2012 Water, Wastewater and Irrigation Performance Report

May 2013

Economic Regulation Authority
WESTERN AUSTRALIA

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Overview

This report continues the Authority's oversight of the performance of water, sewerage and irrigation service providers. Following the changes implemented in the 2010/11 report, this report only contains performance information for water and sewerage supply schemes that supply more than 1,000 connected properties and the State's two largest irrigators. The Authority has decided that it is more appropriate to present the performance of the other, smaller, service providers in a set of data tables that are separately published on the Authority's website.[1]

Drinking Water Supply

In 2011/12, the number of potable (drinking) water supply schemes in the State with more than 1,000 connected properties (32) was unchanged from the previous year.

Compared to 2010/11, the state-wide total volume of water sourced for drinking water fell by 1.6% (from 357,214ML in 2010/11 to 351,400ML in 2011/12); Perth recorded a fall of 0.3%, and regional towns recorded a fall of 5.2% in sourced water.

The proportion of drinking water sourced from surface water fell from 29.4% (2010/11) to 24.4% (2011/12), while the proportion of water sourced from groundwater decreased slightly from 54.9% (2010/11) to 53.4% (2011/12). The overall decrease in the use of groundwater was attributable to Perth, where the proportion of groundwater decreased from 55.8% to 52.7%, while regional towns recorded an increase of 3.1% from 52.5% to 55.6%.

The third source of drinking water in Perth is desalination; in 2011/12, desalination supplied 19.2% of Perth's drinking water; up from 10.9% in 2010/11. The third source of drinking water in regional towns was provided by bulk water providers; in 2011/12, bulk water supplied 17.2% of drinking water in regional towns, which was almost unchanged from 2010/11.

Compared to 2010/11, the state-wide total volume of urban water supplied increased by 0.6% (from 333,283ML to 335,292ML). Over the same period, the average annual water consumption per property in Perth fell by 5.3% (from 264kL to 250kL), while average consumption in regional towns fell by 4.3% (from 327kL to 313kL). The variations in total volume of urban water and average water consumption can be explained by the increase in the number of connected properties across the State (see below). Average water consumption per property across the State continued to vary in accordance with the prevailing climate; the highest consumption in 2011/12 was in Kununurra (531kL/annum), while the lowest consumption was in Denmark (145kL/annum).

The size of water supply networks, measured by the total length of water mains, grew for the sixth consecutive year. The state-wide total length of water mains grew by 0.9% (from 18,930 in 2010/11 to 19,109km in 2011/12), taking the average annual growth in mains over the past five years to 1.3%.

The state-wide total number of connected properties grew by 0.8% (from 923,000 in 2010/11 to 946,000 in 2011/12). Connected properties in Perth grew by 1.6% (from 738,000 in 2010/11 to 750,000 in 2011/12), while connected properties in regional towns decreased by 2.5% (from 201,000 in 2010/11 to 196,000 in 2011/12). The reduction in regional towns is the result of restated customer connections in Karratha, Newman and

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

South Hedland following a review of customer data by the Water Corporation in May 2012.

There has been a significant reduction in the state-wide total number of water service complaints. The number of complaints in 2011/12 (1.1 per 1,000 properties) was 52% lower than the previous year (2.4 per 1,000 properties). This is the third consecutive year in which the number of water service complaints has fallen. The reductions are mostly attributable to changes to the way that the Water Corporation has classified and recorded complaints since 2009/10.[2]

Compared to 2010/11, the state-wide number of water quality complaints increased by 8.6% (from 3.6 to 3.9 complaints per 1,000 properties), with Perth reporting an increase of 3.0% (6.7 to 6.9) and regional towns an increase of 8.6% (3.5 to 3.8). The highest number of water quality complaints received was in Busselton which recorded an increase from 1.4 to 22.0 complaints per 1,000 properties. This increase is attributable to Busselton Water implementing chlorination of their water supply in April 2012.

Sewerage Services

In 2011/12, the number of sewerage schemes in the State with more than 1,000 connected properties (22) was unchanged from the previous year.

Compared to 2010/11, the state-wide volume of sewage collected rose by 5.7% (from 146,837ML in 2010/11 to 155,150ML in 2011/12). In 2011/12, sewage collected in Perth accounted for 83.5% of the state-wide total volume of sewage collected. Over the same period the state-wide average annual volume of sewage collected per property rose by 9.7% (from 175kL in 2010/11 to 192kL in 2011/12); the volume collected in Perth and in the average regional town both rose, by 3.8% and 9.7% respectively.

The state-wide percentage of treated effluent that was supplied as recycled water fell from 50.5% in 2010/11 to 49.7% in 2011/12. Over the same period, Perth recorded an increase in recycled effluent (7.4% in 2010/11 to 8.0% in 2011/12), while the average regional town recorded a slight decrease (from 52.6% in 2010/11 to 51.8% in 2011/12).

The size of sewerage networks, measured by the total length of sewer mains, continues to grow across the State. The state-wide total length of sewer mains increased by 1.2% (from 14,463 in 2010/11 in 2010/11 to 14,630km in 2011/12), taking the average annual growth in sewer mains over the past seven years to 1.9%.

The state-wide total number of connected properties grew by 0.8% (from 923,000 in 2010/11 to 946,000 in 2011/12). Connected properties in Perth grew by 1.3% (from 676,000 in 2010/11 to 685,000 in 2011/12), while connected properties in regional towns decreased by 1.4% (from 148,000 in 2010/11 to 146,000 in 2011/12). The reduction in regional towns is the result of restated customer connections in Karratha and Newman following a review of customer data by the Water Corporation in May 2012.

The state-wide total number of sewerage service complaints (per 1,000 connected properties) fell by 47.8% (from 2.3 in 2010/11 to 1.2 in 2011/12). This is the third consecutive year in which the number of complaints has been substantially lower than in the previous year; the number of complaints in 2011/12 was the lowest recorded. As is the case for water service complaints, the reduction in sewerage service complaints can

[2] The 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 National Water Initiative urban reporting framework.

be attributed to changes made to the way that the Water Corporation has classified and recorded complaints.

Irrigation Services

There have been significant changes made to the performance reporting framework for irrigators following the release of the 2010/11 Rural Framework in May 2011.[3] The 2010/11 Rural 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 Rural 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.

Compared to 2010/11, the total volume of irrigation water supplied fell by 7.0% (from 177,245ML in 2010/11 to 164,912ML in 2011/12), driven by a 13.8GL reduction in the volume of water supplied by Harvey Water. In 2011/12, Ord Irrigation supplied 72.0% (118,816ML) of the total irrigation water supplied.

There has been a change in the way that irrigators report the number of customer connections (service points) on their network in 2011/12. Up until 2010/11, irrigators reported separate values for irrigation water supply and non-potable (stockfeed and process water) service points. The 2010/11 Rural Framework only requires irrigators to report on irrigation service points. The historical data for customer service points presented in this report has been adjusted accordingly.

Compared to 2010/11, the total number of customer service points on the Harvey Water network increased by 0.9% (from 1,744 in 2010/11 to 1,760 in 2011/12), while the number of service points on the Ord Irrigation network fell by 4.6% (from 283 in 2010/11 to 270 in 2011/12).

[3] The rural performance reporting framework under the National Water Initiative Agreement.

