

BAROSSA WATER SECURITY STRATEGY

2050



Foreword



Water security is central to the success of Barossa, underpinning this world-class premium food, wine and agricultural region.

The vision set out in this strategy is inspiring and to be commended. I am pleased to see the strategy build on the Barossa community's history of proactively addressing water and other challenges. Barossa is deservedly recognised for its track-record on sustainability and environmental stewardship – with initiatives such as increasing biodiversity, recycling and composting, integrated water treatment and use, and renewable energy generation already in place.

The development of the strategy has brought together a range of stakeholders and has taken an innovative and strategic approach to planning for an uncertain future. In the context of a changing climate, the strategy makes clear the continuing importance of water for community, First Nations and industry, as well as for a healthy environment.

Importantly, the climate modelling undertaken for the strategy has also demonstrated the scale of the water security challenges facing the region and brings a strong focus to what can be done to meet increasing demands for water by all users. As our climate becomes warmer and drier, it is imperative that we continue to explore all options to make use of available water sources and use that water as efficiently as possible.

I look forward to seeing this strategy implemented, as Barossa works towards achieving its vision for a water-secure future.

A stylized, handwritten signature in white ink.

Hon Susan Close MC

Minister for Climate, Environment and Water





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Acknowledgement of Country

The land and waters to which the Barossa Water Security Strategy relates is Ngadjuri, Peramangk and Kaurna Country and these Aboriginal nations are the traditional custodians and carers of the region. It is acknowledged that Aboriginal peoples' spiritual, social, cultural and economic practices are intrinsically linked to their lands and waters and the continuing connection to their lands and waters is recognised and respected.

Actions set out in this strategy reflect a commitment to integrating Aboriginal peoples' wisdom into the management of land, water and biodiversity in Barossa and ensuring direct involvement and representation in regional decision-making. Ongoing meaningful engagement with Aboriginal peoples will be important to continue to raise awareness and respect for Aboriginal history, knowledge and wisdom and to ensuring that the contribution of Aboriginal nations to caring for Country is valued.

Introduction

This Barossa Water Security Strategy sets out a shared vision for a water secure Barossa in 2050 and identifies the strategic actions that will help achieve it.

The strategy has been co-developed with community members and stakeholder organisations and provides a strategic framework for current and future water infrastructure projects and policy initiatives¹.

The 30-year time period of the strategy aligns with the long-term nature of water infrastructure, business investment decisions and ecosystem restoration. It aims to provide confidence to business and the community that there will be sufficient water security to support the future vision for Barossa. The strategy applies to the Barossa GI Zone set out in Figure 1.

Barossa is a world-renowned premium food, wine and agricultural region in South Australia. It supports a vibrant tourism sector and a successful grazing industry. It is home to some of the oldest vineyards in the world, planted generations ago. Since those early days, availability of water has been key to supporting the economic wellbeing of the region. As viticulture has expanded, beyond areas where historically grapes could be grown without supplementary irrigation, grape and wine production has significantly increased. So, too, has the diversity of the water supply portfolio and the volume of water used.

Factors such as climate, global markets, digitisation, technology, consumer preferences and energy transition all contribute to an uncertain future. Consequently, the development and implementation of this strategy is about building

resilience, planning for uncertainty and ensuring opportunities can be capitalised upon. It is about supporting mechanisms that improve coherence between water security infrastructure planning and policy development, and between private and public sector decision making.

This strategy has been overseen by a partnership between Barossa Australia, Barossa Infrastructure Limited, The Barossa Council, Light Regional Council, Northern and Yorke Landscape Board, Regional Development Australia Barossa Gawler Light Adelaide Plains, Primary Industries and Regions SA, SA Water, Environment Protection Authority and Department for Environment and Water. The Strategy has been co-developed with Barossa grape growers, wineries, graziers, First Nations, University of Adelaide and relevant technical experts including input from representatives of the aforementioned organisations.

