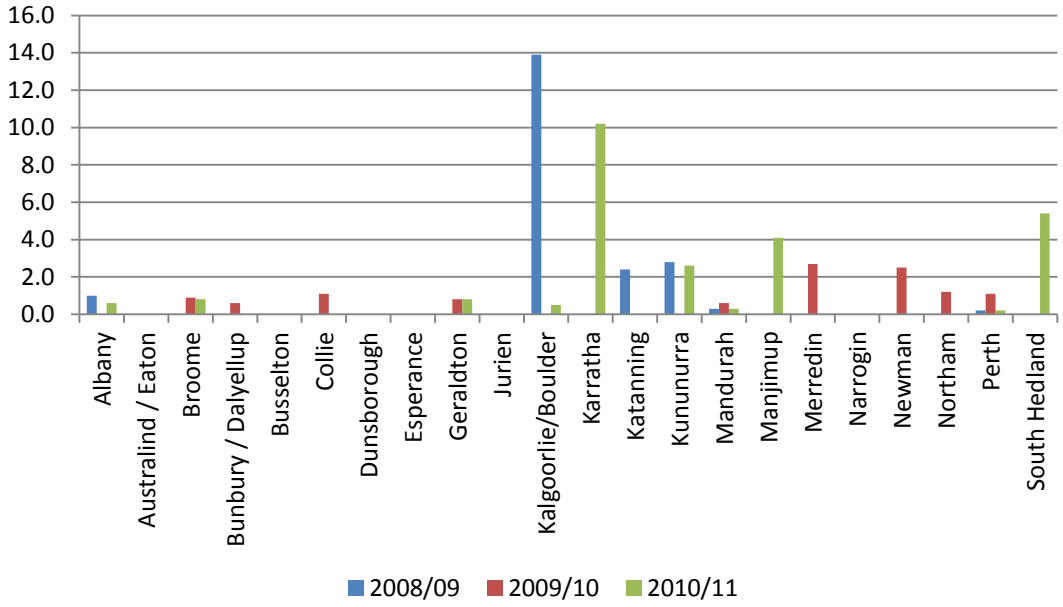


Figure 12: Sewer overflows reported to the environmental regulator

PART C: COMBINED WATER AND WASTE WATER PERFORMANCE INFORMATION

Performance Data Format

The performance data for all the towns/schemes in this section has been provided in a format consistent with the Urban Framework for water delivery and wastewater providers. This part provides performance data for schemes where the data is applicable to both water and wastewater services.

Total Recycled Water Supplied

Total recycled water supplied is the sum of all treated effluent that is used by either the water utility itself, a business supplied by the water utility, or supplied through a third pipe system for urban reuse. The volume of recycled water supplied is an indirect measure of the volume of potable or non-potable scheme water that might have been consumed had recycled water not been available.

The data presented here is for 33 water and wastewater schemes that supply recycled water in the State.

Table 18 details the volume of recycled water supplied in Perth and the average regional town over the four years to 2010/11.

In 2010/11, the total volume of recycled water supplied was 20,978ML, of which 9,134ML (or 43.5% of the total) was supplied in Perth. Compared to 2009/10, the volume of recycled water supplied in Perth increased by 21%, while the volume in the average regional town increased by 2.9%.

Table 18: Volume of recycled water supplied

Data	Total Recycled Water Supplied (ML)				Percentage Change
	2007/08	2008/09	2009/10	2010/11	%
Perth	7,947	7,635	7,551	9,134	21.0
All Town Average	540	571	596	656	10.1
Regional Town Average[30]	283	322	349	359	2.9

Figure 13 details the uses of recycled water in 2010/11. The largest use for recycled water was the commercial, municipal and industrial category (54.8%) followed by agricultural uses (18.7%).

[30] The data for 2007/08 to 2009/10 has been corrected. The previously reported values incorrectly calculated the average values for these years.

