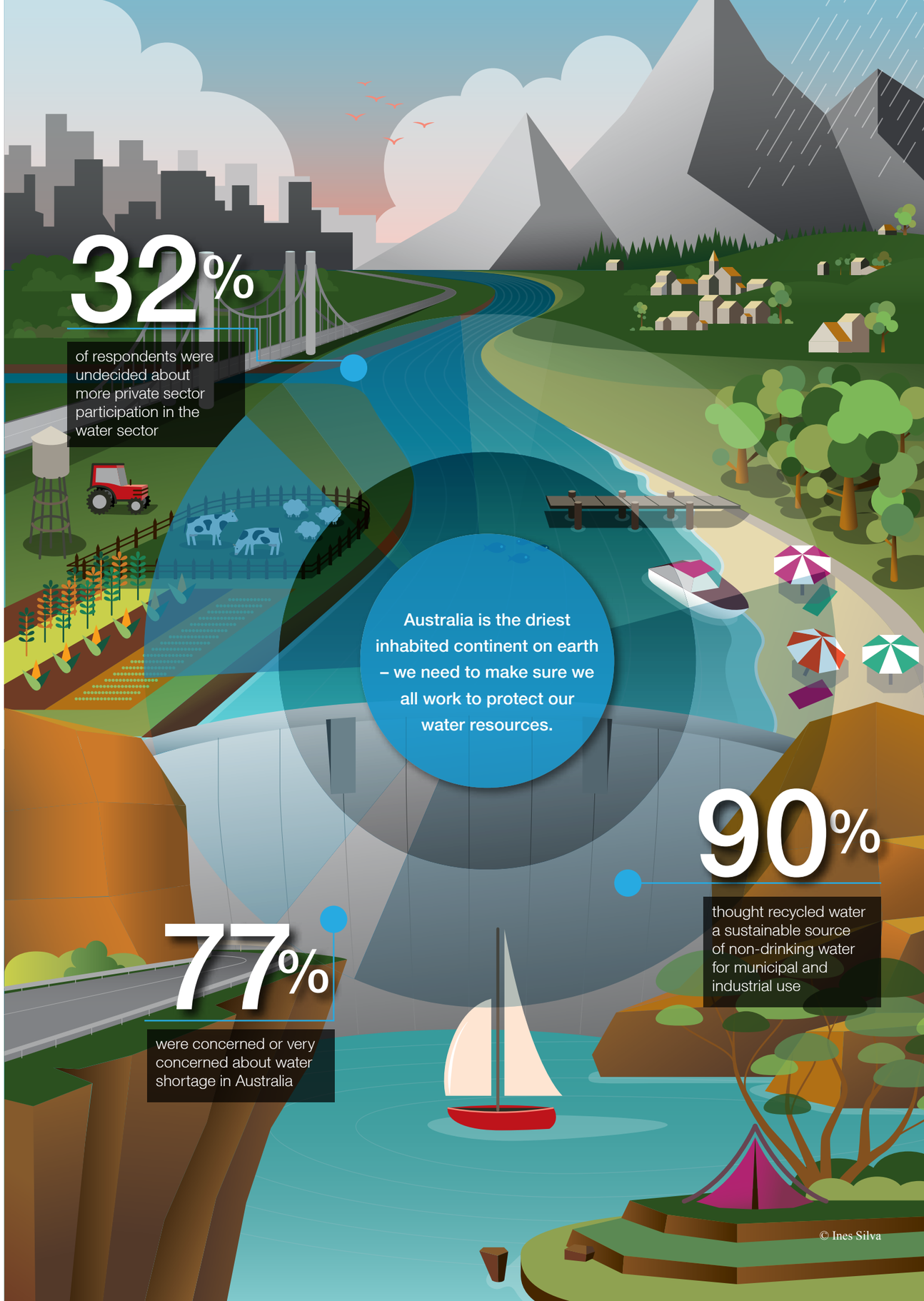
Australian Water Consumer Outlook 2015

AUSTRALIAN WATER ASSOCIATION

ARUP

Contents



Executive Summary

Do we think and talk about water only when we are in drought? Do we complain about the price of water, but are happy to pay $3 a bottle for it at the shop? Do urban residents think differently about water to people living in rural and regional areas? Do consumers know enough about our water resources to understand if governments and industry are protecting our water supply in the future? These questions and more are explored in the Australian Water Consumer Outlook.

As the driest inhabited continent on earth, it's critical we engage with and understand the attitudes of water consumers, water industry and government, and make water policy a priority.

Although many utilities undertake customer satisfaction surveys they often don't ask broader questions to gain an understanding of the consumer make-up and leadership of the industry. Further, each of these surveys is conducted independently of each other, making it difficult to identify trends and variances of perceptions nationally.

The Australian Water Consumer Outlook presents the findings of the Australian Water Consumer Survey. The Survey was conducted online between 27 July and 3 September 2015 and received 3948 responses. The data gathered for the Australian Water Consumer Outlook provides a basis for further community-informed policy debate.

Highlights include:

- Over three quarters of respondents (77%) were concerned or very concerned for water shortage in the whole of Australia and 62% of respondents were concerned or very concerned about water shortages in their state or territory. Concern was higher in rural and regional areas than in urban areas.
- Less than a third of respondents (31%) were confident there will be enough water in the future and only 34% thought the authorities were taking firm action on longer term water availability.
- The top three perceived impacts on water were drought, climate change and population growth.
- The most positively rated water provider activities were responding quickly to faults (58% rated their water provider good or very good) and being environmentally responsible (56%).
- Almost one third of respondents (32%) were undecided about more private sector involvement in the water sector, while 36% were against or strongly against it and 23% supported or strongly supported it. The key factors when considering private sector involvement are quality, price, reliable service and environmental responsibility.
- Thirty-eight per cent of respondents considered the price of water about right. Over half of the respondents (54%) thought that changes in water prices were not explained enough.
- There was strong support for alternative water sources with 90% agreeing water recycling was a sustainable non-drinking source and 82% supporting stormwater re-use. Alternative water sources were widely accepted for drinking, led by desalinated water (82% agreeing or strongly agreeing), recycled water (69%) and stormwater (56%).
- Rural and regional water consumers were stronger supporters of more dams in the north and south of Australia than urban water consumers.

About the Australian Water Consumer Outlook

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Water policy decisions are not only about technical or economic issues, but reflect the underlying consumer values and attitudes. Empowering consumers to engage on key water issues and to consider options is vital to delivering the best results for Australians. Whether serviced by a water utility, local government, or access bore water, it is important that consumers understand the choices they are making.

The Australian Water Consumer Outlook presents the findings of the Australian Water Consumer Survey. The Survey of Australian households occurred online between 27 July and 3 September 2015 and received 3948 responses.

The Outlook informs key policy debates in the Australian water sector. Section 2 explores community perceptions of the big issues, commonly debated water policy areas, for the Australian water sector. Section 3 presents state and territory summaries. The Appendices contain further information on the methodology and the authors. Please contact the authors if you would like any further information on the results or the methodology.

The Outlook provides some contextual information but remains primarily factual and data-driven. The Outlook presents the results and provides a basis for further, community-informed policy debate.

The results presented here enable the Australian Water Association and Arup to work with the water sector nationally to ensure that consumers are at the heart of the industry. As water is one of the most critical resources to Australian society and economic prosperity, it is integral we understand what consumers think and want. The alignment of consumer and industry interests is crucial to drive a sustainable water future.

The Big Issues

The Big Issues

The big issues considered in the Australian Water Consumer Outlook were selected by the Australian Water Association and Arup based on experiences across the sector and through stakeholder and member engagement. Our respective roles within the water sector give us unique ability to engage with industry-wide issues and to seek consumer perspectives on the important policy debates.

The big issues explored in the Outlook are: water sources and water providers; water shortage and water impacts; private sector participation; regulation; water prices; alternative water sources; and urban, regional and rural water differences. The following subsections provide brief contextual introduction to the policy area and results of the Australian Water Consumer Survey.

a. Water sources and water providers

Context

Consumer understanding of the sources and providers of water is important if it is to be properly valued by consumers. Raw water capture, treatment, provision of high quality drinking water, sewerage and wastewater treatment are services provided by the water sector, and if consumers are unaware of the services available then assessing their value is more difficult. Water sector awareness and knowledge is critical to demonstrating value to the community.

The Australian Water Consumer Survey sought consumer perceptions on water sources, who provided their water and wastewater services and what they thought of their service provision.

Results

When asked about the source of water for their usual residence, half of the respondents (50%) thought they received most of their water from a dam or reservoir. Other options provided to respondents included rainwater tank, bore or groundwater, desalination plant, river extraction, recycled water tank, other (which respondents defined) and don't know (response proportions shown in Figure 2.1). The majority of Australians do receive their water from surface water storages (dam or reservoir) and the Survey responses reflect this.

However, a substantial proportion of Survey respondents (15%) were either not aware or did not know the source of their water. For those respondents who selected 'Other' (19%) approximately half the responses named 'mains', 'reticulated water', 'town water' or their water utility as the source of their water.

Q12 What is the source of most of the water supplied to your usual residence?

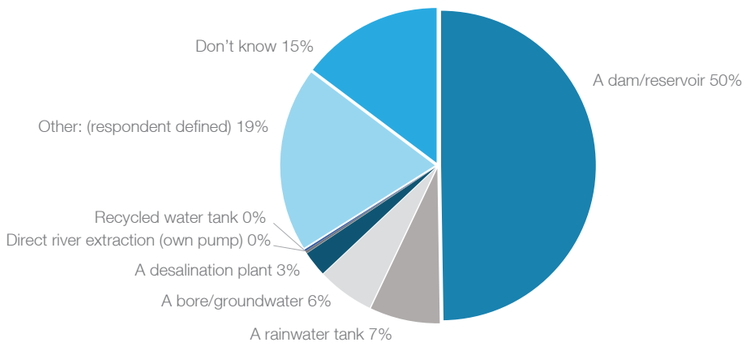


Figure 2.1 Water sources identified by respondents.

The majority of respondents could recall the organisation which provided water to their usual residence. Seventy-five per cent could name their water provider and 69% could name their sewerage service provider (Figure 2.2).

Q18/19. Can you name the organisations which provide drinking water and sewerage services to your usual residence?

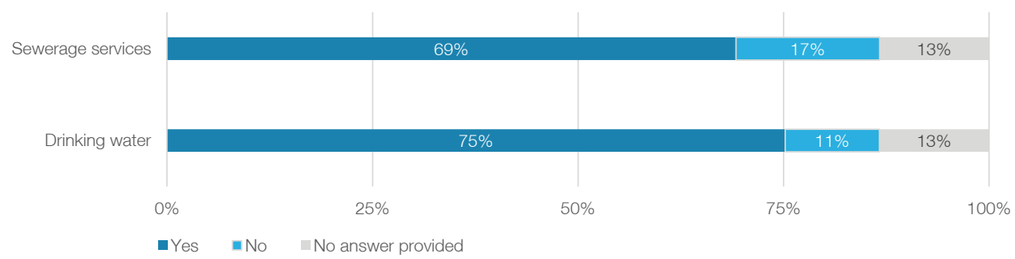


Figure 2.2 Categories of responses to questions asking respondents to name water service providers.