The continued success of Barossa and its global industries relies on access to secure, affordable and fit-for-purpose water for people, industry, agriculture, amenity, cultural values and the environment. This strategy includes priorities for action identified by community members and stakeholder organisations.

¹ Further information regarding the development of this strategy is included in the accompanying Guide to the Barossa Water Security Strategy 2050. Further technical analysis is included in the report Assessment of current and future water security in the Barossa and Eden Valleys using the Climate Resilience Assessment Framework and Tools (University of Adelaide, 2021).

2050 Vision for a water secure Barossa

Barossa is:

- an internationally recognised food, wine and agricultural region that supports diverse businesses, communities and ecosystems
- enabled by access to affordable, reliable, fit for purpose water for people and industry
- home to healthy seasonal waterways
- supported by the use of renewable energy, adoption of regenerative agricultural practices² and improved biodiversity
- strengthened by its unique Indigenous and non-Indigenous cultural heritage
- resilient and innovative, and able to effectively adapt to future opportunities and challenges.

'A water story: Barossa in 2050' (next page) is a narrative describing the outcomes of this Vision.

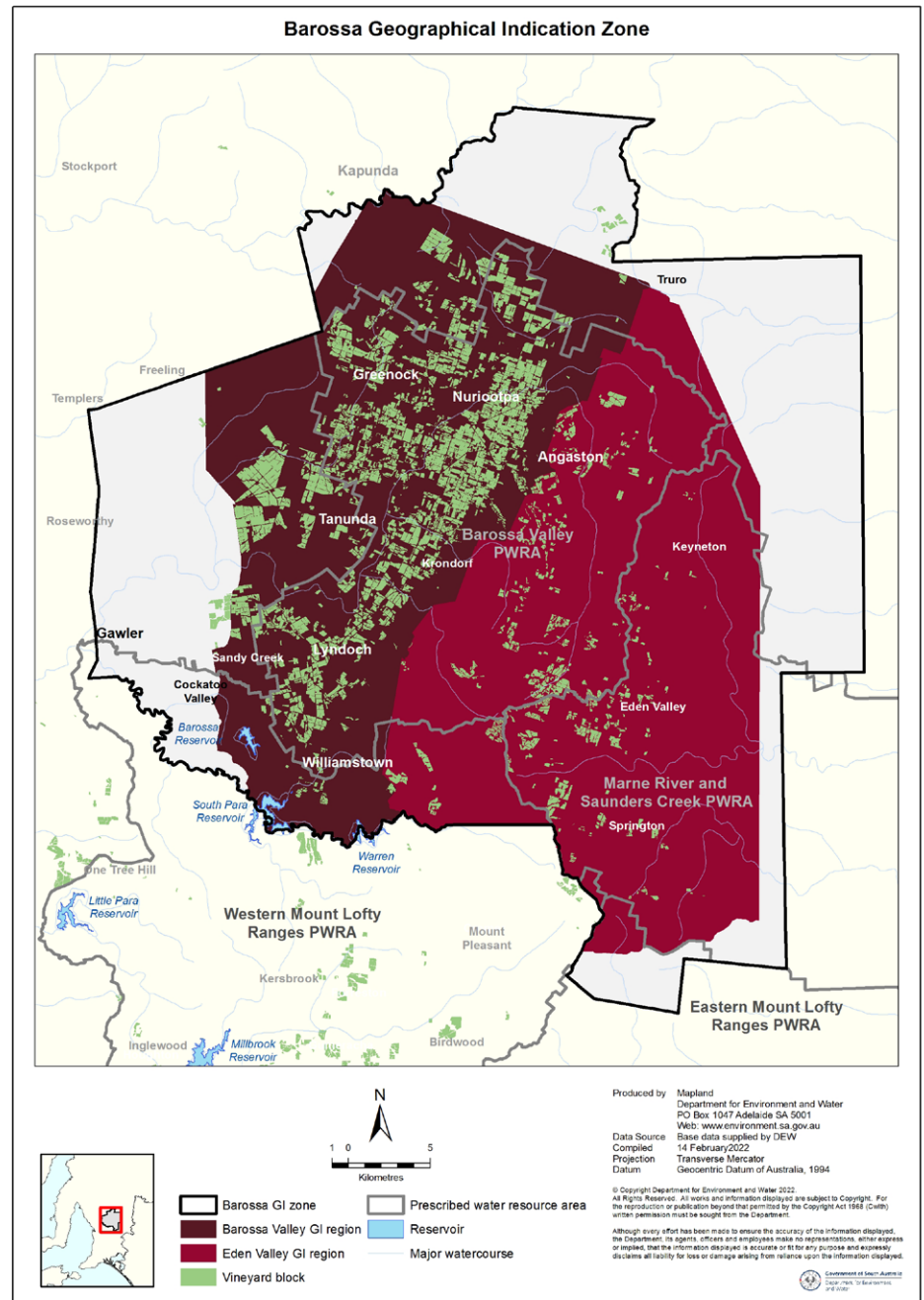


Figure 1 – Map of the Barossa GI Zone covered by the strategy

2. Regenerative agricultural practices include minimum tillage; increasing soil fertility biologically; building ecosystem diversity; and well managed grazing practices.

A water story: Barossa in 2050

The Barossa region remains world famous in 2050. The region has built on its reputation for premium wines and enhanced its brand using principles of quality, sustainability and respect for its unique and diverse cultural and natural heritage – while actively building new cultures of innovation, collaboration and adaptability.

Alongside wine, it is now famous for its diversified, mosaic agricultural landscapes – teeming with biodiversity, producing a range of the world's best boutique products and experiences, and drawing on the wisdom and cultural traditions of the range of peoples who call Barossa home.

The region is also famous for its innovative use of ancient and modern technology.

As far back as the early 2020s, community, government and industry came together to help support the region to build its capacity to adapt to significant challenges. Conscious investment was made in building the adaptive capacity of the region through collaborative governance and the establishment of knowledge management, training and support structures that enable ongoing innovation and learning. People travel to Barossa as knowledge tourists, as well as food and wine tourists, to visit their innovation centres and learn from their culture of collaboration and innovation.