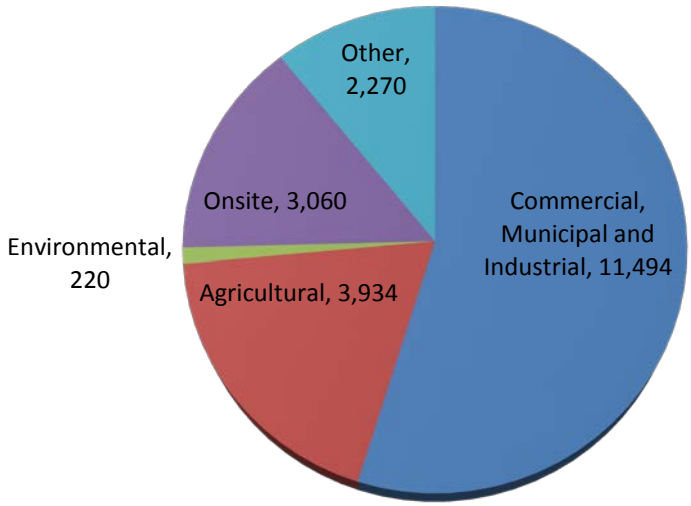


Figure 13: Uses of recycled water

Complaints

The following 19 WA towns/schemes are included in the analysis of the combined water and sewerage complaints indicators indicator:[31]

Albany	**Esperance**	**Kununurra**	**Newman**
Australind-Eaton	**Geraldton**	**Mandurah**	**Northam**
Broome	**Jurien**	**Manjimum**	**Perth**
Collie	**Karratha**	**Merredin**	**South Hedland**
Dunsborough	**Katanning**	**Narrogin**	**Port Hedland**

Total Water and Sewerage Complaints

The purpose of this indicator is to report customer satisfaction with water and sewerage services and provide an indicator of service quality and reliability. The level of complaints is normalised to per 1,000 connected properties.

Table 19 details total water and sewerage complaints for the four years to 2010/11. Compared to 2009/10, the number of complaints in Perth and the average regional town both fell by 31.7%. This fall is consistent with the fall in the number of water service complaints (Table 7) and sewerage service complaints (Table 16) over the same period.

Table 19: Total water and sewerage complaints

Data	Total water and sewerage complaints (per 1,000 properties)				Percentage Change
	2007/08	2008/09	2009/10	2010/11	%
Perth	34.6	37.7	16.8	12.1	-28.0
Average All Towns	26.4	25.2	12.0	8.2	-31.7
Regional Town Average	26.8	25.9	12.3	8.4	-31.7

The highest number of total complaints was recorded in Australind-Eaton (21.9 complaints per 1000 properties), while Newman recorded the lowest number of total complaints (3.1 complaints per 1000 properties).

Billing and Account Complaints - Water and Sewerage

The purpose of this indicator is to report on the level of billing and account complaints received for the utility's water supply and sewerage services. A billing and account complaint includes all complaints relating to account payment, financial loss or overcharging, billing errors and affordability. Complaints regarding government pricing policy, tariff structures or when a correctly calculated bill is queried are excluded. The level of complaints is normalised to per 1,000 connected properties.

Table 20 details the number of billing and account complaints for the four years to 2010/11. Compared to 2009/10, the number of billing and account complaints in the average regional town remained unchanged from the previous year, whereas the number of complaints in Perth

[31] Previous reports have included a number of water only and sewerage only towns/schemes in error. Table 19 and 20 have been re-stated with the complaints data for the four years to 2010/11 based on the 19 towns/schemes that have the water and sewerage service provided by the same utility.

increased by 16.7%. In 2010/11, Katanning recorded the highest number of complaints (3.1 per 1,000 properties), while Merredin recorded zero complaints.

Table 20: Billing and Account Complaints - Water and Sewerage

Data	Billing and Account Complaints - Water and Sewerage (per 1,000 properties)				Percentage Change
	2007/08	2008/09	2009/10	2010/11	%
Perth	1.0	1.2	1.2	1.4	16.7%
Average All Towns	0.9	1.1	1.3	1.3	0.0%
Regional Town Average	0.9	1.1	1.3	1.3	0.0%

Connect Time to a Telephone Operator

The purpose of this indicator is to report on the proportion of calls that are answered by an operator within 30 seconds, where the customer has selected an option indicating they wish to speak with an operator.

Utilities that operate a call centre capable of automatically recording operator responsiveness must report on this indicator. Utilities that have other telephone systems to handle customer calls may report this indicator on a voluntary basis.

Water Corporation is the only water service provider that operates a state-wide customer call centre, covering both water and wastewater enquiries.