Respondents were most positive and most sure about the activities of water service providers which are visible and can be readily understood. The most positively rated activities were responding quickly to faults (58% rated good or very good), being environmentally responsible (56%), investing adequately in maintenance, and planning for the future (both 55%) (Figure 2.3).

Activities which are harder to assess without technical knowledge were less positively assessed by consumers. While 41% of consumers positively rated the performance of their water provider in supplying high quality water, an equal proportion were unsure (42%). Just over half of the respondents positively rated the efficiency and management of their water provider (51%).

Q20. Performance of the water provider to your usual residence

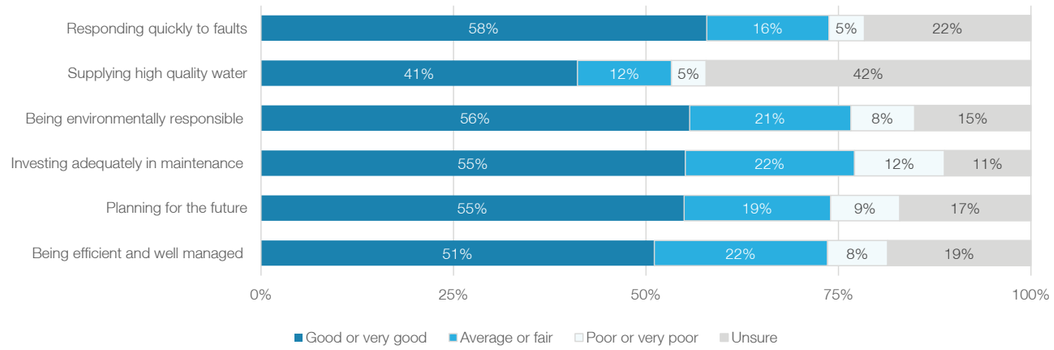


Figure 2.3 Respondent assessments of overall performance of water service providers.

b. Water shortage and water impacts

Context

In Australia, public awareness of water shortage was elevated during the Millennium Drought, which occurred with regional variation between the years 1999 to 2009. Over this period increasing numbers of Australians were expected to monitor and reduce their water usage to preserve water. Since the end of the Millennium Drought much of the community engagement programs on water shortage, behaviours and awareness have been reduced. However underlying public concern for water shortage remains to be assessed, especially as new impacts on water in Australia have emerged.

The Survey sought information on concerns for water shortage at three scales: their local area, their state or territory, and the whole of Australia. Further information was sought for consumer concerns for impacts on water in their state and territory.

Results

Concern for water shortage at larger geographic scales is widespread. Three out of every four respondents (77%) were concerned or very concerned for water shortage in the whole of Australia (Figure 2.4). Concerns about water shortage at a state and territory level were also high, with 62% of respondents concerned or very concerned. Respondents were less concerned about water shortages locally with only 35% of respondents noting they were concerned or very concerned. Respondents from rural areas were more concerned about shortage in their local area (more information contained in urban, regional and rural water differences (Section 2f).

Q14. How concerned are you about water shortages?

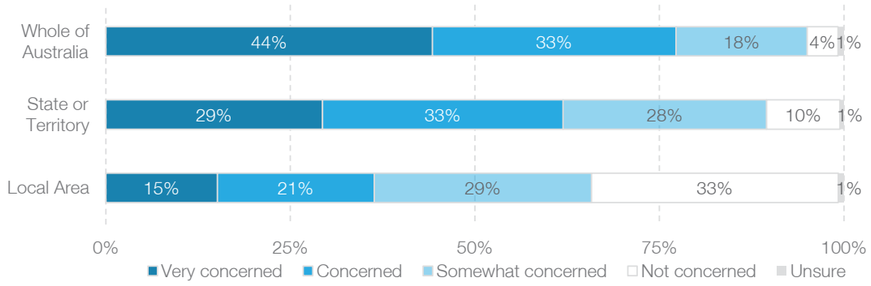


Figure 2.4 Respondents concern for water shortage for the whole of Australia, for the state or territory and for their local area.

Q14 How concerned are you about water shortages in your state or territory?

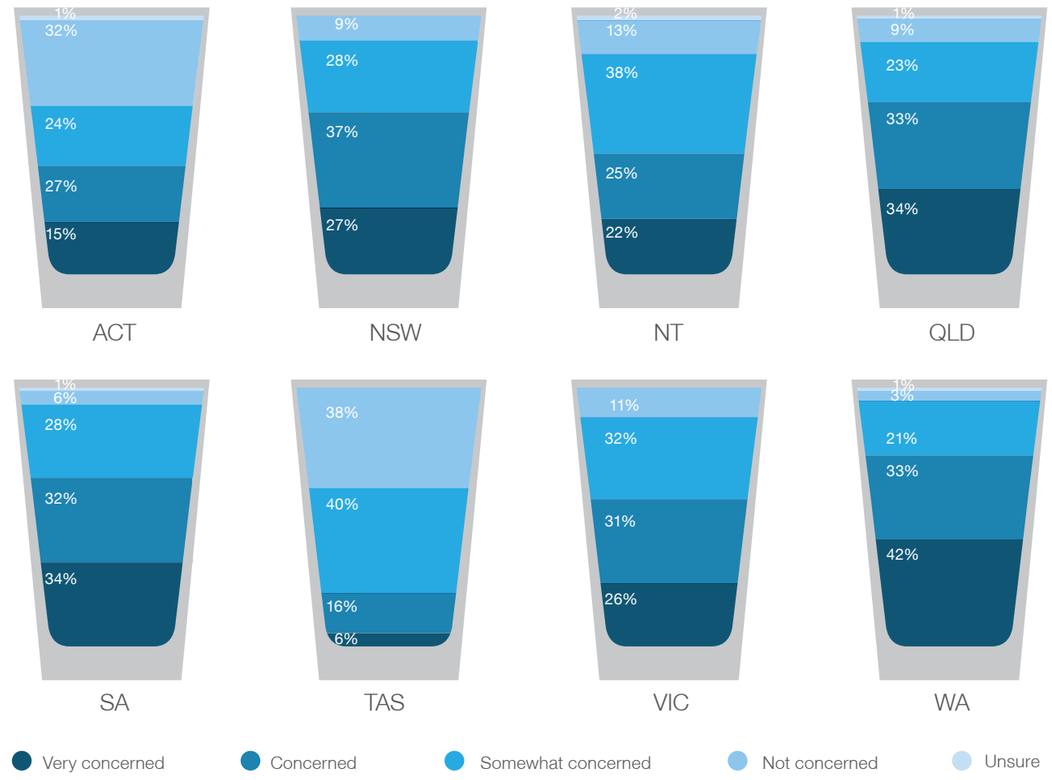


Figure 2.5 Respondent concerns for water shortage in their state and territory.

There were significant differences in the level of concern about water shortages between the states and territories (Figure 2.5). Least concerned about shortages were Tasmanians with almost 40% of respondents saying they were not concerned about water shortages and in the ACT where 32% were not concerned. In all other states less than 15% of respondents answered that they were not concerned about water shortages. The states most concerned about water shortage were WA (75% concerned or very concerned), followed by Queensland (67%), South Australia (66%) and NSW (64%).

When asked about confidence in there being enough water for the future and if firm action was being undertaken to ensure water supply in the future, we find the balance of responses in the negative (Figure 2.6). Just under half (44%) disagreed or strongly disagreed when asked if they were confident about having enough water for the future, while only one third of respondents (31%) agree or strongly agree. Respondents were evenly divided (34% agree and 34% disagree) as to whether authorities are taking firm action to ensure we have enough water in the long term, with 25% of respondent undecided.

Q16. Please indicate whether you agree or disagree with each of the following statements on water

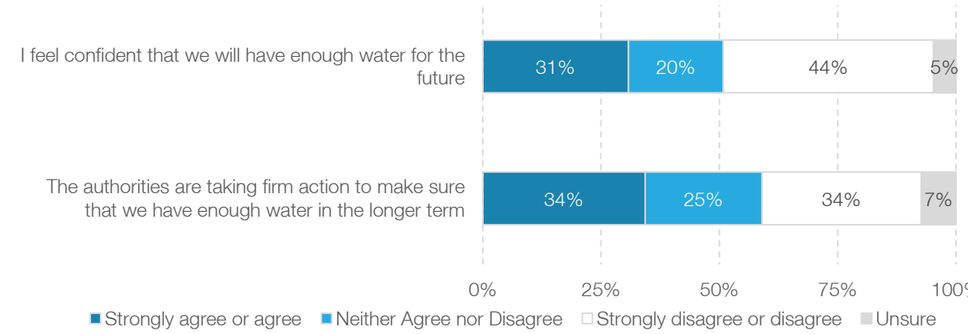


Figure 2.6 Responses to questions on water security and authority action.

Most respondents recognised that water shortages were not a short term issue. When asked to indicate their response to the statement 'water shortages are just a short term issue' over 82% of respondents disagree or strongly disagree (Figure 2.7).

Given the concern for water shortage it is interesting to delve into how respondents feel in regards to personal water use. Nearly three quarters of respondents (72%) disagree with the statement "I use whatever water is needed. Water use is not something I think much about". Most people agree that they are "willing to spend money to make their home more water efficient (66%) and would like to monitor water consumption in real time (62%)" and that water supply interruptions for a short period of time were not a big problem as long as notice is given (65%).