Water supply options have been diversified to achieve a water-secure Barossa. People use water efficiently and within limits, considering the second and third use of water for appropriate purposes. Farmers integrate supply and demand management to achieve the best outcomes in terms of cost, quality, the health of their land, and their commitment to keeping creeks and rivers flowing. There is enough suitable quality water to sustain industry, environmental and community needs. The predictability and security of water is coupled with equitable and affordable distribution.

The local economy and industry has been diversified to meet local needs and achieve a regional circular economy. This includes local

composting, recycling, repair centres, local distributed energy generation, integrated water treatment, AgTech and data management cooperatives and enterprises, and small-scale manufacturing, alongside regenerative agriculture and sustainable food and wine production.

Across the region, farmers and other landholders have embraced regenerative and Aboriginal agricultural approaches and technologies that enhance soil quality and soil water retention. Habitat has been consciously restored between farmlands. Hillsides planted long ago with native plants and trees now flourish. The waterways in the region are healthy and flowing.

The region has managed to maintain its village structure and charm while integrating new knowledge, practices, technologies and people – allowing the region to stay at the forefront in a world that has gone through almost unimaginable changes since 2021. Conscious urban planning included the design of green, well shaded, walkable spaces throughout the towns in the region. Increased tree cover lowers ambient temperatures in summer and it is pleasant to walk the streets of the towns. There are many wonderful, inclusive indoor and outdoor spaces where different members of the community interact throughout the day and night.

The diversification of the local economy has led to diversification of the community. Inclusive, accessible transport infrastructure allows for increased mobility between towns and the Adelaide Metropolitan region. The regional community is vibrant, multi-cultural and connected. First Nations wisdom and knowledge is integrated into education systems and people actively learn to use it for management of land, water, natural resources and biodiversity. First Nations communities and businesses are thriving. Younger people take part in meaningful work and enjoy a flourishing creative arts sector. The well-being of the community is a priority.