Figure 14 details proportion of customer calls that were answered within 30 seconds for the five years to 2010/11. In 2010/11, 73.7% of telephone calls to a Water Corporation operator were answered within 30 seconds, down from 74.8% in the previous year. The percentage of calls answered in 2010/11 is the lowest since reporting commenced in 2006/07.

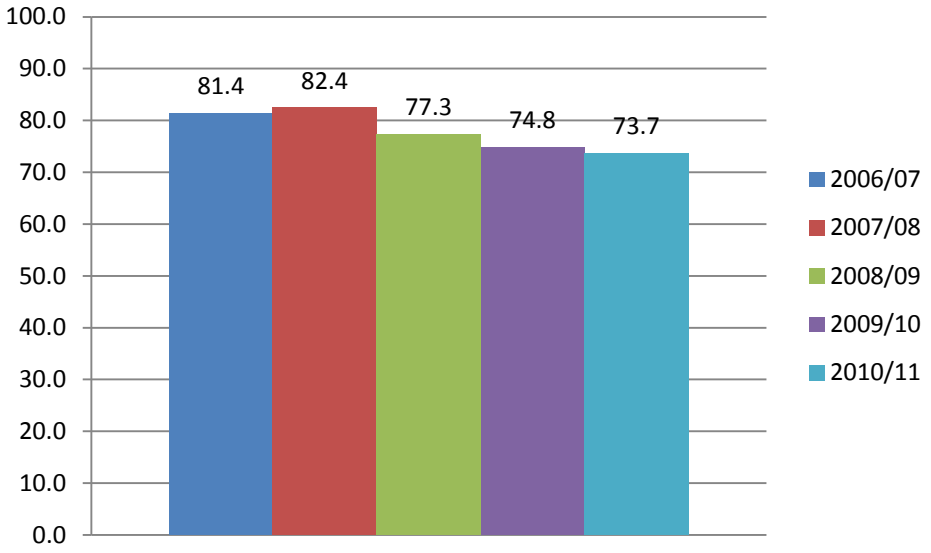


Figure 14: Percentage of telephone calls answered by an operator within 30 seconds

PART D: IRRIGATION PERFORMANCE INFORMATION

Irrigator performance data included in this report

This is the fifth report published by the Authority that examines the performance of Western Australian irrigators. The two irrigators covered by this report are:

- Ord Irrigation Cooperative Ltd (**Ord Irrigation**); and
- South West Irrigation Management Cooperative (**Harvey Water**).

There are another two irrigators licensed by the Authority, Gascoyne Water Cooperative and Preston Valley Irrigation Cooperative, who have been excluded from the 2010/11 report. The reason for excluding these irrigators is that, due to their size, they are only required to provide a limited subset of the performance information that Ord Irrigation and Harvey Water are required to provide. This makes it difficult to meaningfully compared the performance of the two pairs of irrigators; accordingly, the data from the two smaller irrigators has been removed from the report.

The data presented in this report for Ord Irrigation and Harvey Water is derived from the annual performance reports provided to the Authority under the NWI Rural Framework.

Volume of Water Supplied

Table 21 details the total volume of water supplied for irrigation over the four years to 2010/11. Compared to 2009/10, the total volume of water supplied for irrigation fell by 2.1%, due to a 7GL reduction in the volume of water supplied by Harvey Water. In 2010/11, Ord Irrigation supplied 66.2% of the total state-wide irrigation water.

Table 21: Volume of Irrigation Water Supplied

Data	Volume of Irrigation Water Supplied (kL)			
	2007/08	2008/09	2009/10	2010/11
Ord Irrigation	135,777,000	144,649,000	114,049,000	117,369,000
Harvey Water	62,086,000	65,608,000	66,965,000	59,875,800
Total	200,863,000	210,257,000	181,014,000	177,244,800

Customer service points

The method of measuring customer connections on irrigation networks under the NWI Rural Framework has been completely redefined for the 2010/11 report onwards. Up until 2010/11, irrigators reported the separate values for the number of irrigation connections and non-potable water connections on their supply networks. This has now been replaced by a single indicator measuring the number of customer service points on the network. As a result of these changes to the reporting of customer service points, the historical data for both Harvey Water and Ord Irrigation has been restated to comply with the revised definition of customer service point. Table 22 presents the restated connection data for the four years to 2010/11.