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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, in-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 requires service providers to obtain a licence to provide a water service in a controlled area of the State, as well as dealing with 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;
- 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;[6] 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] 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 a 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 982,400 connected properties and managing more than $12.7 billion of water supply, wastewater, drainage and bulk water (for irrigation) infrastructure.[7]

Aqwest and Busselton Water are government statutory authorities operating under the *Water Boards Act 1904*. Aqwest and Busselton Water service approximately 16,000 and 11,300 connected properties, and manage infrastructure of approximately $95 million and $54 million, respectively.[8]

The City of Kalgoorlie-Boulder provides sewerage services to the town of Kalgoorlie-Boulder. The City of Kalgoorlie-Boulder services approximately 14,900 connected properties and manages approximately $28.4 million in sewerage and effluent infrastructure.[9]

The Rottnest Island Authority 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.

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

[7] See the Water Corporation 2012 Annual Report, available at http://www.watercorporation.com.au for more details.

[8] See the Busselton Water 2011 - 12 Annual Report, available at http://www.busseltonwater.wa.gov.au and the Aqwest 2012 Annual Report, available at http://www.aqwest.wa.gov.au for more details.

[9] See the City Of Kalgoorlie-Boulder 2011- 2012 Annual Report, available at http://www.ckb.wa.gov.au for more details.

published annually. Further information on the NWI Agreement and the performance reporting frameworks can be found on the NWC'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 seven towns that are captured by the Urban Framework: Albany, Australind/Eaton (water only), 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.

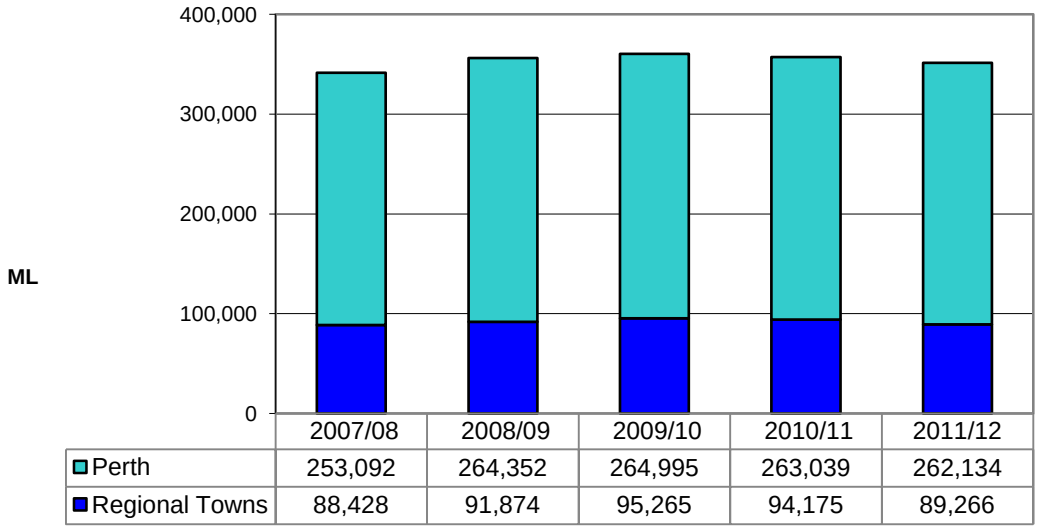
[14] More detailed definitions of water sources can be found in Appendix 2.

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 2011/12 has decreased by 1.6% (from 357,214 to 351,400ML), compared to 2010/11. The 1.6% reduction comprised a 0.3% fall in water sourced for Perth and a 5.2% fall in water sourced for other towns.

Figure 1: Total volume of water sourced from all sources



	2007/08	2008/09	2009/10	2010/11	2011/12
Perth	253,092	264,352	264,995	263,039	262,134
Regional Towns	88,428	91,874	95,265	94,175	89,266

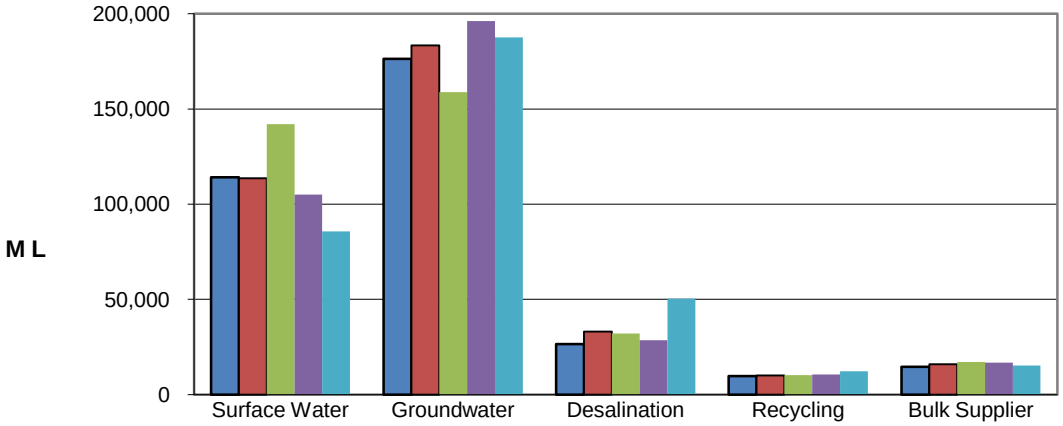
Figure 2 and Figure 3 detail the sources of water for all towns (Perth and the regional towns combined). In 2011/12, the volume of water sourced from surface water has decreased by 18.4%, and the volume of water sourced from groundwater also decreased by 4.3%, compared to 2010/11.

Compared to 2010/11, the proportion of the state-wide total drinking water sourced from groundwater fell from 54.9% to 53.4%, while the proportion sourced from surface water fell from 29.4% to 24.4%. The volume of drinking water sourced from desalination increased in 2011/12, desalination accounted for 14.4% of the total sourced water; the highest level since reporting began.[15]

The proportion of water sourced from recycling continues to represent the smallest of the five water sources, although in 2011/12 the proportion of water sourced from recycling reached a five-year high of 3.5% of the total sourced water, up from a previous high in 2010/11 of 3.0%.

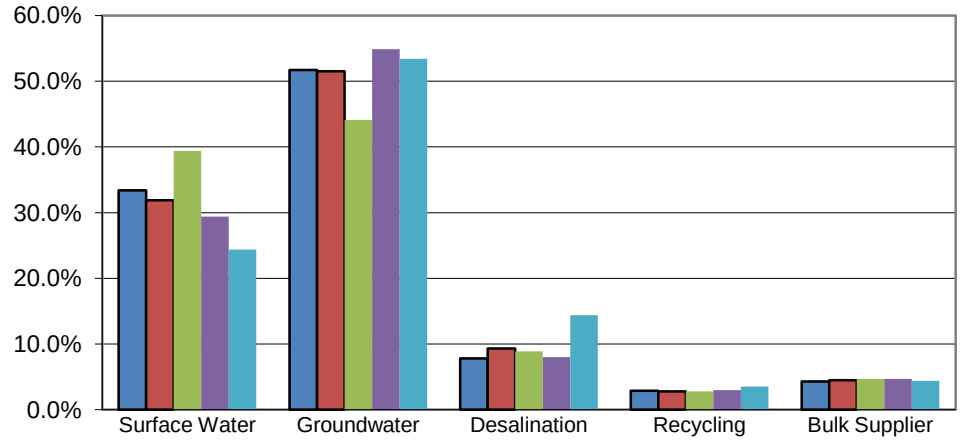
[15] The Water Corporation reported that desalination production was 78,847ML; an estimated 50,458ML was supplied directly to customers with the remainder being transferred to surface water storage.