Change is embraced and regular processes of review and future-orientated planning are implemented to meet the evolving needs of the population, while preserving heritage and character.

Barossa at a glance in 2022



POPULATION
~35,000



TOURISM
\$225 million value to the
Barossa in 2019-20



LOCATED
within the Barossa, Light
and Lower North Region of
South Australia



FIRST NATIONS
Ngadjuri, Peramangk
and Kurna nations



WINE GRAPES
~\$140 million value in
Barossa Valley and ~\$21
million value in Eden
Valley in 2021



NATIVE WATER SOURCES
Surface water – Dams,
watercourses, roof runoff
Groundwater – sedimentary
and fractured rock aquifers



AGRICULTURE AND GRAZING
\$19.9 million production
value in 2019-20



**14,000 HECTARES
OF VITICULTURE**
~\$941 million value of
output from wine industry
activities in 2019-20



IMPORTED WATER SOURCES

- River Murray
- Recycled Water from Bolivar WWTP & the Nuriootpa Community Wastewater Scheme
- Stormwater runoff from urban areas in Gawler and the Gawler River



**100 SHEEP, CATTLE
AND DAIRY FARMING
BUSINESSES**



OTHER INDUSTRIES
Retail, food, accommodation,
transport, creative economy,
equine, health & allied health



KEY STORAGES
Warren Reservoir

Barossa Valley snapshot



MEDITERRANEAN CLIMATE WITH MILD WET WINTERS AND HOT DRY SUMMERS

Rainfall varies from 750mm at high points to 300mm north of Angaston



LOCATION

Northern part of the Mount Lofty Ranges
~**60km** north-east of Adelaide

The valley floor primarily supports viticulture, with grazing in the hills and more elevated areas, and cropping in the west.



MAIN TOWNS

Tanunda, Nuriootpa, Angaston, Lyndoch, Williamstown and Greenock



RIVER MURRAY WATER

11 GL of non-potable water delivered via BIL

SA Water also supplies River Murray water through the mains network.



SURFACE WATER

- North Para River | Greenock Creek
- Permanent pools predominantly sustained by groundwater
- Streamflow primarily rainfall driven
- **1346** dams with total capacity of ~5.89 GL



GROUNDWATER

- **2** sedimentary aquifer systems and fractured rock aquifers.
- **354** licensed extraction wells
- **Bunyip Water scheme** delivers groundwater from the Northern Adelaide Plains



RECYCLED WATER

- **Bunyip Water scheme** delivers water from the Gawler River, stormwater runoff and recycled water from Bolivar Wastewater Treatment Plant.
- **BIL supplies recycled water** from the Community Wastewater Schemes.

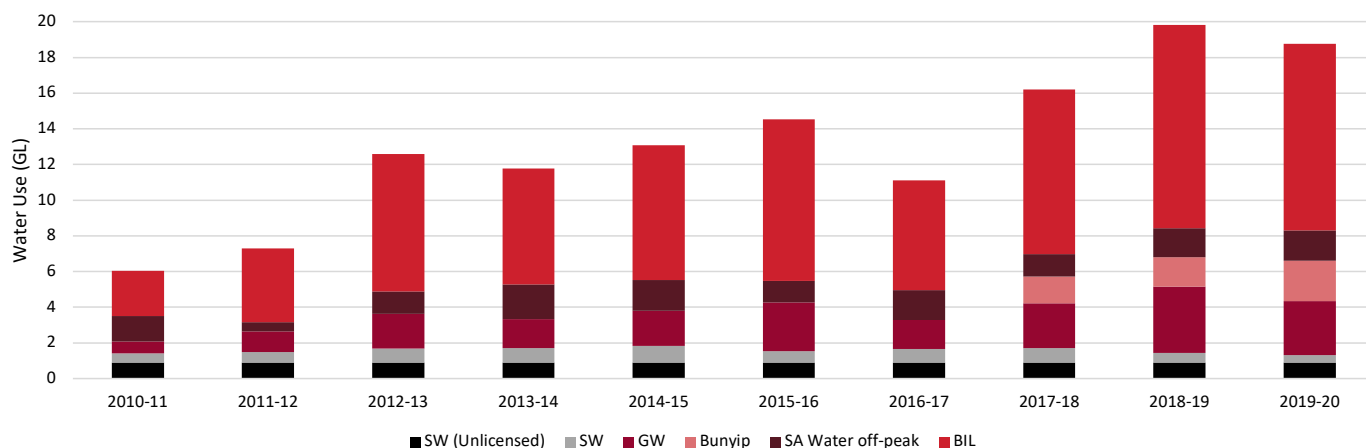
In 2018-19 streamflow recorded to be the lowest on record at three out of four gauging stations. Trends are showing a long-term decline in streamflow.