Compared to 2009/10, Harvey Water reported a 9.6% increase in the number of customer service points, while the number of customer service points on the Ord Irrigation network remained unchanged.

Table 22: Total number of customer service points

Data	Irrigation Connections			
	2007/08	2008/09	2009/10	2010/11
Ord Irrigation	273	268	283	283
Harvey Water	1,699	1,684	1,591	1,744
Total	1,972	1,952	1,874	2,027

Carrier Length (Gravity Irrigation)

Table 23 details the length of the pipes and channels in the gravity irrigation networks operated by Harvey Water and Ord Irrigation in 2010/11. The Ord Irrigation network is entirely made up from unlined channel, whereas the Harvey Water network has a mix of lined, unlined and piping.

Table 23: Carrier length (gravity irrigation)

Data	Carrier Length (km)			
	Unlined Channel	Lined Channel	Pipe	Total Carrier Length
Ord Irrigation	169.8	0.0	0.0	169.8
Harvey Water	171.0	85.0	469.0	725.0[32]
Total	340.8	85.0	469.0	984.8

Complaints

Figure 15 details the complaints received by Ord Irrigation and Harvey Water during the four years to 2010/11. Over the past four years, the number of complaints received by both irrigators has been quite small. All of the complaints that have been made relate to customer service rather than billing and account issues.

In 2010/11, Ord Irrigation was the only irrigator to receive any complaints from customers, there were two complaints regarding customer service.

[32] Harvey Water provided a total figure of 745.0km, which includes 20km of natural waterway.