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



	Surface Water	Groundwater	Desalination	Recycling	Bulk Supplier
2007/08	114,204	176,397	26,565	9,771	14,583
2008/09	113,634	183,510	33,160	10,005	15,918
2009/10	142,065	158,863	32,034	10,232	17,066
2010/11	105,090	196,208	28,541	10,608	16,767
2011/12	85,749	187,691	50,458	12,185	15,315

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



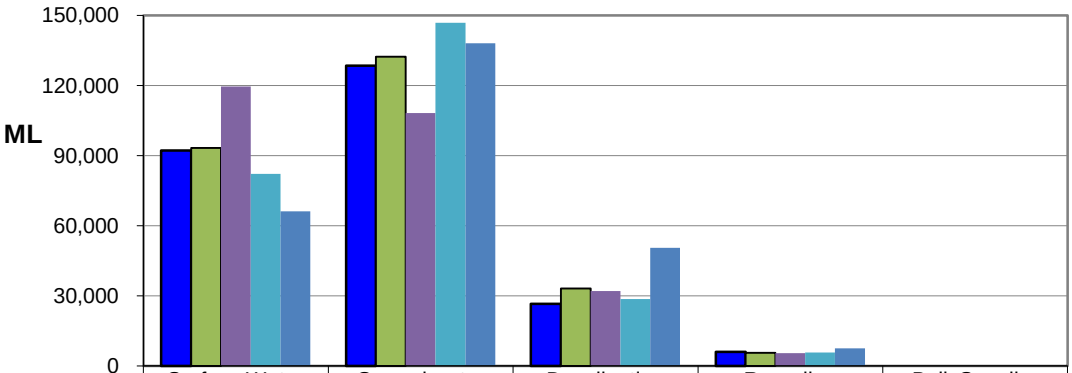
	Surface Water	Groundwater	Desalination	Recycling	Bulk Supplier
2007/08	33.4%	51.7%	7.8%	2.9%	4.3%
2008/09	31.9%	51.5%	9.3%	2.8%	4.5%
2009/10	39.4%	44.1%	8.9%	2.8%	4.7%
2010/11	29.4%	54.9%	8.0%	3.0%	4.7%
2011/12	24.4%	53.4%	14.4%	3.5%	4.4%

Figure 4 and Figure 5 detail the sources of drinking water for Perth. In 2011/12, groundwater and surface water together accounted for almost 80% of Perth's total sourced water, and desalination accounted for a further 19.2% of the total.[16]

[16] The Water Corporation reported that desalination production was 78,847ML, with an estimated 50,458ML supplied directly to customers. The remaining 28,389ML 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.

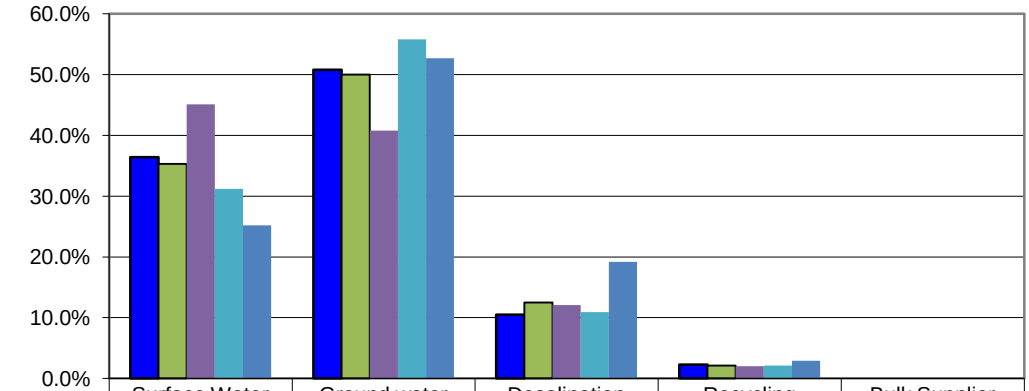
Examination of Figure 4 shows that the combined reductions in water sourced from surface water and groundwater in 2011/12 (24,676ML), was nearly all replaced by an increase in water sourced from desalination (

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



	Surface Water	Ground water	Desalination	Recycling	Bulk Supplier
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
2011/12	66,156	138,030	50,458	7,490	0

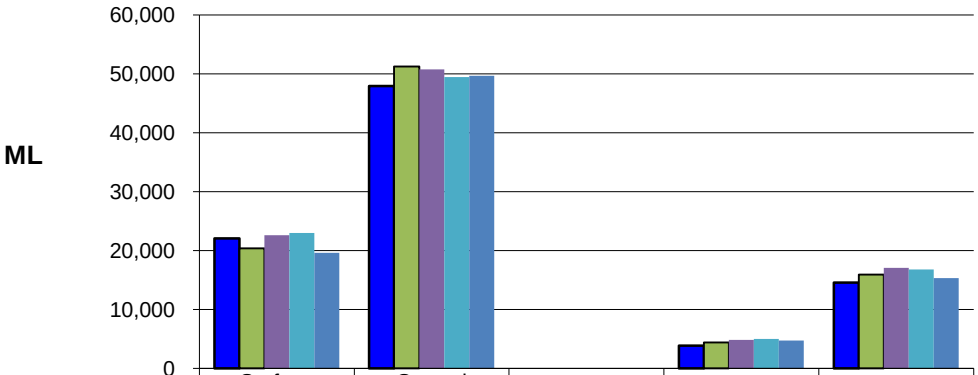
Figure 5: Sources of water by percentage (Perth only)



	Surface Water	Ground water	Desalination	Recycling	Bulk Supplier
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%
2011/12	25.2%	52.7%	19.2%	2.9%	0.0%

Figure 6 and Figure 7 detail the sources of drinking water for regional towns only. In 2011/12, groundwater and surface water together accounted for almost 78% of the regional towns' total sourced water, and water supplied via bulk supplier accounted for a further 17.2% of the total.

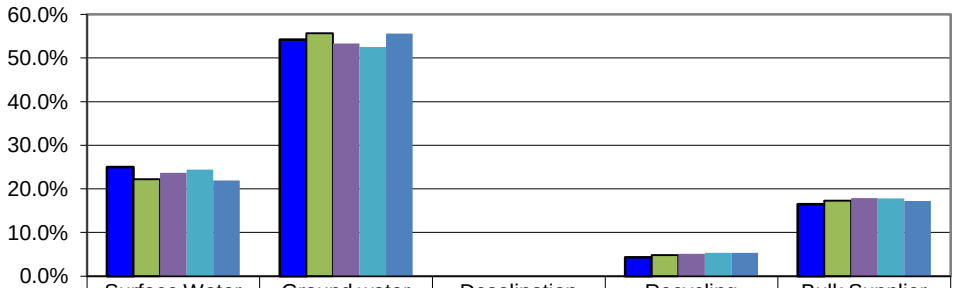
Figure 6: Sources of Water by Volume (regional towns only)



	Surface Water	Ground water	Desalination	Recycling	Bulk Supplier
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
2011/12	19,593	49,661	0	4,695	15,315

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.