Q16. Please indicate whether you agree or disagree with each of the following statements on water:

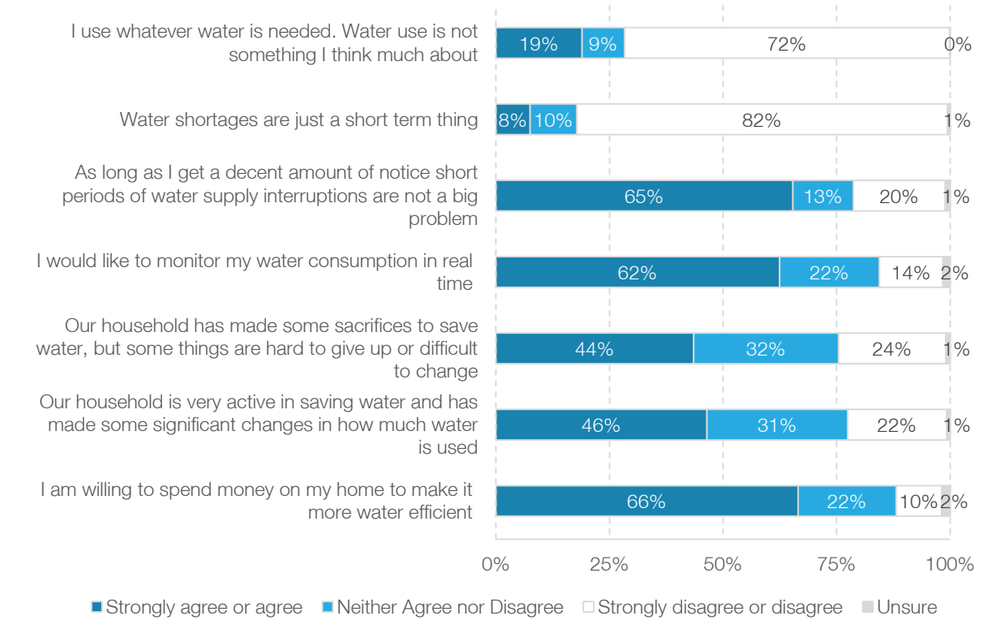


Figure 2.7 Responses to questions on water shortage and household water saving.

Q15.
How concerned are you about the following **impacts** on **water** in your state and territory?

69%
Climate change

Drought
74%

60%
Unconventional gases
(Coal seam, shale and tight)

66%
Population growth

58%
Mining and extractive industries

56%
Intensive agriculture

54%
Natural disasters
(eg.flood, bushfires)

Figure 2.8 Respondents level of concern associated with impacts on the water in their state and territory.

When asked to rate their concern for water in state or territories, most respondents were concerned or very concerned with the climate impacts on water (Figure 2.8). Overall, respondents were most concerned or very concerned about drought (74%) and climate change (68%), ahead of population growth (66%), unconventional gases (58%), mining and extractive industries (58%), intensive agriculture (57%) and natural disasters (54%).

There was variation between the states and territories in the level of concern for drought and the other impacts. Less than half of respondents in Tasmania and the Northern Territory were concerned about the impact of drought on water in their state and territory respectively (Figure 2.9). Drought and climate change were cited as the impacts of most concern for all states and territories but for the Northern Territory, where unconventional gases (coal seam, shale and tight) was the highest concern, with 49% of respondents concerned or very concerned (Table 2.1).

Q15. How concerned are you about the following impacts on water in your state and territory? – Drought

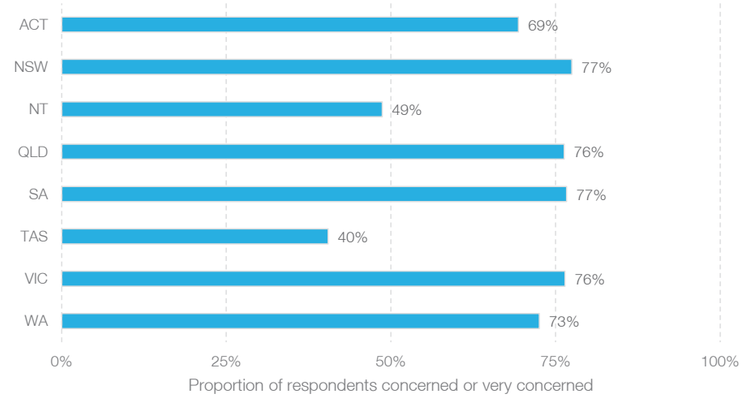


Figure 2.9 Level of concern for drought impacts on water in the states and territories.

Table 2.1 Impacts of highest concern for each state or territory

State or Territory	Impact with highest level of concern (% responses concerned or very concerned)
ACT	Climate change (72%)
NSW	Drought (77%)
NT	Unconventional gases (coal seam, shale and tight) (72%)
QLD	Drought (76%)
SA	Drought (77%)
TAS	Climate change (48%)
VIC	Drought (76%)
WA	Climate change (76%)

c. Private sector participation

Context

Australian governments are currently the primary investors, infrastructure owners and operators in the Australian water sector. Population growth, water security, climate change and increasing environmental and public health regulation mean that considerable investment in the sector is needed in the future. Significant capital expenditure is required to renew ageing assets and expand networks. Some analysts estimate that the nation needs an additional $15 billion in new water infrastructure by 2025.[1]

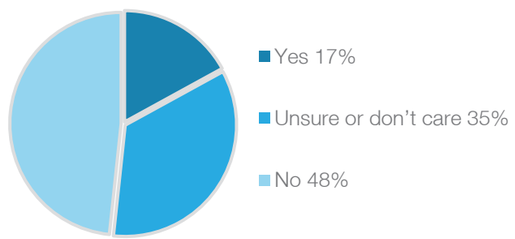
The water sector in Australia is evolving along a number of dimensions, not least of which is the level and nature of the private sector participation. Opportunities for private sector participation emerge as existing water infrastructure ages and new technology is developed. There is also a view that the water sector can fund its own investment through prices, although customers' willingness to pay for investment is low after a sustained period of significant price increases.

The Australian water Consumer Survey sought to understand the level of understanding of consumers of the current environment, and what level of involvement they would support from the private sector in the future.

Results

While most respondents accurately reflected the limited ownership of water assets by the private sector, many respondents were unaware of the level of private sector involvement in operation and maintenance of water assets. Nearly half the respondents (48%) believed the private sector does not own any water assets in their local area (Figure 2.10).

Q21. Do you think the private sector owns any water supply infrastructure in your local area?



Q22. Do you think the private sector operate or maintain any water supply infrastructure in your local area?

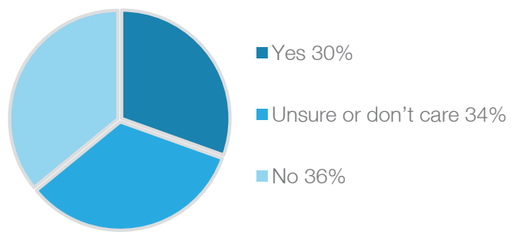


Figure 2.10 Responses on private sector participation in water supply infrastructure.

Public perception on the role of the private sector in operation and maintenance was evenly split. Just under a third of respondents (30%) thought there was private sector involvement and a slightly larger proportion (36%) thought there was not (Figure 2.10). Interestingly, 35% and 34% respectively were unsure if there was private sector ownership, or operation and maintenance of water assets in their local area.

When asked about the important factors influencing private sector involvement in providing water and water services consumers most often rated quality of service (80% of responses) as the key consideration (Figure 2.11). Other highly rated factors included the impact on price (78%), reliability of service (77%) and environmental responsibility (77%). Only 28% selected belief in government ownership as one of the most important factors.

Q23. What factors are important when considering private sector involvement in providing water and water services in your local area?

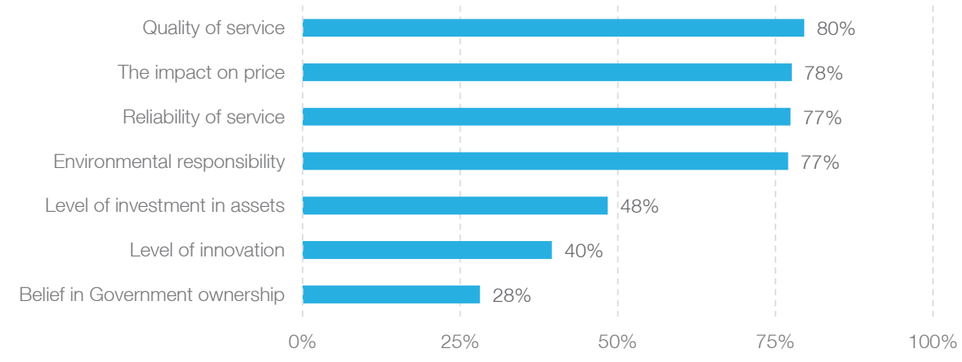


Figure 2.11 Factors of importance when considering private sector involvement in the water sector.

1 Global Water Intelligence, Global Water Market 2014

When asked if they supported more private sector involvement, 36% were against or strongly against more private sector involvement, 32% neither supported nor were against it and 24% supported or strongly supported it. (Figure 2.12).

Q24. Do you support more private sector involvement in water supply and services?

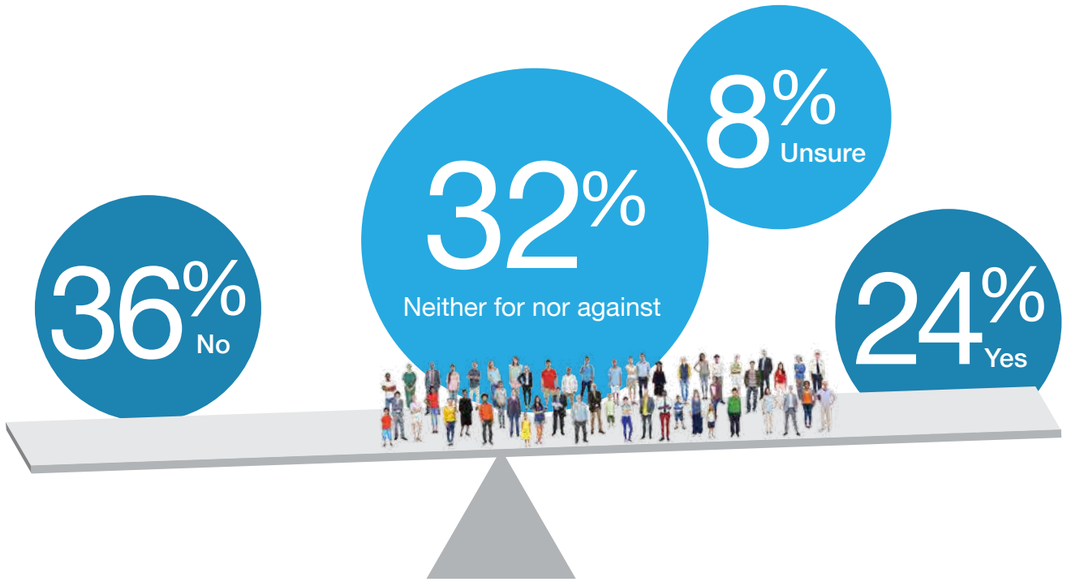


Figure 2.12 Support for more private sector involvement in water supply and services.

d. Regulation

Context

The Australian water sector is highly regulated to ensure that Australians have access to a safe, secure and environmentally sustainable water supply for human consumption as well as domestic, agricultural and industrial uses and maintaining environmental flows.

The extraction, ownership, storage, trading, treatment, transportation, use, supply and discharge of water and wastewater is subject to predominantly state-based legislative regimes.