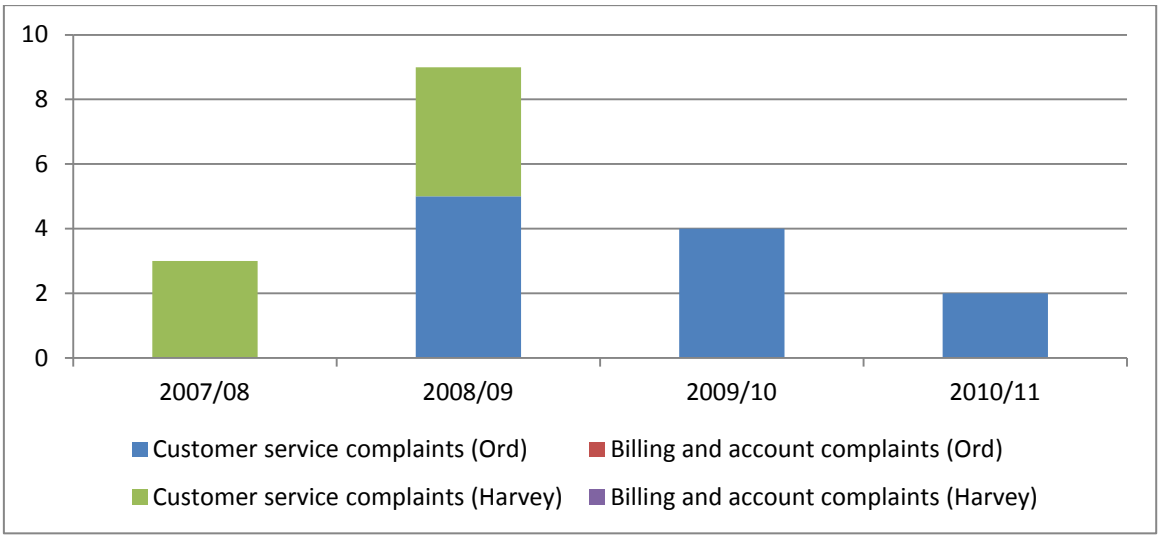
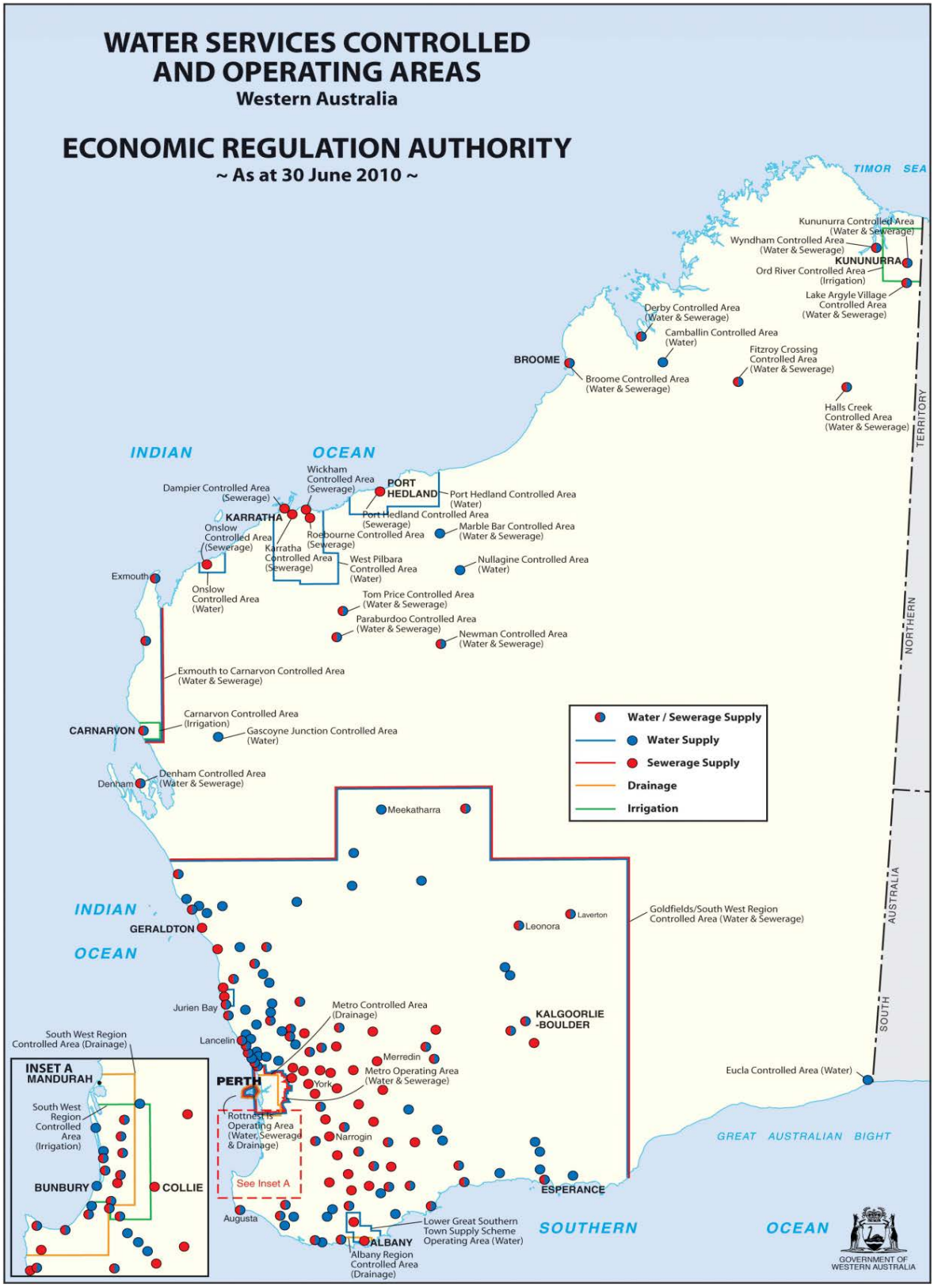


Figure 15: Customer complaints received by irrigators

Unaccounted For Irrigation Water

Previous reports have provided information about the irrigation network delivery efficiency, measured as the proportion of water entering the network that is measured as supplied water at the customer connection points. However, the percentage of water entering a network that is lost in a through leakage from channels and evaporation is often beyond the reasonable control of the irrigator; often this is a function of the local geology and climatic conditions. Consequently, this indicator has been removed from the NWI Rural Framework and it is will no longer be included in this report.

Appendix 1 - Controlled Operating Areas



Appendix 2 - Urban Performance Reporting Definitions

Please note this is a summary of some of the main definitions for reporting urban indicators used under the National Performance Framework, mentioned in this report. Further details can be found in the National Performance Framework – 2009-10 Urban Performance Reporting Indicators and Definitions Handbook. This document can be obtained from the National Water Commission website (http://www.nwc.gov.au).