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



	Surface Water	Ground water	Desalination	Recycling	Bulk Supplier
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%
2011/12	21.9%	55.6%	0.0%	5.3%	17.2%

Comparing Figure 5 with Figure 7, 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.

[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.

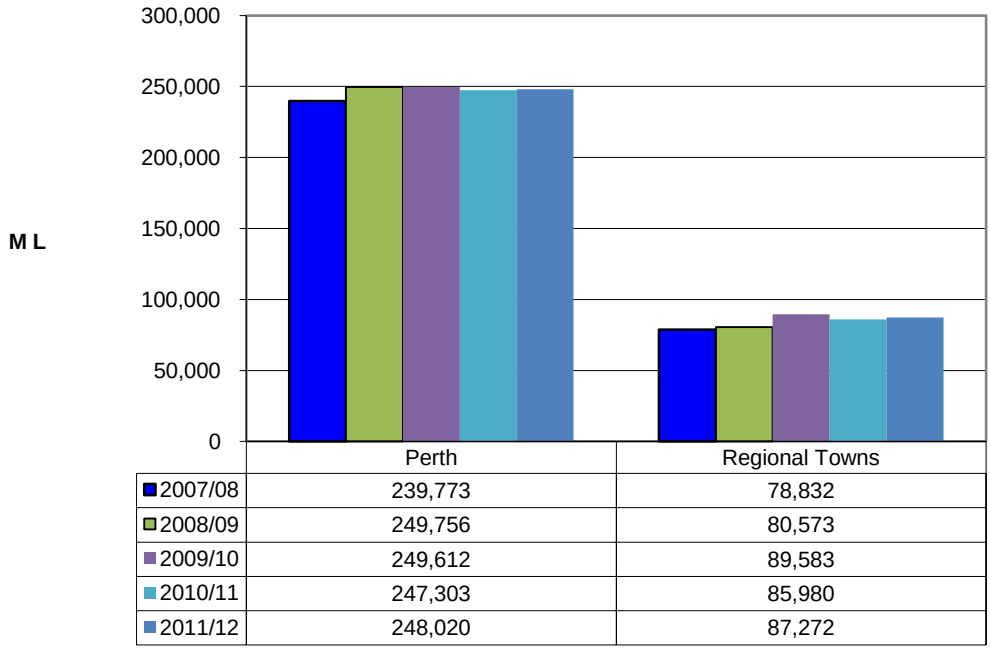
Uses of Water Supplied

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 2011/12 was 335,292ML, of which 74.0% was supplied to Perth. Compared to 2010/11, the total volume of water supplied increased by 0.6%, comprising a 0.3% increase in the volume of water supplied to Perth and a 1.5% increase in the volume supplied to regional towns.

Figure 8: Total Urban Water Supplied



	Perth	Regional Towns
2007/08	239,773	78,832
2008/09	249,756	80,573
2009/10	249,612	89,583
2010/11	247,303	85,980
2011/12	248,020	87,272

Average Annual Residential Water Supplied

Table 2 details the average annual residential water supplied for the four years to 2011/12. In 2011/12, the average annual residential water supplied per property in regional towns (313kL) was 20.1% higher than in Perth (250kL). The 2011/12 average annual residential water supplied in Perth and the average regional town were at the lowest level since reporting began in 2007/08.

Compared to 2010/11, the residential water supplied per property fell across the State, with the percentage reduction in the average regional town (4.3%) being just under that of the average Perth property (5.3%).

Table 2: Average annual residential water supplied per property

Data	Average annual residential water supplied per property (kL/property)				Percentage Change
	2008/09	2009/10	2010/11	2011/12	%
Perth	277	276	264	250	-5.3
All Town Average	346	357	325	311	-4.3
Regional Town Average	348	360	327	313	-4.3

In 2011/12, Kununurra recorded the highest average annual residential water consumption (531kL), while Denmark had the lowest consumption per property (145kL). 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 2011/12, the length of water mains was 13,292km in Perth and 5,817km in regional towns, an increase of 0.7% and 1.5% respectively, compared to the previous year. The total length of water mains across the state in 2011/12 was 5.2% higher than in 2007/08, which is equivalent to an average annual growth rate of 1.3%.

Table 3: Length of water mains (km)

Data	Length of water mains (km)				
	2007/08	2008/09	2009/10	2010/11	2011/12
Perth	12,737	12,861	12,997	13,198	13,292
Regional Towns	5,433	5,543	5,621	5,732	5,817
Total	18,170	18,404	18,618	18,930	19,109

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 2011/12, the spatial density of properties served by water mains in Perth was 86% higher than in the average regional town.

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

Data	Properties served (per km of water main)				Percentage Change
	2008/09	2009/10	2010/11	2011/12	%
Perth	55	56	56	56	0.0
All Town Average	32	32	33	31	-6.1
Regional Town Average	31	31	32	30	-6.3

In 2011/12, Perth had the highest density of properties served (56 per km of main), while Merredin had the lowest density of properties served (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 maintenance carried out by the service provider and local geological conditions, particularly soil types.

Table 5 shows that, in the four years to 2011/12 the level of mains breaks in Perth reached the lowest level since 2008/09 while the level of breaks in the average regional town has increased after being relatively unchanged from the previous three years.

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

Data	Water Main Breaks (per 100 km of Water Main)				Percentage Change
	2008/09	2009/10	2010/11	2011/12	%
Perth	15.3	13.4	12.7	12.5	-1.6
All Town Average	18.6	18.5	18.6	20.0	7.5
Regional Town Average	18.7	18.7	18.8	20.2	7.4

Connected Properties

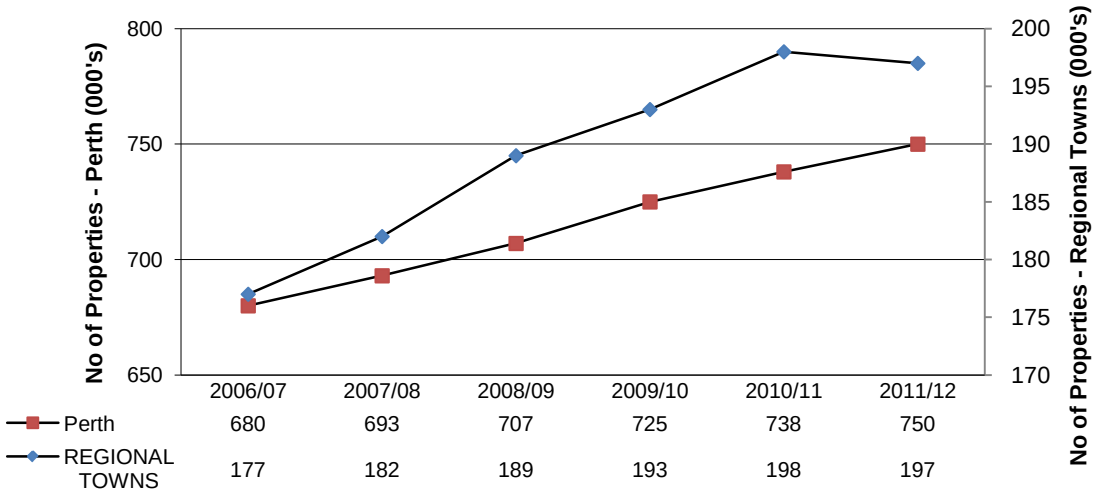
The definition of a connected water property can be found in Appendix 2. Figure 9 details the number of connected properties over the six years to 2011/12.