As a federation of state and territory governments, the Constitution gives responsibility for oversight of water matters to state and territory governments. Most of the states and territories now have discrete public health, environmental and economic regulatory frameworks that can readily be used to govern activities by a range of participants in the water sector. In many parts of the water sector, however, there is not a complete institutional separation of service providers from the regulatory and policy functions of governments. This can create barriers to the promotion of customer choice and community involvement, innovation, efficiency and private sector investment in the water sector.

The Survey looked to understand consumers' awareness on the types of regulators operating in their jurisdiction.

Results

It is interesting to note that 32% of respondents were unsure what type of regulators were operating in their state or territory (Figure 2.13). Sixty-five per cent of respondents knew about health regulators, 64% about environmental and 57% pricing and economic regulators.

Q25. What type of regulators are there in the water sector in your state or territory?

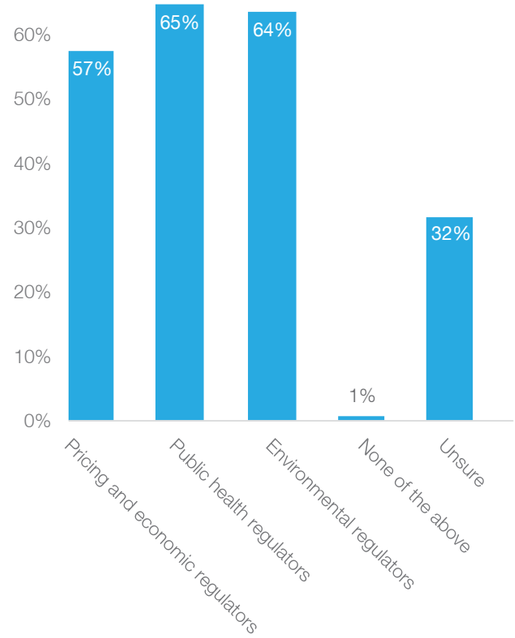


Figure 2.13 Types of regulators which respondents thought were present in their state or territory.

e. Water prices

Context

Pricing of an essential household item such as water presents challenges for the industry and government. Historically water pricing was generally below the cost of provision. This reflected a lack of cost reflective pricing by government owned water utilities and resulted in their cross subsidisation. The National Competition Policy reforms of the 1990s saw a shift to more cost reflective pricing. This has particularly been the case in large metropolitan centres although some regional and rural areas are still to fully implement the reforms.

The result of prices below the cost of provision has two major impacts. First, it presents challenges, particularly to local councils, to raise revenue to support investment. Second, economic principles suggest that pricing below cost will lead to over consumption of water as consumers are not facing the full cost of their decisions.

Given the climatic extremes Australia experiences (resulting in water shortages reflecting drought and El Nino conditions through to excessive water in times of flood) combined with continued population growth and aging assets, there is a continual need for investment in existing facilities as well augmentation and the introduction of new technologies. It is therefore important to understand what consumers think about the price of water and whether their behaviour (i.e. water consumption) is currently influenced by price and/or general concern about water shortages. There are implications for pricing strategies and the need for education campaigns to drive changes in consumer behaviour.

The Australian Water Consumer Survey investigated consumers billing for water, attitudes to the price of water and the use of price signals for consumption choices.

Results

Australian consumers appear informed of water pricing. The majority of respondents (81%) noted that they pay for water based on the amount they used and a further 13% stating they don't pay for water (as is the case with some renters) (Figure 2.14). Indeed 83.5% said they could remember the amount of their last quarter water bill while only 15% indicated they could not remember.

Q26. Does your household pay for water based on how much water you use? Please choose one

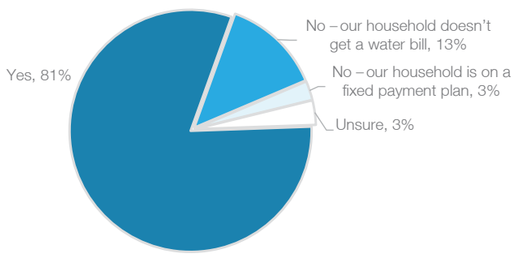


Figure 2.14 Respondents' billing status.

When asked the price of their water, over half the respondents (52%) were unsure of the price in dollars per kilolitre.

When asked about their water bills, 37% of respondents said their bills had gone up, while 35% said it had remained the same. Only 7% reported a lower water bill year on year (Figure 2.15).

Q30. Has your water bill changed compared to this time last year? Please choose one

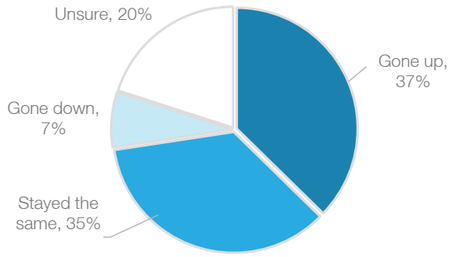


Figure 2.15 Respondent perceptions of water price changes.

When asked about the price of water, 10% of respondents consider the price much too high and 28% of respondents consider the price a little high (Figure 2.16). The same proportion (38%) said the price of water was about right. Only 18% said it was a little or much too low.

Q29. How would you describe the price of water?

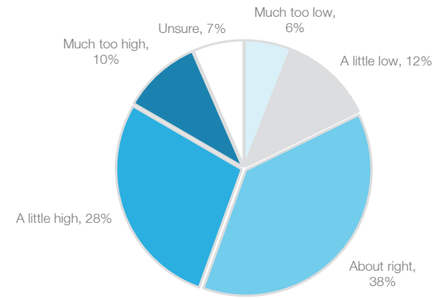


Figure 2.16 Respondent perceptions of the price of water.

Respondents were divided as to whether current prices provided an incentive to conserve or whether prices should be higher (Figure 2.17). Overall 47% of respondents agree or strongly agree that the price of water made you think about how much you use while 28% disagree or strongly disagree this was the case. And while just over a quarter (31%) felt that water pricing should be higher so people use less, 43% disagree or strongly disagree.

When asked about strict user pays systems, respondents were divided on the statement that they should only pay for water they use with no other charges. Those in agreement were 40% of respondents, and those against were 46%. A large proportion (54%) thought that changes in water prices are not explained enough.

Q32. Please indicate whether you agree or disagree with each of the following statements on water:

Figure 2.17 Respondent perceptions on water pricing.

f. Alternative water sources

Context

The water sector is continuously adapting to change and challenges. Challenges such as climatic variability, climate change, severe and prolonged drought, and rapid population growth have contributed to the need for new and less climate-dependent sources of water supply.

Dams, as traditional water sources, have received renewed attention with the Commonwealth Government focus on Northern Australia. The White Paper on Developing Northern Australia and the Agricultural Competitiveness Papers were released, in which several proposals for dam construction were suggested.

Another way the water sector has responded is through the development of new and less climate-dependent sources of diversified water sources. These diversified water sources include recycled water recovered from urban wastewater (sewage and greywater), desalinated water, and stormwater harvested from urban drainage systems.

Whilst there has been an increase in growth and interest associated with alternative water sources, there has been significant political and some community opposition to its implementation. Many local alternative water source options have become politicised.

The transparent and rational analysis of all water supply options available is required in order to deliver the best portfolio of supply options for any particular location. The assignment of property rights, improving analysis, and raising community awareness of the key advantages and disadvantages of the various options available are all steps that will produce water supply outcomes.

The Australian Water Consumer Survey sought consumer perspectives on industrial and drinking water uses for recycled water, stormwater and desalinated water at a national level. Perceptions of further dams and surface storage in the north and south east of Australia were sought.

Results

Recycled water

The vast majority of respondents (90%) agree or strongly agree that water recycling can provide a sustainable source of non-drinking water for municipal and industrial use (Figure 2.18). The majority of respondents (69%) also agree or strongly agree that water recycling can be treated and managed to a level that is suitable for drinking.

Q33. Please indicate whether you agree or disagree with the following statements on recycled water

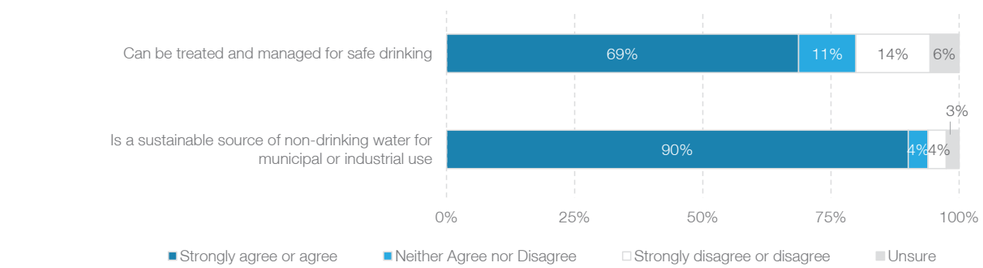


Figure 2.18 Perceptions of recycled water as an alternative water source.

Stormwater

Responses indicated strong support for utilising urban stormwater, with 82% of respondents agreeing or strongly agreeing stormwater was a sustainable source of non-drinking water for municipal or industrial use (Figure 2.19). The majority of respondents (56%) also believe that stormwater can be treated and managed to a level that is suitable for drinking.

Q34. Please indicate whether you agree or disagree with the following statements on urban stormwater

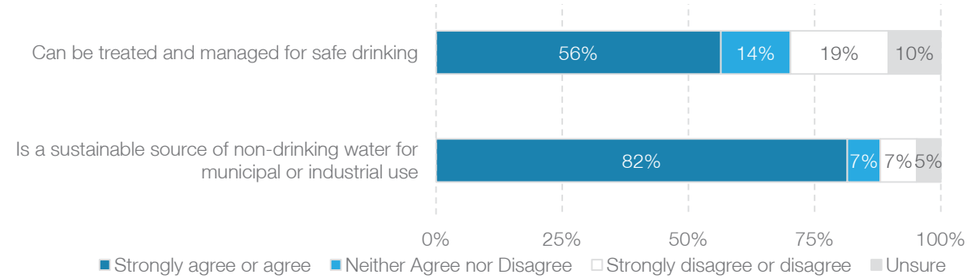


Figure 2.19 Perceptions of urban stormwater as an alternative water source.

Desalination

Compared with stormwater and recycled water, desalinated water was the most preferred source of drinking water and was viewed as a sustainable source of non-drinking water. Eighty-two per cent of respondents strongly agree or agree that it can be treated and managed to a level that is sufficient for drinking (Figure 2.20). At a lower level, 59% believed it to be a sustainable source of non-drinking water for municipal or industrial use.