In 2018-19 groundwater levels in all three aquifer systems were at their lowest on record.



In the last few years, water through the Bunyip Water scheme has primarily been sourced from Bolivar due to lack of rainfall



Water use in the Barossa Valley 2010-11 to 2019-20.



Eden Valley snapshot



LOCATION

Approximately **~70km** north-east of Adelaide

Undulating hills and valleys supporting viticulture and grazing



MAIN TOWNS

Keyneton, Eden Valley and Springton



COOLER AND WETTER CLIMATE THAN THE BAROSSA VALLEY

Rainfall can reach 800mm due to high elevation



RIVER MURRAY WATER

- SA Water supplies limited River Murray water through the mains network.
- Reticulated water is supplied to Keyneton, Springton and Eden Valley and is also available along the pipe routes to those towns.



SURFACE WATER

- Marne River | Saunders Creek | North Para River
- Streamflow primarily rainfall driven
- **1884 dams** with total capacity of ~8.45GL
- Water also captured and used via rainfall runoff from houses and sheds



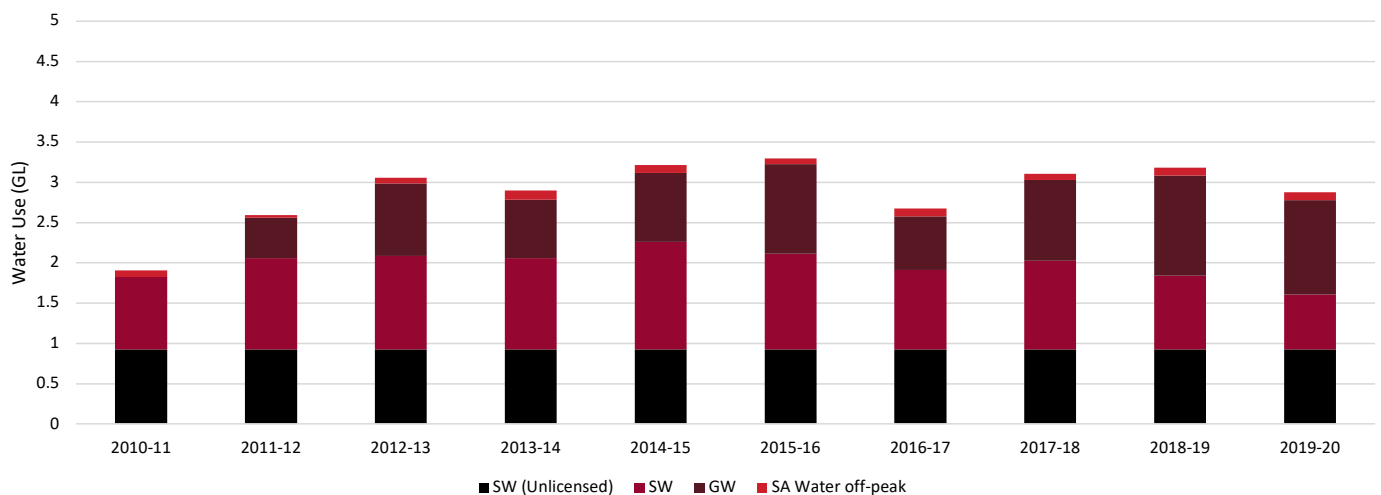
GROUNDWATER

- Fractured rock aquifers recharged by rainfall.
- Wells are typically low yielding and quality is variable.
- **166** licensed extraction wells