Data/Indicator	Definition
Average Duration of an unplanned water supply interruption	A water supply interruption is any event causing total loss of water supply due to any cause. An unplanned water supply interruption is when the customer has not received at least 24 hours notification of the interruption. If the customer notifies the utility they are without water, the duration commences at the time of notification. This time is measured in minutes.
Complaint	Australian Standards define a complaint as an "expression of dissatisfaction made to an organization, related to its products, or the complaints-handling process itself, where a response or resolution is explicitly or implicitly expected." (AS ISO 10002-2006). Water Quality Complaints - The total number of complaints received by the water business that relate to water quality, including water quality complaints resulting from operational practices. With respect to water quality, this is any complaint regarding discolouration, taste, odour, stained washing, illness or cloudy water (e.g., caused by oxygenation), etc. ***Note:*** A water utility must be able to differentiate a 'query' versus a complaint' in order to be materially compliant for this indicator. A query can be defined as "A request by a customer for information about a product or service provided by the service provider that does not reflect dissatisfaction." Water Service Complaints - The total number of water service complaints received by the water utility. This includes all complaints concerning bursts, leaks, service interruptions, adequacy of service, water pressure and water reliability. It does not include complaints relating to government pricing policy or tariff structures. Sewerage Service Complaints - The total number of complaints received by the sewerage utility that relate to sewerage service quality and reliability. Includes all complaints concerning sewer blockages and spills, sewage odours, trade waste services, sewerage system reliability and all other sewerage issues. It does not include complaints relating to government pricing policy or tariff structures.
Connected property – water supply	A connected water supply property is: 1. connected to the licensee's water system 2. the subject of billing for water supply—fixed and/or consumption, and 3. any property which, at the end of the reporting period, is connected to the water system and is separately billed for water services—fixed and/or consumption.
Connected property – sewerage	A connected sewerage property is: 1. connected to the licensee's sewerage system 2. the subject of billing for sewerage collection—fixed and/or consumption, and 3. any property which, at the end of the reporting period, is connected to the sewerage system and is separately billed for sewerage services—

Data/Indicator	Definition
	fixed and/or consumption.
Connect time to a telephone operator	The total number of calls received by a retailer that were handled by an operator or customer service operator, and in the case of an IVR (interactive voice response) system covers the number of calls where the customer has selected the relevant operator option. This is expressed as a percentage of calls answered by an operator within 30 seconds.
Overflow (Sewage)	This is when untreated sewage spills or discharges and escapes from the sewerage system (i.e., pumping stations, pipes, maintenance holes or designed overflow structures) to the external environment, and is required to be reported to the environmental regulator as per the utility's license. Overflows are those caused by system faults originating in the system under the water utility's responsibility.
Length of water mains	The total length of water mains, including all transfer, distribution, reticulation mains and recycled water distribution and reticulation mains delivering water for urban areas.
Length of sewer mains and channels	The total length of mains and channels, including all trunk, pressure and reticulation mains. It does not include lengths associated with property connection sewers or conduits carrying treated effluent.
Primary treatment	The first major treatment process in a sewage treatment facility, principally designed to remove a substantial amount of suspended matter, but little or no colloidal or dissolved matter.
Residential water supplied	Total metered and estimated non-metered, potable and non-potable water supplied to residential properties for the reporting period.
Secondary treatment	Typically, a biological treatment process that is designed to remove approximately 85 per cent of the Biological Oxygen Demand (BOD) and influent suspended solids. Some nutrients may incidentally be removed, and ammonia may be converted to nitrate.
Sewer main breaks and chokes	Breaks or Leaks - A break or leak is a failure of the sewer main which results in an interruption to the sewerage service. Choke - A confirmed partial or total blockage that may or may not result in a spill to the external environment from the sewer system.
Sewer mains	Sewer reticulation mains include all gravity sewer mains, all pressure mains (including common effluent pipelines, rising mains etc) and all vacuum system mains of any diameter. This excludes property connection sewers and pipelines carrying treated effluent.
Tertiary or advanced (sewage) treatment	Principally designed to remove nutrients, such as phosphorus (typically <2 mg/L) and/or nitrogen (typically <15 mg/L). A high percentage of effluent suspended solids (typically >95 per cent) are also removed. Tertiary treatment may additionally target other contaminants of concern, e.g., toxicants and salt for discharges into sensitive waterways or reuse applications where high quality recycled water is required.
Total number of water main breaks	The total number of main breaks, bursts and leaks in all diameter mains for the reporting period. Breaks exclude those in the property service (i.e., mains to meter connection) and weeps or seepages associated with above ground mains that can be fixed without shutting down the main.
Total recycled water supplied	The sum of all treated effluent that is used by either the water utility itself, a business supplied by the water utility, or supplied through a third party pipe system for urban reuse. Evaporation is excluded. The parameters are the total sewage collected and the volume of effluent recycled. Recycled water can be used for on-site reuse, agriculture, irrigation, industry, potable or any other use external to the treatment process.
Total sewage	Total volume of sewage collected by the utility, measured as treatment

