

Perth’s transition to rainfall-independent supply

South West Western Australia has been hit harder by climate change in terms of rainfall declines than perhaps anywhere on Earth. While rainfall has declined by around 16% since the 1970s, runoff (and therefore inflows to dams) has declined by much more – around 80%. As a result, Water Corporation have transitioned Perth’s water supply largely away from a reliance on dams, to encompass a broader, rainfall independent set of sources such as groundwater, desalinated water and purified recycled water for drinking (PRW).

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PLANS



CLIMATE RISK
ASSESSMENT



INVESTMENT
IN CLIMATE
RESILIENT WATER
SUPPLIES

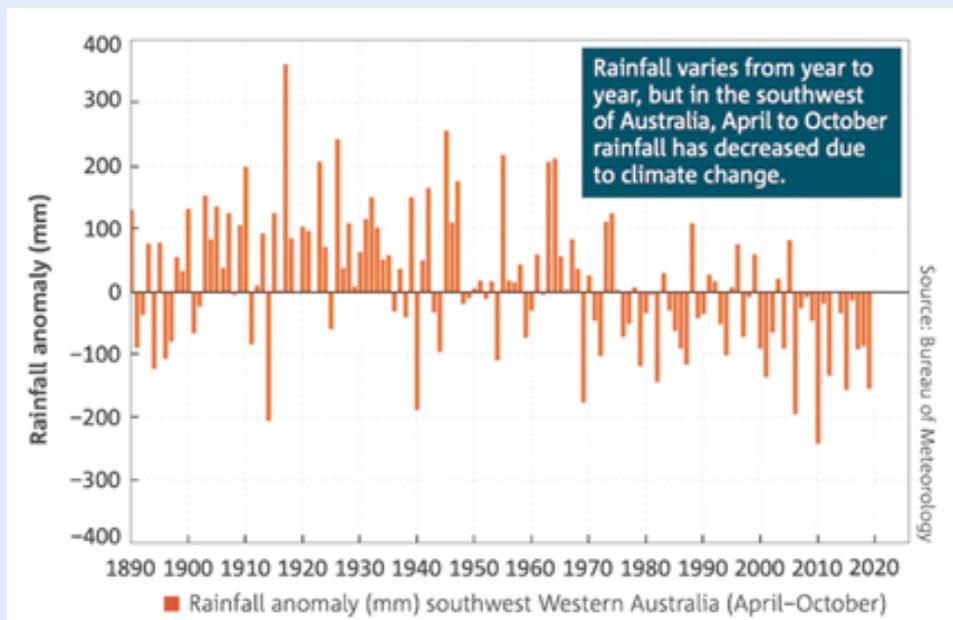


RESILIENCE



CLIMATE
HAZARDS

FIGURE 45 Cool season rainfall declines in South West Western Australia



SOURCE BOM

Background

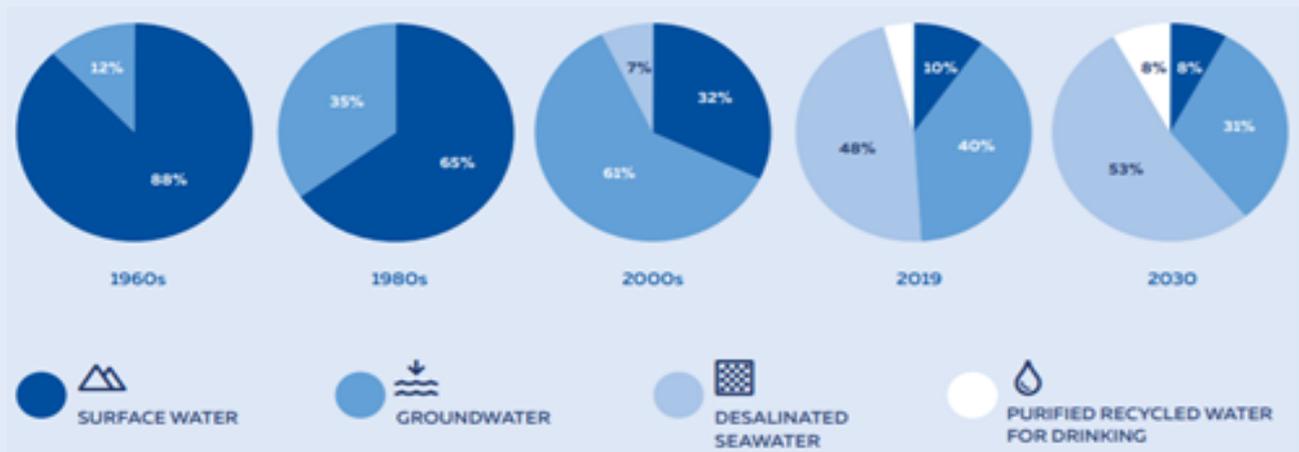
Overall there has been around a 16% decline in rainfall in South West Western Australia, but over the cool season rainfall has declined by 20–30% (Figure 45).

Prior to 1975, Perth’s dams received an average of 420 billion litres of streamflow each year, which would still be enough to supply the city today. In comparison, during 2019 Perth’s dams received just 44 billion litres of streamflow.

To add to this, Perth now also experiences higher average temperatures and an increase in the annual number of days over 35°C, which can lead to a spike in water demand.

Perth’s dams now supply an ever-diminishing fraction of total water supply (Figure 46), forcing a drastically rethink and reshape where new water supplies can come from.

FIGURE 46 Water supply sources in Perth 1960s – 2030s



SOURCE WSAA 2020b

In response, Water Corporation has developed a climate adaptation program “Water Forever”, which adopted a three-pronged approach to improving Perth’s resilience:

- Working with the community to reduce water use to help defer the need for investment in further new climate independent sources
- Developing new water sources where necessary
- Increasing the amount of water recycled

Perth’s water supply portfolio has now shifted to rainfall independent sources and includes a combination of diverse sources, including seawater desalination, purified recycled water for drinking (groundwater augmentation, Figure 47), groundwater and dams.

FIGURE 47 Schematic of groundwater augmentation process



SOURCE WSAA 2020b

Benefits to the utility, and to climate-related outcomes

Water Corporation’s implementation of PRW is a result of over a decade of work in securing the trust of regulators, bipartisan Government support and community acceptance.

Perth’s groundwater augmentation scheme supplies 38ML/day after being commissioned in 2017 (WSAA 2020b), improving the city’s resilience to further impacts of climate change on its dams by increasing rainfall independence.

Key to the success of this approach was a decade of community engagement, begun at grassroots level that has led Perth to have some of the most well-educated water customers in Australia.

WSAA’s 2021 customer sentiment monitor survey of nearly 9,000 people found that across Australia, 74% of people are open to purified recycled water being considered as part of the future drinking water supply.