The last few years have been dry with lower than average rainfall and streamflow much below the recorded long-term average.



In 2018-19 groundwater levels were either at their lowest on record or at a below-average water level.



Water use in the Eden Valley 2010-11 to 2019-20.





Background

Barossa includes both the Barossa Valley and Eden Valley. Barossa Valley water supply comes from a combination of surface water and groundwater, and imported water from external sources via Barossa Infrastructure Limited, SA Water and Bunyip Water pipelines. Eden Valley water supply comes from a combination of surface water and groundwater, with a small contribution from SA Water pipelines. Agricultural development in Barossa is currently constrained by a lack of cost effective reliable water. In addition to climate-related risks to the reliability of water sources, key drivers of change include:

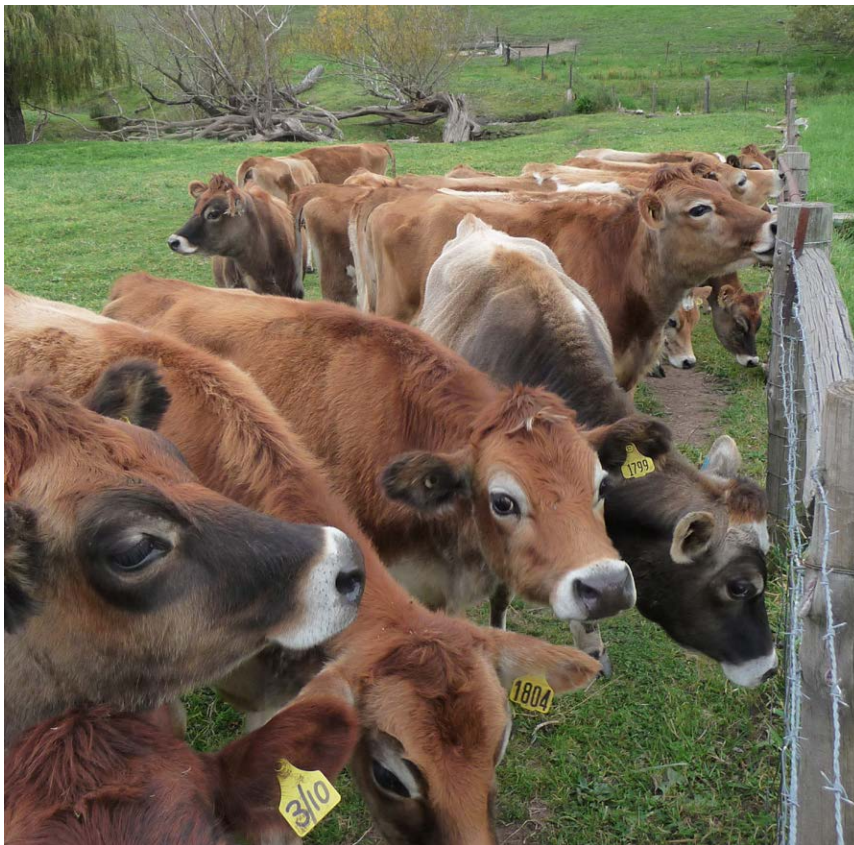
- **global trade and tourism**
- **population growth**
- **consumer preferences for Barossa products**
- **cultural and ethnic diversity and inclusion**
- **the regulatory environment**
- **impacts of AgTech and digitalisation.**

Aboriginal Nations in Barossa

For thousands of generations Ngadjuri, Peramangk and Kaurna nations cared for the waters and lands of the area of the Barossa and Eden Valleys. Aboriginal people have an ongoing spiritual connection to Country – to land, water, animals, people – everything is connected. A cultural obligation has been handed down from ancestors through the generations to maintain and protect cultural heritage and this remains as important as ever today.