Compared to 2010/11, the total number of connected properties in the state grew by 0.8% to 946,000 properties. The number of connected properties in Perth increased by 1.6% and in regional towns decreased by 2.5%. The decrease in regional towns is driven by reductions in the number of connections in three towns: Karratha, South Hedland and Newman. The Water Corporation has confirmed the reductions are the result of a review of customer accounts in their customer management system that was completed in May 2012.

It should be noted that the information provided in the 2010/11 report for connected properties was incorrectly reported. Connected property values, while accurate, were

being displayed under the wrong years; the table in Figure 9 has been corrected and is now accurate.

Figure 9: Number of connected properties - water supply



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 2011/12. In 2011/12, the total number of complaints averaged across all towns increased by 8.3%.

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

Data	Water Quality Complaints (per 1,000 properties)				Percentage Change
	2008/09	2009/10	2010/11	2011/12	%
Perth	6.5	7.9	6.7	6.9	3.0
All Town Average	3.7	3.9	3.6	3.9	8.3
Regional Town Average	3.6	3.7	3.5	3.8	8.6

In 2011/12, Busselton had the highest number of water quality complaints (22.0 per 1000 properties), while Derby and Merredin had the lowest number (0.0 complaints per 1000 properties).

Busselton recorded an increase of 1,471% in the number of water quality complaints in 2011/12 compared to 2010/11. This is attributable to Busselton Water undertaking a chlorination programme of the water supply in the region in April 2012 that was the subject of a campaign by some customers opposed to the introduction of chlorination.

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 2011/12. Compared to 2010/11, there was a significant reduction in the level of water service complaints for Perth and the average regional town. In 2011/12, the number of complaints for all towns was just over 6% of the levels recorded in 2008/09. The substantial reduction in the number of complaints is due to changes in the way that the Water Corporation records and reports on complaints since 2009/10.[19]

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

Data	Water Service Complaints (per 1,000 properties)				Percentage Change
	2008/09	2009/10	2010/11	2011/12	%
Perth	24.4	5.8	2.7	0.9	-66.7
All Town Average	18.2	5.0	2.4	1.1	-52.2
Regional Town Average	18.0	4.9	2.4	1.1	-52.2

The highest number of complaints received was in Bunbury (7.3 per 1000 properties), while Derby, Jurien and York recorded the lowest level of complaints (0.0 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 2011/12.

Table 8: Average duration of an unplanned water supply interruption

Data	Average Duration of an Unplanned Water Supply Interruption (minutes)				Percentage Change
	2008/09	2009/10	2010/11	2011/12	%
Perth	141.0	125.4	114.0	118.0	3.5
All Town Average	91.5[20]	82.8	89.1	99.6	11.8
Regional Town Average	89.9	81.4	88.2	99.0	12.2

Compared to 2010/11, the average duration of an unplanned water supply interruption increased by 3.5% in Perth, and by 11.8% in regional towns. The average duration of an unplanned interruption in Perth during 2011/12 was 118 minutes compared to just under 100 minutes for regional towns.

[19] The 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.

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

In 2011/12, the longest average unplanned water supply interruption was in Katanning (219 minutes) and the shortest was in Kununurra (34 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 2011/12, 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
	2008/09	2009/10	2010/11	2011/12	%
Perth	67.5	65.6	94.3	104.6	10.9
All Town Average	165.2	122.3	167.5	184.5	10.1
Regional Town Average	168.4	124.1	169.8	187.0	10.1

In 2011/12, Karratha recorded the highest frequency of unplanned interruptions (624 per 1000 properties) and Busselton recorded the lowest frequency (1.0 per 1000 properties).

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 2011/12. All of the 61 zones measured during 2011/12 achieved 100% compliance with the standards, which is the seventh 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 – 2011/12	Percentage of population where microbiological compliance was achieved – 2011/12
All Towns	61[21]	100.0
Perth	24	100.0
Regional Towns	37	100.0

[21] Number of zones has increased in 2011/12 compared to 2010/11 from 60 to 61 due to Port Hedland and South Hedland being recorded independently. In previous years these two regions were grouped as one.

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 2011/12, the state-wide total volume of sewage collected increased by 5.7%, from 146,837ML to 155,150ML. The total volume of sewage collected in Perth was 129,586ML of the total volume collected.

Table 11 details the annual volume of sewage collected per property for the four years to 2011/12. Compared to 2010/11, the average volume of sewage collected per property in Perth and regional towns increased, by 3.8% and 9.7% respectively. Of the 21 regional towns, four towns reported decreases; sixteen towns reported increases and one town recorded no change in the volume of sewage collected per property.

Table 11: Sewage Collected per Property

Data	Sewage collected per property (kL per property)				Percentage Change
	2008/09	2009/10	2010/11	2011/12	%
Perth	191	189	182	189	3.8
All Towns Average	189	185	175	192	9.7
Regional Town Average[23]	189	185	175	192	9.7

In 2011/12, the town with the largest volume of sewerage collected per property was South Hedland (338kL), 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 2011/12.

In 2011/12, 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
	2008/09	2009/10	2010/11	2011/12	
Perth	6.2	6.1	7.4	8.0	0.6
All Town Average	48.9[24]	50.0	50.5	49.7	-0.8
Regional Town Average	51.0[25]	52.2	52.6	51.8	-0.8

In 2011/12, six towns (Albany, Australind/Eaton, Dunsborough, Kalgoorlie-Boulder, Katanning and Merredin) recycled 100% of their treated effluent and three towns (Collie, Jurien and Kununurra) did not recycle any treated effluent.

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 2011/12.

Compared to 2010/11, the total length of sewerage mains and channels for all towns increased by 1.2%, comprising a 0.7% increase in Perth and a 2.9% increase in regional towns. Since 2005/06, the average annual growth in the length of sewer mains in Perth and regional towns is 1.6% and 3.1% respectively.

[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.

Table 13: Length of Sewerage Mains and Channels

Data	Length of Sewerage Mains and Channels (km)						
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Perth	10,273	10,502	10,716	10,886	11,007	11,198	11,271
Regional Towns	2,800	2,917	3,077	3,176	3,204	3,265	3,359
Total	13,073	13,419	13,793	14,062	14,211	14,463	14,630

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 2011/12.

Compared to 2010/11 the number of properties served per km of Sewer Main in Perth has increased marginally by 1.7%. In regional towns there was a decrease by 8.7% back down towards the levels experienced in 2008/09.

Table 14: Properties served per km of Sewer Main

Data	Properties Served per km of Sewer Main				Percentage Change
	2008/09	2009/10	2010/11	2011/12	%
Perth	59	60	60	61	1.7
Average All Towns	43	45	46	42	-8.7
Regional Town Average	43	44	45	41	-8.7

Kalgoorlie-Boulder recorded the highest density of properties served by sewer mains (72 per km of main), while Jurien reported the lowest density (19 properties per km of main).

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 2011/12 with the previous two years.[26]

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	2011/12	%
Perth	22.2	19.3	18.6	-3.6
Average All Towns	24.2	25.7	23.5	-8.6
Regional Town Average	24.3	26.1	23.7	-9.2

[26] 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.