Q35. Please indicate whether you agree or disagree with the following statements on desalinated water

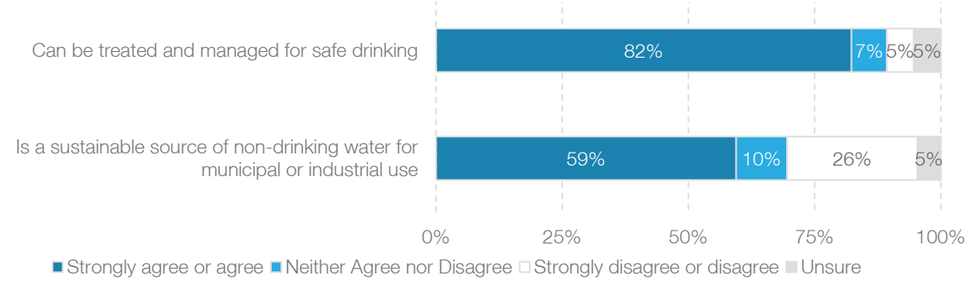


Figure 2.20 Perceptions of desalinated water as an alternative water source.

Dams

Figure 2.21 shows responses to questions on the prospects for dams in North and South of Australia. Just under half of the respondents (46%) strongly agree or agree that there is scope for more big dams in the North of Australia (e.g. North-West WA, NT, Far North Queensland). Fewer respondents (33%) agree or strongly agree that there was scope for more big dams to provide additional water supplies in the south of Australia (e.g. in the Murray-Darling Basin and the SE coastal areas).

For both questions approximately 20% of respondents were unsure, and approximately 15% neutral.

Q36. Please indicate whether you agree or disagree with the following statements on dams

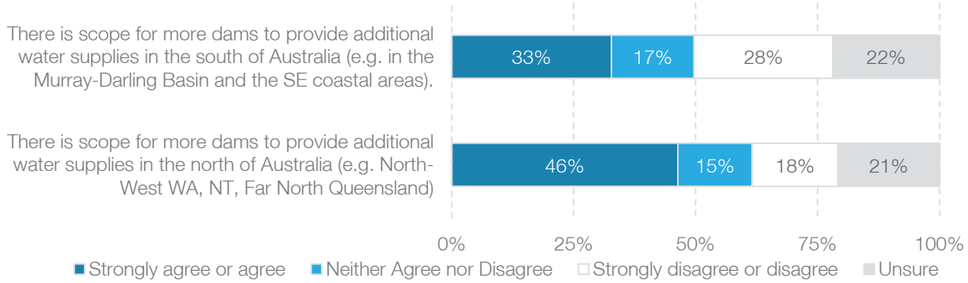


Figure 2.21 Respondent perceptions of the scope for dams to provide additional water supplies in the south of Australia and the north of Australia.

g. Urban, regional and rural water

Context

In Australia, water is not provided through just a few national organisations – indeed there are a multitude of companies and councils involved in the provision of water to households. Urban water is principally provided by large government owned utilities, while small regional utilities and local councils own water assets and service regional and rural communities. In addition, many rural households are responsible for their own water supply through tanks, bores and direct river extraction.

Policy debate on the disparity between urban, regional and rural water users needs to be informed by the different experience and attitudes between urban, regional and rurally-located water consumers

The Australian Water Consumer Survey investigated water sources, concerns and attitudes for consumers living in urban, regional and rural areas.

Results

Respondents from urban and regional areas selected that the main source of water was dams or reservoirs, at 55% and 47% respectively (Figure 2.22). Rainwater tank water was the main source in rural areas, at 44%, whereas in urban areas it accounted for only 2%. The profile of water sources differed significantly in rural areas with dams or reservoirs accounting for only 17%, a further 14% relied on bores and groundwater and 22% on other sources.

The level of knowledge about water sources varied significantly between the three areas. Only 3% of rural respondents didn't know where their water came from, but this more than doubled in regional areas (8%) and double again in urban areas (18%).

Q12. What is the source of most of the water supplied to your usual residence?

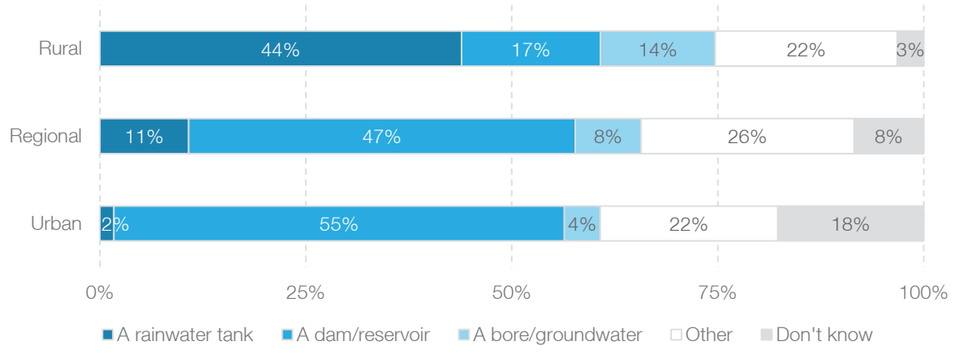


Figure 2.22 Sources of water for respondents.

Given the reliance on rainwater tanks in rural areas it is not surprising that 49% of rural respondents were concerned or very concerned about shortages in the local area. This fell to 40% in regional areas and 34% in urban areas (Figure 2.23).

There was commensurate variation between urban, regional and rural respondents in the lack of concern for water shortage. Overall one third of total respondents (33%) were not concerned about water shortages in their local area. This view was highest in urban areas (36%), falling to 28% in regional areas and 22% in rural areas.

Q14. How concerned are you about water shortages? – Water shortage in your local area

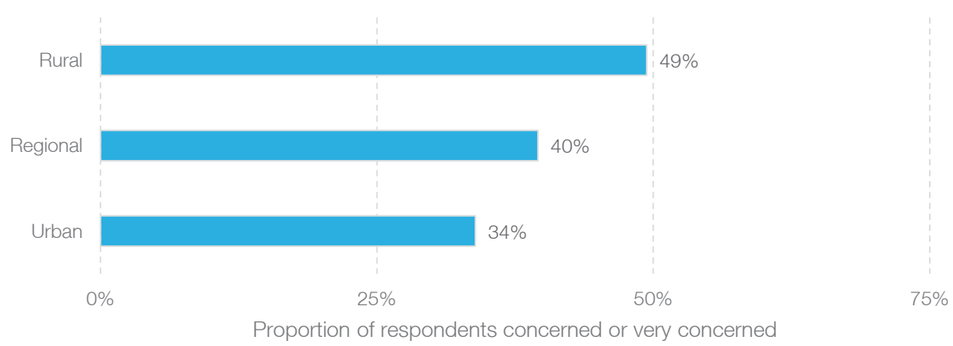


Figure 2.23 Concern for water shortage in local areas.

Rural and regional water consumers were stronger supporters of more dams in the north and south of Australia than urban water consumers (Figures 2.24 and 2.25). The strongest support for dams was seen in rural respondents (57% supporting more dams in the north and 45% for the south). Not as much support for dams was seen by urban respondents (44% supporting more dams in the north and 30% for the south).

Q36a. There is scope for more dams to provide additional water supplies in the north of Australia (e.g. North-West WA, NT, Far North Queensland)

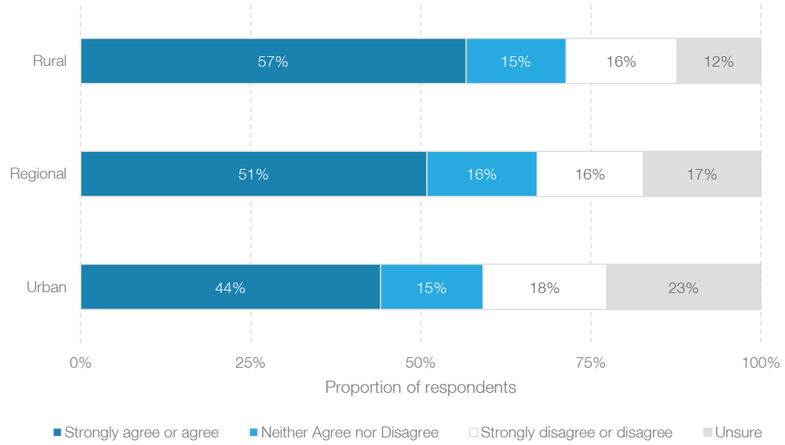


Figure 2.24 Scope for more dams to provide additional water supplies in the north of Australia.

Q36b. There is scope for more dams to provide additional water supplies in the south of Australia (e.g. in the Murray-Darling Basin and the SE coastal areas)

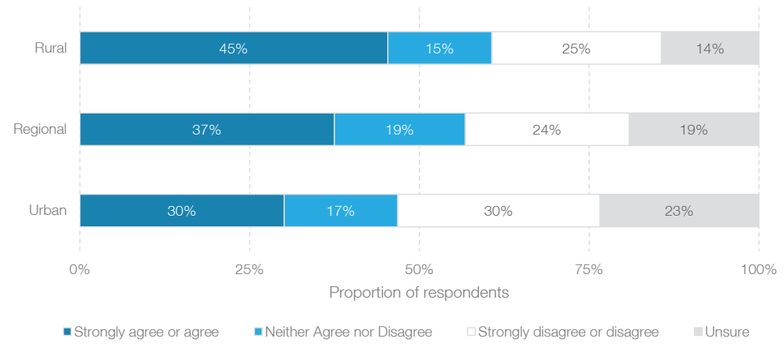


Figure 2.25 Scope for more dams to provide additional water supplies in the south of Australia.

State and Territory Reports

A short summary of each state and territory is provided here, with the exception of Tasmania. A Tasmanian summary is not provided because a limited sample size (less than 100 responses were received).

Australian Capital Territory

Respondent characteristics

Number of responses: 120

Male:female ratio: 1:1.7

% water sector experience: 43%

% regional: 3%

% rural: 0%

Water shortage concern

35% concerned or very concerned about water shortage in region

42% concerned or very concerned about water shortage in state

72% concerned or very concerned about water shortage in Australia

Water attitudes

A higher proportion of ACT residents would like to monitor water consumption in real time compared to national average (70% compared to 62%), and 75% are willing to spend money to make their homes more efficient compared to 66% nationally. Given the high awareness of water, it is interesting 52% believe the authorities are taking firm action to make sure we have enough water, well above the national average of 34%, and 39% are confident there will be enough water in the future compared to 30% nationally.

Water impacts

Compared to national averages, ACT respondents were more concerned about climate change (72% compared to 68%) and natural disasters (60% compared to 54%), and less concerned about unconventional gases (46% compared to 60%), intensive agriculture (41% compared to 56%) and mining (39% compared to 58%).

Private sector involvement

There is slightly lower support for more private sector involvement in water supply and services (40% against or strongly against, compared to 36% nationally), but overall the responses were in line with the national average.

Water prices

More than half of the ACT respondents think water pricing is about right (55%, compared to 38% nationally), and 57% think the price of water makes you careful about how much you use (compared to 47% nationally).