Continued engagement with Aboriginal peoples of the Ngadjuri, Peramangk and Kaurna nations will be important to achieving the Barossa vision that includes thriving Aboriginal communities and businesses within a region that is strengthened by its cultural heritage.

A number of actions in this strategy relate to increasing awareness of Aboriginal cultural history and heritage of the region and incorporating Aboriginal perspectives into land and water management. Including Aboriginal people in governance and knowledge management is also key. Being at the table for decisions that relate to land and waters will also help Aboriginal people fulfil cultural obligations and to continue caring for Country.



Water security in a changing climate

Surface water is typically the lowest cost source of water and availability varies significantly based on climate conditions. Its use has decreased in recent dry years with average annual use approximately 3.5 GL over the last decade. Groundwater extractions have more than tripled over the last decade averaging 3 GL a year, with a maximum annual extraction of 5 GL in 2018/19 across the combined Barossa and Eden Valley regions. In this period, there were a number of years when groundwater extraction exceeded groundwater recharge, highlighting the risks of increasing reliance on groundwater.

In the past few years, groundwater levels in all aquifers have been measured at below-average levels or at their lowest on record.

The use of saline groundwater for irrigation, combined with insufficient rainfall to leach salt from soils, has also had negative impacts on soils, plant growth and fruit quality.

As rainfall declines groundwater recharge will also be reduced. This will have a negative impact on viticulture and the creeks and wetlands that are dependent – both of which are reliant on the availability of groundwater. Recent analysis suggests current rates of groundwater extractions may not be sustainable over the longer-term in a drying climate. Imported water sources typically have a higher reliability and cost than native water sources.

Over the past 10 years, overall water use has increased significantly, largely as a result of an increase in the use of imported water. Over the past five years, on average, twice as much imported

water was used compared to groundwater and surface water. The increase in use to 23 GL a year across Barossa has been driven by infrastructure investment, increased planted area and decreasing levels of rainfall.

A high degree of uncertainty exists over the precise impacts of climate change. However, most projections indicate water availability from rainfall and native water sources in Barossa is projected to decline relative to the baseline³.

Water security across the last decade provides a good guide to projected water security challenges projected under a mid-range 2050 climate change scenario.

A mid-range estimate for the next 30 years is that there will be 6% less rainfall and 3.5% more potential evapotranspiration than a 1976 to 2005 baseline period.

3. Information regarding the analysis is included in the accompanying Guide to the Barossa Water Security Strategy 2050. Further technical analysis is included in Assessment of current and future water security in the Barossa and Eden Valleys using the Climate Resilience Assessment Framework and Tools (University of Adelaide, 2021)

Key water challenges

Significant issues facing water users in the Barossa Valley are the reducing reliability of native water sources, increasing salinity of groundwater in some locations, the relatively high cost of imported water sources and increased demand due to climate change. The reliability of River Murray water is also expected to become more variable as a result of climate change.

In the Eden Valley the main issues facing water users are the low levels of rainfall impacting on surface water

availability, increasing salinity of groundwater and limited access to alternative sources of water.

Low levels of rainfall over the last few years combined with the historical development of water resources for productive purposes has seen a decline in the condition of local ecosystems. Baseflow from groundwater and streamflow have been impacted, which are both required for healthy water-dependent ecosystems. Without action, condition is expected to further decline in response to the impacts of climate change.

The availability of imported water will become increasingly important for the region. Key issues in relation to imported water that must be balanced include affordability, reliability of supply, quality and regional storage. Water is a key input to many regional businesses and a significant cost. Its affordability is closely linked to the ability to successfully market and sell premium Barossa produce. There is limited scope for increasing planted area or yield unless additional cost effective water can be secured.