Data/Indicator	Definition
collected	plant inflow, plus sewage treated by another business on behalf of the water utility e.g., wholesaler. Where only treatment plant outflow is measured, record this value and comment appropriately. This measure should equal the sum of volumes reported for residential, non-residential and non-trade sewage collected and trade sewage collected.
Total sourced water	This is the sum of the volumes as supplied from dams, river extraction, groundwater, desalination, recycling and bulk supplier.
Total urban water supplied	The total metered volume of water (potable or non-potable) supplied to customers over the reporting period plus estimated non-metered water supplied. This comprises the sum of residential water supplied, commercial, municipal and industrial water supplied and other water supplied (includes estimated non-metered water supplied).
Volume of recycled water supplied - residential	Total metered and estimated non-metered consumption of recycled water by residential properties for the reporting period. This would generally occur via a third pipe system.
Volume of recycled water supplied – commercial, municipal and industrial	Total metered and estimated non-metered consumption of recycled water by commercial, municipal and industrial properties for the reporting period. For example, recycled water supplied to golf courses, heavy industry and commercial areas.
Volume of recycled water supplied - agricultural	Total metered and estimated non-metered consumption of recycled water for agricultural purposes. For example, recycled water supplied to irrigate crops, forestry or agricultural products including livestock.
Volume of recycled water supplied - environmental	Recycled water discharged to a waterway for environmental purposes as prescribed by the environmental regulator. There must be a quality characteristic that is a net benefit to the environment as determined by the relevant regulator.
Volume of recycled water supplied – On-site	Recycled water used on-site external to the treatment process.
Volume of recycled water supplied – Other	Total estimated non-metered recycled water supplied to other users. This may include estimated water used for fire fighting, mains flushing, losses (due to customer meter errors, leakage or contractors) or any other consumption due to operations.
Volume of water sourced from surface water	The total volume of water (potable and non-potable) abstracted by the utility from surface water sources such as dams, rivers or irrigation channels during the reporting period.
Volume of water sourced from groundwater	The total volume of water (potable and non-potable) abstracted from groundwater during the reporting period. To avoid double counting, this excludes volumes sourced from groundwater supplies that have been artificially recharged using sources of water that have been counted elsewhere i.e., from rivers, desalination plants or sewage plants (recycling). Other forms of artificial recharge (i.e., storm water) not counted elsewhere are to be included.
Volume of water sourced from desalination	The total volume of water (potable and non-potable) sourced from desalination plants during the reporting period.
Volume of water sourced from recycling	The total volume of water supplied by the water utility sourced from recycled water during the reporting period including recycled water from direct or indirect reuse. This should be the sum of residential, industrial/commercial, municipal irrigation and on-site substitution (where it replaces potable water). Water supplied for agribusiness by the utility