Kalgoorlie-Boulder recorded the highest number of sewer main breaks and chokes per 100km of sewer main (63.7 per 100km), while Jurien reported the lowest (0.0 per 100km).

Customers

Total Connected Properties – Sewerage

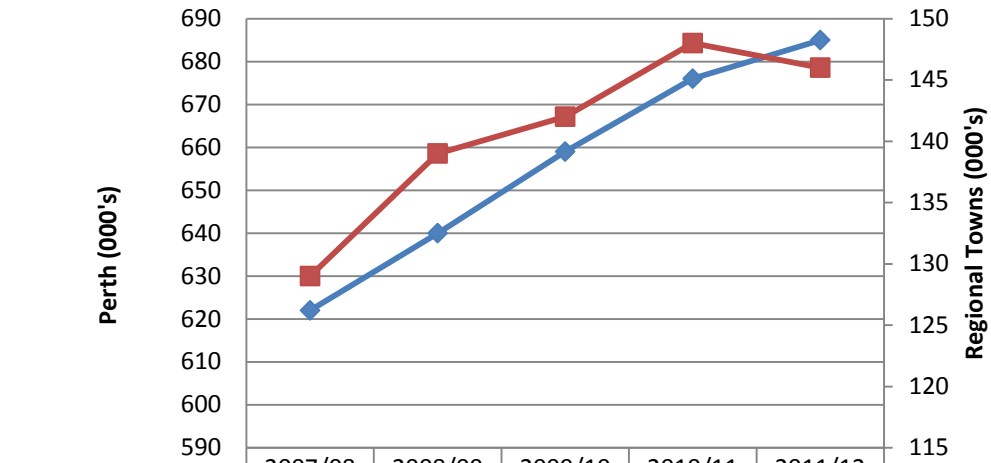
The definition of a connected sewerage property can be found in Appendix 2. Figure 10 details the number of connected properties for the five years to 2011/12.

The number of connected properties in Perth has continued to rise, as it has done for the past five years, however in regional towns there was a decrease in the number of connected properties for the first time in 5 years. Compared to 2010/11, the number of connected properties in Perth increased by 1.3% and decreased in regional towns by 1.4%, giving a state-wide increase of 0.8%.

The decrease in regional towns is driven by reductions in the number of connections in two towns: Karratha and Newman. It is probable that the reduced connections in these towns are due to the Water Corporation's review of customer accounts in their customer management system that resulted in similar reductions in the number of water connected properties.[27]

Since 2007/08, the average annual growth in total connected properties was 3.2%; growth in Perth and in regional towns was 2.4% and 3.1% respectively.

Figure 10: Total connected properties – sewerage



	2007/08	2008/09	2009/10	2010/11	2011/12
PERTH	622	640	659	676	685
Regional Towns	129	139	142	148	146

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,

[27] Refer to the comments in relation to **Error! Reference source not found.**.

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 2011/12. Compared to 2010/11, the state-wide level of sewerage service complaints decreased by 47.8%. Perth recorded a 71.4% reduction in complaints and the average regional town recorded a 50.0% reduction in complaints. The substantial reduction in the number of complaints is due to changes in the way that the 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
	2008/09	2009/10	2010/11	2011/12	%
Perth	6.2	2.1	1.4	0.4	-71.4
Average All Towns	7.4	2.7	2.3	1.2	-47.8
Regional Town Average	7.5	2.7	2.4	1.2	-50.0

In 2011/12, Kalgoorlie-Boulder[29] recorded the highest number of sewerage service complaints (12.3 per 1000 properties), while Broome, Collie, Esperance, Jurien, Newman and South Hedland all recorded zero sewerage service complaints.

Environment

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 2010/11, the following 18 towns achieved 100% compliance:

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

In 2011/12, 93.5% of the volume of sewage treated in regional towns was compliant with environmental standards, down slightly from the 96.4% compliance achieved in 2010/1.

[28] The 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.

Table 17 provides information about the three towns that did not achieve 100% compliance in 2011/12.

Table 17: Towns where 100% compliance of sewage treated was not achieved

Town	Percentage of Sewage Volume Treated Compliant (%)
	2011/12
Australind/Eaton	66.7
Kalgoorlie-Boulder	58.3
Karratha	44.0

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.

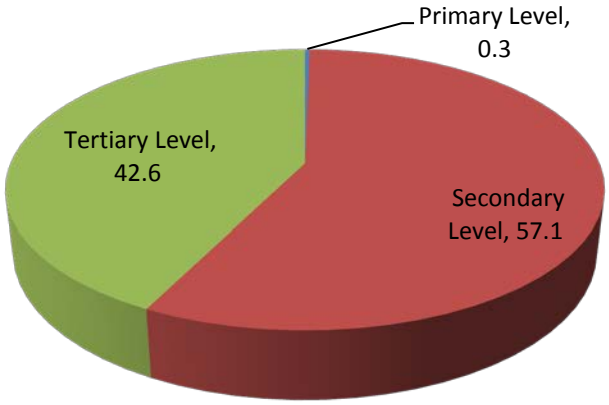
In 2011/12, 31 of the 36 monitored sewerage treatment plants were reported compliant at all times with the exception of Australind/Eaton, Bunbury/Dalyellup, Collie, Karratha and Merredin.

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 state-wide breakdown of the average of percentage of sewage that was treated to a primary, secondary or tertiary level in 2011/12. 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

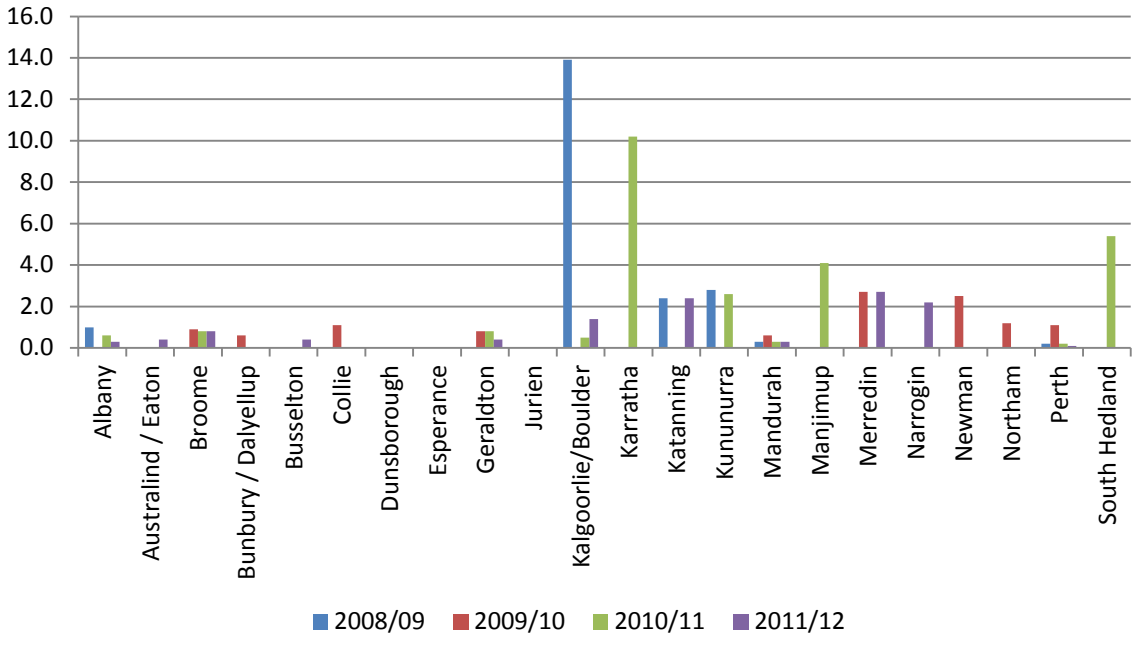


Sewer Overflows Reported to the Environmental Regulator (per 100 km of main)

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 four 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 2011/12.