Alternative water sources

Fewer ACT respondents strongly agree (39%) that recycled is a sustainable source of non-drinking water (compared to the national average of 56%); similarly there was less strong support for urban stormwater (32% strongly agree compared to 48% nationally). However overall support (agree or strongly agree) for stormwater was similarly high between the ACT (81%) and rest of Australia (82%). This trend continued for desalinated water where strong support was lower (18% compared to 29%) but overall support was more in-line with the national result (54% compared to 59% nationally).

A greater proportion of ACT residents were unsure about the scope for more dams in northern Australia compared to the national findings (29% unsure compared to 21% nationally). On balance fewer respondents thought there was scope for more dams in the south of Australia (37% disagree or strongly disagree, compared to 28% nationally).

New South Wales

Respondent characteristics

Number of responses: 1016

Male:female ratio: 1:0.92

% water sector experience: 43%

% regional: 21%

% rural: 9%

Water shortage concern

33% concerned or very concerned about water shortage in region

63% concerned or very concerned about water shortage in state

80% concerned or very concerned about water shortage in Australia

Water attitudes

As with all states there is an escalation of concern about water shortages as we move from a local region, to the state region and then to a nationwide level.

NSW respondents were less supportive of the statement that authorities are taking firm action to ensure that we have enough water in the long term. Twenty-six per cent strongly agree or agree with the statement (national average 34%) while 37% strongly disagree or disagree (national average 34%).

NSW respondents said they were willing to spend money on their home to make it more water efficient in line with the national average (66%) but were less likely to agree that they were active in saving water (41% agree or strongly agree, compared to 46% nationally).

Water impacts

65% of respondents in NSW were very concerned or concerned with the impact of unconventional gas on water supplies; this is higher than the national average of 60%.

NSW respondents were also more concerned about drought (77% very concerned or concerned) than the national average of 74%.

Private sector involvement

Forty per cent of NSW respondents did not think the private sector owned any water infrastructure in their local area, compared to 48% nationally. Nearly the same proportion (38%) were unsure, more than the national average (32%).

Water prices

Compared to the national average of 38%, only 28% of NSW respondents describe the price of water as much too high or a little high, with 43% comfortable that the price is about right (38% national average).

NSW is slightly (42%) above the national average (39%) when asked whether households should only pay for what they use and 40% disagree or strongly disagree that water should be priced higher so people use less (compared to 43% nationally).

Alternative water sources

Overall, NSW respondents strongly agree or agree that the use of recycled water (89%), urban stormwater (80%) and desalination (56%) provided a sustainable source for non-drinking water, broadly in line with though slightly less than, national responses (90%, 82% and 59%).

Northern Territory

Respondent characteristics

Number of responses: 115

Male:female ratio: 1:1.3

% water sector experience: 43%

% regional: 12%

% rural: 16%

Water shortage concern

29% concerned or very concerned about water shortage in region

47% concerned or very concerned about water shortage in state

84% concerned or very concerned about water shortage in Australia

Water attitudes

Forty-six per cent of NT respondents strongly disagree that water shortages are just short term compared to 37% nationally. In light of this, only 18% believe authorities are taking firm action to make sure there's enough water in the longer term (34% nationally) while 54% do not believe this is the case (34% nationally). Only 18% are confident there will be enough water for the future, which is more pessimistic than the national average of 30%.

Water impacts

NT respondents were most concerned about unconventional gas (72% very concerned or concerned), mining and extractive industries (70% concerned or very concerned) and climate change (67% concerned or very concerned). NT respondents were, relative to the national average, more concerned about unconventional gas (72% v 60% national average) and mining and extractive industries (70% v 58% national average). NT respondents were significantly less concerned about drought (49% v 74% nationally).

Private sector involvement

NT respondents were less supportive of more private sector involvement, with 18% support and 46% against (compared to 24% and 36% nationally). Compared to national results, fewer NT respondents thought there was private ownership in their local area (58% thought no ownership compared to 48% nationally) and private operation and maintenance of water assets in their local area (53% thought no operation or maintenance compared to 36% nationally).

Forty per cent of NT respondents are unsure what type of regulators are involved in water sector (compared to 32% nationally) and only 36% identified pricing and economic regulators (57% nationally), 52% public health regulators (65% nationally) and 47% environmental regulators (64% nationally).

Water prices

Fifty-four per cent of NT respondents believed the price of water was much too high or a little high, well above the national average of 38%. Fifty-five per cent agree or strongly agree that the price of water makes you careful how much you use, again above the national result of 47%.

Alternative water sources

NT respondents were supportive of recycled water (88% agree or strongly agree), urban stormwater (75%) and desalinated water (46%) as sustainable source of non-drinking water, though less positive than the rest of Australia. NT respondents were supportive of dams in the north of Australia, with 63% agreeing or strongly agreeing with the scope for more dams in the north of Australia (compared to national average of 46%).

Queensland

Respondent characteristics

Number of responses: 723

Male:female ratio: 1:0.8

% water sector experience: 58%

% regional: 18%

% rural: 8%

Water shortage concern

33% concerned or very concerned about water shortage in region

67% concerned or very concerned about water shortage in state

76% concerned or very concerned about water shortage in Australia

Water attitudes

Fifty-one per cent of Queensland respondents strongly agree or agree that their household is active in saving water and has made significant changes, compared to national average of 46%, and 65% would like to monitor water consumption in real time, more than the national average of 62%.

Water impacts

In Queensland the top three concerns were drought (76% concerned or very concerned), population growth (66%) and climate change (63%). The level of concern about the impacts of drought was higher than the national average (nationally 74% were concerned or very concerned). Queensland respondents were less concerned than the rest of Australia about the impact of climate change, with 35% not concerned or only somewhat concerned (compared to 31% nationally) and 63% concerned or very concerned (compared to 68%). Fifty-nine per cent of Queensland respondents were very concerned or concerned about the impacts on water from unconventional gases (coal seam, shale and tight), similar to the national average of 60%.

Private sector involvement

Fifty-five per cent of Queenslanders did not think the private sector owned any water supply infrastructure, which is above national average of 48%. In Queensland there was an equal proportion for and against more private sector involvement (34% each), whereas the national average is against more private sector involvement (24% for, 36% against).

Water prices

More Queensland respondents believed the price of water is much too high (14%) or a little high (37%) compared to the national average (10% and 28% respectively), and only 5% thought it was a little low compared to 12% nationally. Fifty-three per cent disagree or strongly disagree that water should be priced higher so people use less (compared to 43% nationally). Queensland respondents agree or strongly agree (47%) that households should only pay for what they use compared to the national average of 40%, and 52% agree or strongly agree that the price of water makes you careful about how much you use, above the national result of 47%.

Alternative water sources

When looking at alternative water sources, 61% of Queensland respondents strongly agree or agree that stormwater can be treated and managed for safe drinking, higher than the national average of 56%. The Queensland results, like the overall survey results, support the use of recycled water (72% compared to 69% nationally) and desalinated water (83% compared to 82%) for non-drinking use.

Over half of the respondents (56%) strongly agree or agree that there is scope for more dams in the north of Australia, higher than national average of 46%. Over a third of Queensland respondents believed there was scope for dams in the south of Australia, with 36% strongly agreeing or agreeing (compared to national average of 33%).

South Australia

Respondent characteristics

Number of responses: 261

Male:female ratio: 1:0.9

% water sector experience: 57%

% regional: 9%

% rural: 6%

Water shortage concern

39% concerned or very concerned about water shortage in region

66% concerned or very concerned about water shortage in state

76% concerned about water shortage in Australia

Water Attitudes

Half of the respondents in SA said they had made sacrifices to save water but some things were hard to give up or difficult to change, compared to 44% nationally. More SA respondents (45%) think the authorities are taking action to make sure there is enough water in the longer term than the national result of 34%, and 37% agree or strongly agree with the statement that "I feel confident we will have enough water for the future", compared to 30% nationally.

Water impacts

The top concerns which could impact on water in SA were drought (77% concerned or very concerned), climate change (67% concerned or very concerned) and intensive agriculture (57% concerned or very concerned). SA respondents were significantly less concerned about mining and extractive industries than the national average, with 50% being concerned or very concerned about this (national average 58%). Similar results were found for population impacts (54% compared to 66% nationally) and unconventional gas (49% compared to 60% nationally).

Private sector involvement

SA respondents were similar to Queensland in showing an equal divide of respondents for and against more private sector involvement (32%), which was above the national average for more private sector involvement (24%). Over half the SA respondents (51%) believe the private sector operates or maintains water infrastructure in their local area, well above the national average of 30%.

SA respondents had higher recognition of regulators than other states. SA respondents recognised pricing and economic regulators (69% compared to 57% nationally), public health regulators (70% compared to 65% nationally) and environmental regulators (66% compared to 64% nationally).

Water prices

More than half of SA respondents believe prices are much too high (21%) or a little high (34%), above the national average of 10% and 28% respectively. Fifty-six per cent of SA respondents think the price of water makes you careful about how much you use (47% nationally).

Alternative water sources

SA has higher support for the three alternative water sources for non-drinking uses compared to the national average: recycled water (92% compared to 90%), urban stormwater (89% compared to 82%) and desalination water (67% compared to 59%). In each case the 'strongly agree' response was also much higher than the national average. Thirty-nine per cent strongly disagree or disagree that there was scope for more dams in the south of Australia, higher than the national average of 28%.

Victoria

Respondent characteristics

Number of responses: 864

Male:female ratio: 1:0.92

% water sector experience: 51%

% regional: 19%

% rural: 16%

Water shortage concern

36% concerned or very concerned about water shortage in region

57% concerned or very concerned about water shortage in state

76% concerned or very concerned about water shortage in Australia

Water attitudes

Three quarters of Victorian respondents (72%) disagree or strongly disagree that "water use is not something I think much about", in line with the national average. Thirty-four per cent strongly disagree that water shortages were just a short term thing, less than the 37% nationally.

Victorian respondents were slightly below the national average (62%) with 60% strongly agreeing or agreeing they would like to monitor water consumption in real time. Half of Victorian respondents (49%) believe they were very active in saving water, above the national average (46%).

Water impacts

The key issues for Victorians were drought (76% concerned or very concerned), climate change (69%) and population growth (69%).

Compared to the national results, Victorian respondents tended to exhibit a greater proportion of 'very concerned' responses for water impacts. This was evident in the impacts on water from unconventional gases (42% compared to 39% nationally), climate change (44% compared to 40% nationally) and drought (44% compared to 40% nationally).

Interestingly, 61% of respondents were concerned or very concerned about the impact on water from natural disasters, which is higher than the national average of 54%.

Private sector involvement

Only 19% of Victorian respondents support (strongly support or support) more private sector involvement in water compared to 24% nationally, and 37% are neutral.