Data/Indicator	Definition
	should also be included where potable water (or raw supply to the potable system) would normally be used.
Volume of water received from bulk supplier	The total volume of water (potable and non-potable) purchased from another utility or entity outside a utility's geographic area of responsibility. The volume of water will include water which is subsequently exported (sold) to another utility.
Water treatment plant	An individual location receiving raw or partially treated water for treatment and ultimate delivery to customers. There may be more than one water treatment plant at an individual facility. Secondary or booster disinfection plants are not included, even where they have pH correction. Water treatment plants that provide fluoridation are classified as disinfection only. Disinfection only - The water treatment plant solely disinfects the water prior to supply to customers. This does not include booster disinfection plants or stations. Further treatment - The water treatment plant provides additional processes to serve a particular purpose. Whilst not meeting the requirements of full treatment (defined below), it may address some of the elements of full treatment. Full treatment - Generally, the water treatment plant is a substantial structure involving multiple treatment methods to achieve high quality water. The treatment plant would generally include processes that remove colour and/or turbidity as well as providing filtration and disinfection. In addition to the above, it may include processes for taste and/or odour reduction, softening, pH correction and the targeted removal of elements and compounds such as iron, manganese, nitrates and pesticides.
Zone	A water supply zone will generally be defined by each water business using criteria such as: ▪ A discrete area of similar water quality, e.g., served by one water treatment plant. ▪ An area able to be described by its boundaries. ▪ The nature and design of the water supply system (including the location of service reservoirs, pump stations, tanks, and trunk systems etc). ▪ The source and nature of the source of the drinking supply. ▪ The treatment components of the supply system. ▪ Australian Drinking Water Guidelines Framework for Management of Drinking Water Quality.

Appendix 3 – Rural Performance Reporting Definitions

Please note this is a summary of some of the main definitions for reporting rural indicators used under the Urban Framework, mentioned in this report. Further details can be found in the National Performance Framework – 2009-10 Rural Performance Reporting Indicators and Definitions Handbook. This document can be obtained from the National Water Commission website (http://www.nwc.gov.au).

Data/Indicator	Definition
Carrier Types	Carrier types in supply and drainage networks are as follows: ▪ Lined channel – an earthen channel lined with a low permeability material; ▪ Unlined channel – an earthen open channel without internal lining; ▪ Natural waterway – a stream or other naturally formed watercourse; and ▪ Pipe – a closed conveyance or carrier regardless of material, size or shape which conveys water typically for supply service. It is also a buried perforated carrier to collect subsurface drainage water.
Characteristic	The characteristics comprise information about rural water service providers, their businesses, reporting entities if applicable, service categories, individual services, and service related assets including water supply or drainage collection networks, customer service details and the like.
Customer Billing and Account Complaints	The total number of billing or account complaints received relating to billing activities and accounts issued by the reporting entity for rural water services. Complaints from separate customers arising from the same cause count as separate complaints.
Customer service Indicators	This indicator set reflects the 'quality of service provision' and therefore provides insights and indications into customer service performance. The indicators reflect the extent to which customer service intent has been met and matters such as the availability of assets to operate during the reporting period as well as customer complaint information.
Customer Service Points	A legitimate water service location that may or may not have a measurement device at which a customer is provided with a rural water service from a rural water service provider. This could be either a water supply or a drainage collection point. A water service location where two or more customers take water (for example via a shared pump) is counted as a single customer service point.
Rural water service delivery complaints	A complaint is an expression of dissatisfaction made to an organisation, related to its products, or the complaints-handling process itself, where a response or resolution is explicitly or implicitly expected. A complaint can be a written or verbal expression of dissatisfaction about an action, proposed action or failure to act by the water service provider, its employees or contractors. Complaints from separate customers arising from the same cause count as separate complaints. Service Delivery complaints include leaks, service interruptions, metering, overuse, adequacy of service and water pressure (in the case of pressurised water supply networks) or flow rate (in the case of gravity supply networks). Water quality complaints are excluded with the exception of water supply networks where the supply is supplemented directly by water sourced from drainage infrastructure or from urban or industrial wastewater treatment plants. Complaints regarding ordering, affordability, customer administration, billing and account complaints, complaints in regard to

Data/Indicator	Definition
	customer ordering networks associated with water-on-order water supply networks or regulated surface water supplies are excluded from this measure.
Rural Water Service Provider	An organisation that provides a rural water service or services in one or more of the following five rural water service categories: ▪ Regulated River Supply Service ▪ Network Supply Service (see above) ▪ Drainage Service ▪ Surface Water Diversion Service ▪ Groundwater Diversion Service
Volume supplied at customer service points	Total volume of water supplied via customer service points over the reporting period whether measured directly with a compliant supply measurement device or a provider approved supply measurement device or indirectly by a method approved by the reporting provider such as deeming. Estimates of deemed water supplied reflect the estimated supply for billing purposes regardless of the amount actually taken by the customer.