In 2011/12, the total volume of recycled water supplied was 21,297ML, of which 10,370ML (or 48.7% of the total) was supplied in Perth. Compared to 2010/11, the volume of recycled water supplied in Perth increased by 13.5%, while the volume in the average regional town decreased by 7.8%.

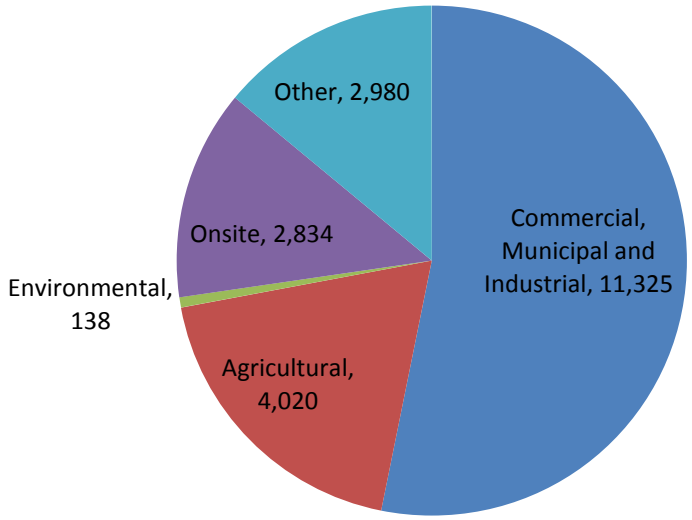
Table 18: Volume of recycled water supplied

Data	Total Recycled Water Supplied (ML)				Percentage Change
	2008/09	2009/10	2010/11	2011/12	%
Perth	7,635	7,551	9,134	10,370	13.5
All Town Average	571	596	656	666	1.5
Regional Town Average[30]	322	349	359	331	-7.8

Figure 13 details the uses of recycled water in 2011/12. The largest use for recycled water was the commercial, municipal and industrial category (53.2%) followed by agricultural uses (18.9%).

[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 20 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**	**Manjimup**	**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 2011/12. Compared to 2010/11, the number of complaints in Perth and the average regional town both fell by 21.5% and 23.2% respectively. 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.

[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.

Table 19: Total water and sewerage complaints

Data	Total water and sewerage complaints (per 1,000 properties)				Percentage Change
	2008/09	2009/10	2010/11	2011/12	%
Perth	37.7	16.8	12.1	9.5	-21.5
Average All Towns[32]	25.9	12.3	8.4	6.5	-22.6
Regional Town Average	25.2	12.0	8.2	6.3	-23.2

The highest number of total complaints was recorded in Albany (18.2 complaints per 1000 properties), while Newman recorded the lowest number of total complaints (2.1 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 2011/12. Compared to 2010/11, the number of billing and account complaints in Perth remained unchanged from the previous year, whereas the number of complaints in the average regional town decreased by 7.7%. In 2011/12, Jurien and Manjimup recorded the highest number of complaints (2.1 per 1,000 properties), while Narrogin and Newman 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
	2008/09	2009/10	2010/11	2011/12	%
Perth	1.2	1.2	1.4	1.4	0.0
Average All Towns	1.1	1.3	1.3	1.2	-7.7
Regional Town Average	1.1	1.3	1.3	1.2	-7.7

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.

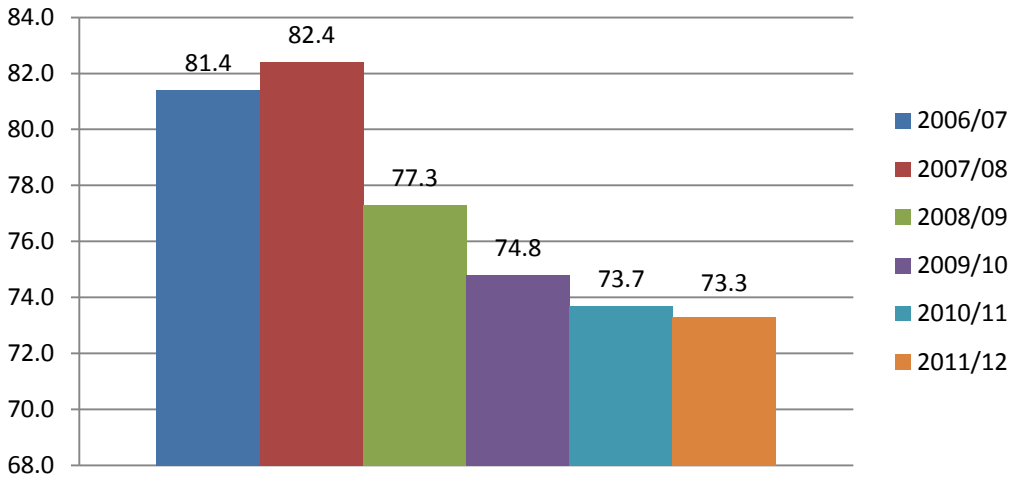
Utilities that operate a call centre capable of automatically recording operator responsiveness must report on this indicator. Utilities that have other telephone systems to handle customer calls may report this indicator on a voluntary basis.

[32] The Average All Towns and Regional Town Average information provided in the 2010/11 report for total water and sewerage complaints, while accurate, were displayed in the wrong rows. This has now been corrected.

The 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 six years to 2011/12. In 2011/12, 73.3% of telephone calls to a Water Corporation operator were answered within 30 seconds, down from 73.7% in the previous year. The percentage of calls answered in 2011/12 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 seventh 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 2011/12 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 compare 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 2011/12. Compared to 2010/11, the total volume of water supplied for irrigation fell by 7.0%, due to a 13.8GL reduction in the volume of water supplied by Harvey Water. In 2011/12, Ord Irrigation supplied 72.0% of the total state-wide irrigation water.

Table 21: Volume of Irrigation Water Supplied

Data	Volume of Irrigation Water Supplied (kL)			
	2008/09	2009/10	2010/11	2011/12
Ord Irrigation	144,649,000	114,049,000	117,369,000	118,816,000
Harvey Water	65,608,000[33]	66,965,000[34]	59,875,800	46,096,000
Total	210,257,000	181,014,000	177,244,800	164,912,000

Customer service points

The method of measuring customer connections on irrigation networks under the NWI Rural Framework was 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 the 2008/09 and 2009/10 periods 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 2011/12.

[33] Harvey Water has provided an amended figure for the volume of Irrigation Water Supplied in 2008/09.

[34] Harvey Water has provided an amended figure for the volume of Irrigation Water Supplied in 2009/10.

Compared to 2010/11 Harvey Water reported a 0.9% increase in the number of customer service points, while the number of customer service points on the Ord Irrigation network reduced by 13, being a 4.6% decrease of customer service points.