Alternative water sources

Victorian respondents showed high support for the use of recycled (90%, urban stormwater (84%) and desalinated water (58%) for non-drinking water for municipal and industrial use, in proportions similar to the national averages (90%, 82% and 59% respectively).

Western Australia

Respondent characteristics

Number of responses: 474

Male:female ratio: 1:1.2

% water sector experience: 56%

% regional: 8%

% rural: 4%

Water shortage concern

56% concerned or very concerned about water shortage in region

75% concerned or very concerned about water shortage in state

74% concerned or very concerned about water shortage in Australia

Water attitudes

When asked if water shortages are just a short term thing, 93% of WA respondents strongly disagree or disagree (national average 82%). WA respondents seemed more focused on water efficiency in their home with 67% strongly agreeing or agreeing that they were willing to spend more on their home to make it water efficient (national average 66%). Half of the respondents (50%) thought their household had made sacrifices to save water, above the national average (44%).

Water impacts

The top concerns for the impact on water for WA respondents are climate change (76% concerned of very concerned), drought (73% concerned or very concerned) and population growth (72% concerned or very concerned). WA respondents were significantly more concerned than all other respondents for climate change (national average 68%) and population growth (national average 66%). WA respondents were significantly less concerned about natural disasters (42% concerned or very concerned compared to 54% national average).

Private sector involvement

Most WA respondents identified quality of service (84%), impact on price (72%), environmental responsibility (79%) and reliability of service (78%) as the most important factors when considering private sector involvement.

Water prices

Only 24% of WA respondents described the price of water as much too high or a little high, compared to 38% nationally, and 32% said it was a little low or much too low (18% nationally). Interestingly 37% disagree or strongly disagree that the price of water makes you careful about how much you use (27% nationally), and 45% thought water should be priced higher so people use less (much higher than the national proportion of 30%). A higher proportion of respondents disagree or strongly disagree that households should only pay for what they use (59%) compared to the national average (47%).

Alternative water sources

WA respondents were more supportive of alternative water sources than other respondents, as regarded by higher proportion of responses in favour of using alternative water for drinking purposes. Recycled water (77% agree or strongly agree), urban stormwater (62%) and desalinated water (89%) were all higher response rates than the national average (69%, 56% and 82% respectively).

WA respondents were less supportive for more dams in the north of Australia with only 42% strongly agreeing or agreeing there was further scope (compared to 47%) and 22% strongly disagreeing or disagreeing (compared to 18% nationally).

Appendix 1 Methodology

Methodology

The Australian Water Consumer Survey was conducted using an online survey format between the dates of 27 August and 2 September 2015. A total of 3948 responses were received, of which 3,316 completed (16% drop out rate). The survey length was 36 questions and the median response time was just under 11 minutes.

The survey was advertised through a variety of channels to reach a wide audience across Australia. The advertising channels included social media distribution (Linkedin, Facebook and Twitter), website advertisements on The Australian newspaper website, the Australian Water Association website, Australian Policy Online website and newsletter, email distribution to Australian Water Association members and Arup staff members. The survey link was accessible from mobile and computer devices to be accessible to a wider audience.

A prize draw was offered for survey participants. The prize was a $500 travel voucher and was drawn on 4 September 2015.

Following Survey close, results analysis was conducted on validated and cleaned survey responses. Non-responses were excluded from the analysis, as were responses which were deemed invalid through inconsistency of responses.

Representativeness

Efforts were made to ensure wide distribution of the survey and that the respondents were representative of the Australian population. The distribution of responses by gender, location and geographic distribution were within five percentage points of the Australian population estimates provided by the Australian Bureau of Statistics. The distribution of responses by education, age and employment in the water sector differed by more than five percentage points to the Australian population.

Respondent gender distribution

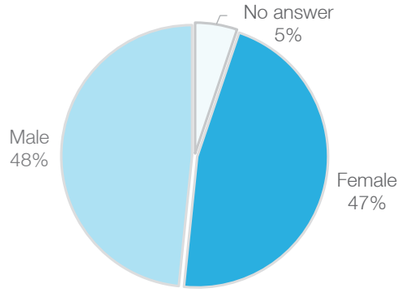


Figure A1.1 Respondent gender distribution

The gender ratio for Australia is 49.8% male and 50.2% female, as estimated by the Australian Bureau of Statistics (2014, Population by Age and Sex, Regions of Australia, 3235.0).

Respondents age distribution

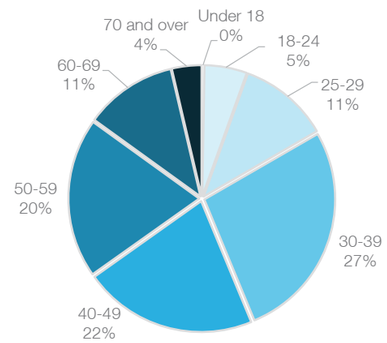


Figure A1.2 Respondents age distribution

Respondent education distribution

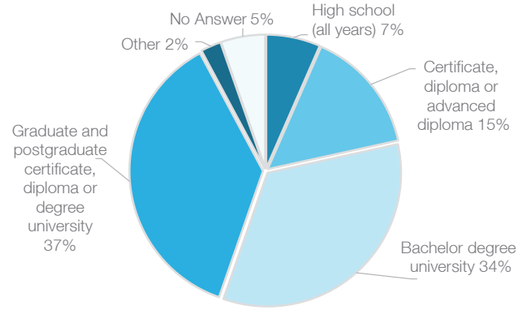


Figure A1.3 Education and qualification distribution of respondents

Respondent location distribution

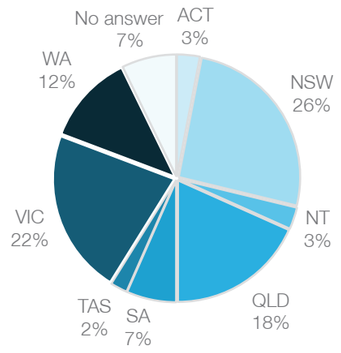


Figure A1.4 State and territory distribution of respondents

The state and territory distribution of respondents was representative of national population. As at March 2015, the Australian state and territory population distribution was estimated to be 32% NSW, 25% Victoria, 20% Queensland, 7% South Australia, 11% western Australia, 2% Tasmania, 2% ACT and 1% Northern Territory (Australian Bureau of Statistics, 2015, Australian Demographic Statistics, 3101.0).

Respondent geographic distribution

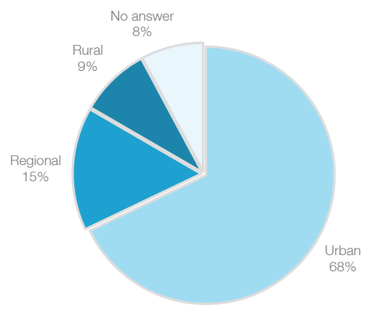


Figure A1.5 Geographic distribution of residents

The geographic distribution of respondents was representative of national population. As at June 2012 major cities accounted for 70.4% of Australia's population, inner regional 18.3% and outer regional and remote 11.3% of the Australian population (Australian Bureau of Statistics, 2013, Regional Population Growth, Australia, 3218.0).

Current or previous employment in the water sector

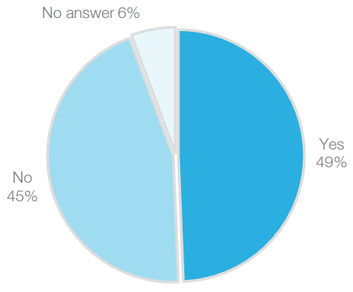


Figure A1.4 Water sector experience

Survey questions

The survey questions were presented in five sections which asked the respondent about them, their water supply, water suppliers, water pricing and types of water. The survey instrument was developed with the assistance of a number of individuals inside and outside the Australian Water Association and Arup and their contributions are greatly appreciated.

Section 1. About You

To begin the survey please tell us a little bit about yourself

Q1.	Are you	Male, Female Prefer not to say
Q2.	How old are you? Please choose one	Under 18, 18-24, 25-29, 30-39, 40-49, 50-59, 60-69, 70 and over
Q3.	What is the final level of education you have achieved? Please choose one	High school (all years), Certificate, diploma or advanced diploma Bachelor degree university, Graduate and postgraduate certificate, diploma or degree university, Other
Q4.	What is your current employment status? Please choose one	Employed full time, Employed part time, Unemployed and seeking work, Retired, Homemaker – house husband or wife, Student, Unable to work (eg. disability), Other
Q5.	Do you currently work or have you worked in the water sector? Please choose one	Yes, No
Q6.	In what state or territory is your usual residence? Please choose one	NSW, ACT, WA, SA, NT, VIC, TAS, QLD
Q7.	What is the postcode of your usual residence?	[Respondent defined]

Appendix 1

Section 2. About you and your water supply

The following questions are about your usual residence, your local area or region

Q8.	Which describes the local area you live in? Please choose one	Urban, Regional, Rural
Q9.	Do you own or rent your usual residence? Please choose one	Own or paying off mortgage, Rent, Other
Q10.	What sort of house is your usual residence? Please choose one	Separate house, Semi-detached: row, terrace or townhouse, Flat, unit or apartment, Other dwelling
Q11.	Does your usual residence have any of the following? Please tick all that apply	A pool, A rainwater tank or tanks, a dam, a groundwater bore, a greywater system, a septic tank, a garden, acreage, none of the above
Q12.	What is the source of most of the water supplied to your usual residence? Please choose one	A rainwater tank, A dam or reservoir, A bore or groundwater, A desalination plant, Recycled water tank, Direct river extraction (own pump)
Q13.	Are there currently water shortages in your local area? Please choose one	Yes, extreme shortages, Yes, moderate shortages, No shortages, Don't know
Q14.	How concerned are you about water shortages?	
Q14a	Water shortage in your local area	Not concerned, Somewhat concerned, Concerned, Very concerned, Unsure
Q14b	Water shortage in your state or territory	Not concerned, Somewhat concerned, Concerned, Very concerned, Unsure
Q14c	Water shortage in the whole of Australia	Not concerned, Somewhat concerned, Concerned, Very concerned, Unsure
Q.15.	How concerned are you about the following impacts on water in your state and territory?	
Q15a	Climate change	Not concerned, Somewhat concerned, Concerned, Very concerned, Unsure
Q15b	Intensive agriculture	Not concerned, Somewhat concerned, Concerned, Very concerned, Unsure
Q15c	Unconventional gases (Coal seam, shale and tight)	Not concerned, Somewhat concerned, Concerned, Very concerned, Unsure
Q15d	Mining and extractive industries	Not concerned, Somewhat concerned, Concerned, Very concerned, Unsure
Q15e	Mining and extractive industries	Not concerned, Somewhat concerned, Concerned, Very concerned, Unsure
Q15f	Natural disasters (e.g. flood, bushfires)	Not concerned, Somewhat concerned, Concerned, Very concerned, Unsure
Q15g	Drought	Not concerned, Somewhat concerned, Concerned, Very concerned, Unsure
Q16.	Please indicate whether you agree or disagree with each of the following statements on water:	
Q16a	I use whatever water is needed. Water use is not something I think much about	Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree, Unsure
Q16b	Water shortages are just a short term thing	Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree, Unsure
Q16c	As long as I get a decent amount of notice short periods of water supply interruptions are not a big problem	Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree, Unsure
Q16d	I would like to monitor my water consumption in real time	Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree, Unsure
Q16e	I am willing to spend money on my home to make it more water efficient	Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree, Unsure
Q16f	Our household is very active in saving water and has made some significant changes in how much water is used	Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree, Unsure
Q16g	Our household has made some sacrifices to save water, but some things are hard to give up or difficult to change	Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree, Unsure
Q16h	The authorities are taking firm action to make sure that we have enough water in the longer term	Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree, Unsure
Q16i	I feel confident that we will have enough water for the future	Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree, Unsure

Section 3. Water suppliers and you

The following questions are about your water supplier, which provides drinking water and water services to your residence.