Table 22: Total number of customer service points

Data	Irrigation Connections			
	2008/09	2009/10	2010/11	2011/12
Ord Irrigation	268	286[35]	283	270
Harvey Water	1,684	1,698[36]	1,744	1,760
Total	1,952	1,874	2,027	2,030

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 2011/12. The Ord Irrigation network is entirely made up from unlined channel, whereas the Harvey Water network has a mix of lined, unlined and piping.

The Ord Irrigation network decreased in size from 169.8km in 2010/11 to 124.6km in 2011/12 due to a change in the determination methods which has provided a more accurate determination of channel length.

Table 23: Carrier length (gravity irrigation)

Data	Carrier Length (km)			
	Unlined Channel	Lined Channel	Pipe	Total Carrier Length
Ord Irrigation	124.6	0.0	0.0	124.6
Harvey Water	171.0	85.0	489.0	745.0[37]
Total	295.6	85.0	489.0	869.6

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.

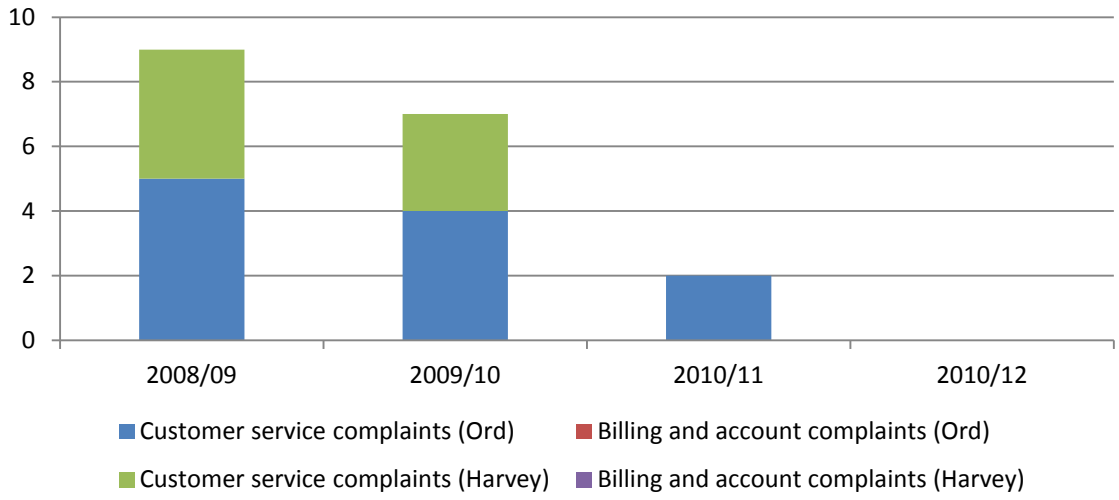
In 2010/11, Ord Irrigation was the only irrigator to receive any complaints from customers, there were two complaints regarding customer service.

[35] The 2009/10 Irrigation Connections figure for Ord Irrigation was incorrectly reported in the 2010/11 report as 283.

[36] The 2009/10 Irrigation Connections figure for Harvey Water was incorrectly reported in the 2010/11 report as 1,591.

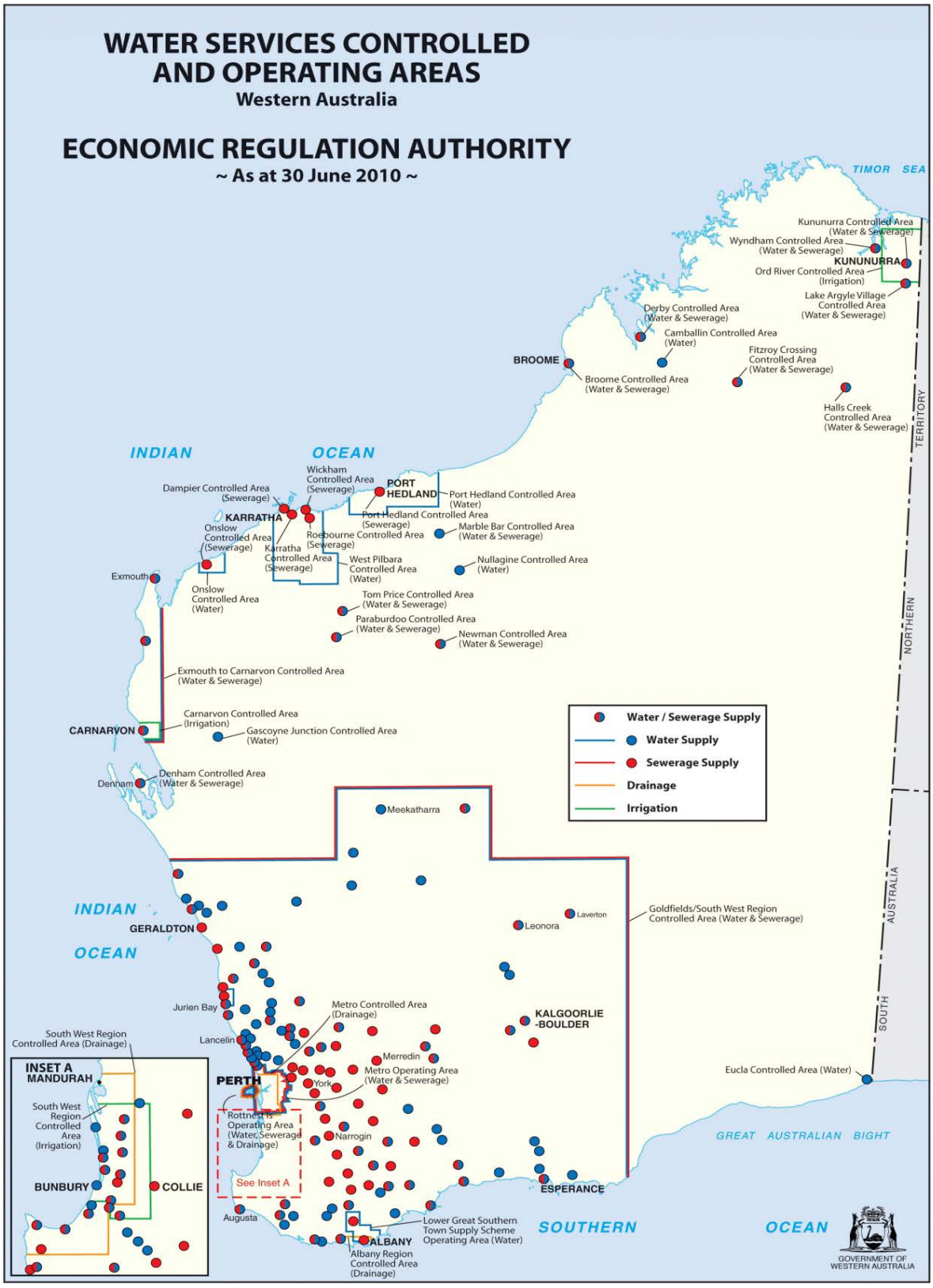
[37] Harvey Water provided a total figure of 765.0km, which includes 20km of natural waterway.

Figure 15: Customer complaints received by irrigators[38]



[38] In the 2010/11 report the total customer service complaints for 2009/10 did not show three complaints for Harvey Water, this has now been corrected and is accurately reflected in Figure 15.

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 – 2010-11 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 – 2010-11 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

Data/Indicator	Definition
	administration, billing and account complaints, complaints in regard to 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.