Q17.	Who provides the drinking water to your usual residence? Please choose one	Water utility, A local council, Other, Unsure
Q18.	Can you name the organisation who provides drinking water to your usual residence?	Yes it is: [respondent defined], No
Q19.	Can you name the organisation who provides your sewerage services to your usual residence?	Yes, same organisation that provides the drinking water, Yes, another organisation [respondent defined], No
Q20.	Please rate the performance of the water provider to your usual residence:	
Q20a	Overall quality of service	Very Poor, Poor, Average or Fair, Good, Very Good, Unsure
Q20b	Overall value for money	Very Poor, Poor, Average or Fair, Good, Very Good, Unsure
Q20c	Being efficient and well managed	Very Poor, Poor, Average or Fair, Good, Very Good, Unsure
Q20d	Planning for the future	Very Poor, Poor, Average or Fair, Good, Very Good, Unsure
Q20e	Investing adequately in maintenance	Very Poor, Poor, Average or Fair, Good, Very Good, Unsure
Q20f	Being environmentally responsible	Very Poor, Poor, Average or Fair, Good, Very Good, Unsure
Q20g	Supplying high quality water	Very Poor, Poor, Average or Fair, Good, Very Good, Unsure
Q20h	Responding quickly to faults	Very Poor, Poor, Average or Fair, Good, Very Good, Unsure
Q21.	Do you think the private sector owns any water supply infrastructure in your local area? Please choose one	Yes, No, Don't care, Unsure
Q22.	Do you think the private sector operate or maintain any water supply infrastructure in your local area?	Yes, No, Don't care, Unsure
Q23.	What factors are important when considering private sector involvement in providing water and water services in your local area?	The impact on price, Quality of service, Reliability of service, Level of innovation, Belief in government ownership, Level of investment in assets, Environmental responsibility, Unsure
Q24.	Do you support more private sector involvement in water supply and services? Please choose one	Yes, strongly support, Yes, support, Neither support nor against, No, against, No, strongly against, Unsure
Q25.	What types of regulators are there in the water sector in your state or territory? Please tick all that apply	Pricing and economic regulators, Public health regulators, Environmental regulators, None of the above, Unsure

Section 4. Water pricing

The following questions ask about the price of water in your local area. Please take a moment to consider whether you pay a water bill and how much you pay.

Q26.	Does your household pay for water based on how much water you use? Please choose one	Yes, No – our household doesn't get a water bill, No - our household is on a fixed payment plan, Unsure
Q27.	Are you the person mainly or jointly responsible for paying your household water bill? Pleas...	Yes, No, Unsure
Q28.	Can you remember how much you paid for your water bill in the last quarter? Please choose one	Under $100, $100 to 299, $300 to 499, $500 to 699, $700 and above, I can't remember
Q29.	How would you describe the price of water? Please choose one	Much too high, A little high, About right, A little low, Much too low, Unsure
Q30.	Has your water bill changed compared to this time last year? Please choose one	Gone up, Stayed the same, Gone down, Unsure
Q31.	What price does your household pay per kilolitre of water used (1 kilolitre is 1,000 litres)...	Less than $1 a kilolitre, Between $1 and $2 a kilolitre, Between $2 and $10 a kilolitre, More than $10 a kilolitre, It's included in my rent so I don't know, Water doesn't cost me anything
Q32.	Please indicate whether you agree or disagree with each of the following statements on water price:	
Q32a	Households should only pay for how much water they use, with no other charges	Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree
Q32b	Changes in the price of water are not explained enough	Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree
Q32c	The price of water now makes you careful about how much you use	Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree
Q32d	Water should be priced higher so people use less	Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree

Section 5. Types of water

The following questions are about water sources for human use.

Q33.	Please indicate whether you agree or disagree with the following statements on recycled water:	
Q33a	Is a sustainable source of non-drinking water for municipal or industrial use	Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree, Unsure
Q33b	Can be treated and managed for safe drinking	Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree, Unsure
Q34.	Please indicate whether you agree or disagree on the following statements about urban stormwater:	
Q34a	Is a sustainable source of non-drinking water for municipal or industrial use	Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree, Unsure
Q34b	Can be treated and managed for safe drinking	Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree, Unsure
Q35.	Please indicate whether you agree or disagree on the following statements about desalinated water:	
Q35a	Is a sustainable source of water for municipal or industrial use	Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree, Unsure
Q35b	Q35b. Can be treated and managed for safe drinking	Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree, Unsure
Q36	Do you support more private sector involvement in water supply and services? Please choose one	
Q36a	There is scope for more dams to provide additional water supplies in the north of Australia (e.g. North-West WA, NT, Far North Queensland).	Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree, Unsure
Q36b	There is scope for more dams to provide additional water supplies in the south of Australia (e.g. in the Murray-Darling Basin and the SE coastal areas).	Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree, Unsure

Appendix 2 About the Authors

About the Authors

Please contact us if you would like further information on a specific state or survey question

Amanda White

Amanda White is National Manager – Communications and Policy at the Australian Water Association. She has over ten years' experience in strategic communications in both the federal government and not-for-profit sectors.

Prior to joining the Australian Water Association, Amanda worked for the United Nations in Thailand as a Regional Communications Officer in the field of human trafficking. Her roles prior to this in the federal government included being Assistant Director, Strategic Communications at Safe Work Australia and Communications Officer at the Civil Aviation Safety Authority.

Amanda has a Masters of Business Administration (MBA) from the Australian Graduate School of Management and a Bachelor of Science (Media and Communications) from the University of New South Wales.

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Fiona McCredie

Fiona McCredie is the Stakeholder Engagement Manager and NSW/ACT State Manager at the Australian Water Association. She has over fifteen years' experience in policy, investor relations and strategic planning working in the private sector, an industry association and a statutory authority.

Prior to joining the Australian Water Association, Fiona's career was in the agribusiness sector, most recently as Investor Relations Manager at GrainCorp Pty Ltd, and before this as General Manager of Policy at NSW Farmers' Association and the Director of Industry Services at the NSW Dairy Corporation.

Fiona has a Masters of Business Administration (MBA) from the Australian Graduate School of Management and a Bachelor of Science (in Agriculture) from the University of Sydney.

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Antonia Curcio

Antonia Curcio is Policy Analyst at the Australian Water Association. Antonia joined the Association from the National Water Commission where she worked on water markets and trading. Prior to this she worked at the Federal Government Department of Environment.

Antonia has a Bachelor of Economics and a Bachelor of Social Science (Policy) from the University of Queensland, and is currently studying a Bachelor of Laws.

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Daniel Lambert

Daniel is Arup's Australasia Water and Urban Renewal Business Leader.

He is passionate about developing and implementing smart and innovative solutions in the water sector.

Daniel has successfully delivered projects in Australia, New Zealand, Asia, South America and Africa. He is a Fellow of Engineers Australia and a member of the National Urban Water Reform Steering Committee and the Infrastructure Partnerships Australia Water Taskforce.

Daniel was recently selected for and completed the prestigious Aquarius Water Global Leaders Programme. He is a recognised leader in the water industry with awards including the International Water Centre Water Leader Scholarship, the Consult Australia Future Leader's Award, the Association of Consulting Engineers Singapore Professional Engineers Award and the Engineers Australia Presidents Award for Excellence.

Daniel has a Masters of Business and Technology and a Masters of Engineering Science from the University of New South Wales and a Bachelor of Engineering (Civil, 1st Class Honours) and a Bachelor of Science from Monash University.

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Walter Reinhardt

Walter is a Consultant at Arup. He provides specialist economic, strategic and policy advice for a range of public and private clients. Walter focuses on the water sector and has worked with Commonwealth, state and local governments and water service providers. His recent project experience includes economic appraisal of infrastructure options and strategic policy reviews and analysis.

Concurrent to his employment with Arup, Walter completed a PhD at Australian National University in 2015. His doctoral research focused on Australian water and energy policy and the capacity for households to lead change in water and energy systems. Walter has a Bachelor of Agricultural Science (Honours), Bachelor of Commerce and Bachelor of Science.

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Gabrielle McGill

Gabrielle McGill is a Water Process Engineer for Arup. Gabrielle has worked in a various aspects of the water industry and has an enthusiasm for exploring where engineering and society intersect.

She has experience in wastewater treatment plant design, has worked as a stakeholder engagement officer for water infrastructure projects and worked for a year in Cambodia as a water and sanitation engineer working on rural sanitation options.

Gabrielle has a Bachelor of Engineering in Industrial Chemistry from the University of NSW and in 2015 was the Australian Water Association's Young Water Professional of the Year.

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About Arup

Arup is the creative force at the heart of many of the world's most prominent projects in the built environment and across industry. We offer a broad range of professional services that combine to make a real difference to our clients and the communities in which we work. We are truly global. From 90 offices in 40 countries our 12,000 planners, designers, engineers and consultants deliver innovative projects across the world with creativity and passion.

Founded in 1946 with an enduring set of values, our unique trust ownership fosters a distinctive culture and an intellectual independence that encourages collaborative working. This is reflected in everything we do, allowing us to develop meaningful ideas, help shape agendas and deliver results that frequently surpass the expectations of our clients.

The people at Arup are driven to find a better way and to deliver better solutions for our clients.

We shape a better world.

www.arup.com

About Australian Water Association

Our vision is to be the essential association for people and organisations working together to achieve a sustainable water future.

Our mission is to foster knowledge, understanding and advancement in sustainable water management – its science, practice and policy – through advocacy, collaboration and professional development.

AWA strives to deliver on its Mission by:

- Being the hub for water professionals
- Providing a knowledge network
- Leading the conversation on water issues

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