This would result in reduced streamflow and groundwater recharge and more variable seasonal climate conditions.

With no action to address water security the reliability of water for irrigation will decrease and environmental flows will decline.

Impacts of climate change on water demand

Climate change is also projected to increase irrigation water demand. If the current planted area and viticultural practices are maintained the average irrigation water demand is projected to increase by approximately 23% (3 GL a year) in Barossa under a mid-range climate change scenario for the 2050s compared to the baseline period. This increases to a 27% (4.4 GL a year) increase in demand under a high end climate change scenario.

In the Barossa Valley under a mid-range climate change scenario, it is projected that full demand will not be met in more than 30% of years in the 2050s⁴. Under a more extreme, yet plausible scenario, there is projected to be unmet demand in 50% of years with average unmet demand close to 2.5 GL. This shows that additional volumes of water are needed to meet current and future Barossa Valley demands.

In the Eden Valley, unmet demand in the past decade has been experienced in at least 4 out of 10 years. This is projected to increase by 2050. An additional water source is required to meet current and future demands in the Eden Valley.

Impacts of climate change on the environment

An important ecological metric is the number of days each year that waterways are flowing. Waterways in Barossa are already stressed due to recent lack of rainfall and the high percentage of flow captured by existing dams. Flowing days in the Flaxman Valley are projected to decrease approximately 10% under a mid-range climate change projection. The most severe climate projections reduce flowing days by as much as 20% in 2050.

These ecological results are even more extreme when considering the number of days per year that waterways flow at a rate that allow fish to move between permanent pools. This is projected to decrease from approximately 100 days under baseline climate conditions to 55 days under the more extreme 2050 scenarios.

4. The annual likelihood is projected to increase to 50% in the Barossa Valley, compared to ~30% in the last decade.

Adapting to changing climate and markets

To confidently achieve the vision of increased reliability for water users and a healthy environment, adaptation measures are required. Where it is economic to do so, this may be achieved through a range of actions that affect the supply or demand for water. This strategy has considered both supply and demand actions that support achieving the 2050 water security vision.

Actions to manage demand

Beyond climate, planted area, wine grape variety and yield represent important factors affecting overall water demand from the viticulture industry in Barossa. These are intrinsically linked to future demand for Barossa wine. Barossa Australia continues to plan for long-term growth in demand⁵.

The adoption of more drought tolerant varieties and rootstocks is able to reduce water use, but in Barossa the potential is limited. Due to high water use efficiency of Shiraz vines, which are the dominant variety in Barossa⁶, any improvements are unlikely to exceed 5%.

Stakeholders identified that viticultural outcomes may be optimised through the adoption of precision irrigation, mulching,



increased soil carbon, canopy cooling and adoption of emerging agricultural technologies. There is emerging evidence at the vineyard scale that these practices will improve yield per unit of water applied and overall vineyard health. However experts interviewed expressed divergent views regarding the scale of the benefits. It has been assumed water use could reduce by up to 10% in wet years, however in dry years there is limited potential to increase efficiency in Barossa due to the high value already placed on water.

Historical grape yields show significant year-to-year variation with a declining trend. This is in part due to 'premiumisation' but also due to limited water availability. Yields have decreased from in the order of 7 tonnes per hectare in the early 2000s, to about 4 tonnes per hectare on average in the last decade. Increased water security would allow growers to achieve

more consistent yields and to target their desired market sector with more confidence.

Potential for growth – planted area and yield

Total planted area is the biggest factor that will affect future viticultural demand for water. Planted area is not currently limited by land availability within Barossa. For example, notwithstanding other limitations the total planted area could be more than doubled without having to expand beyond areas of high soil water-holding capacity. The capacity for expansion (increased planted area or yield) increases corresponding roughly to the additional volumes of imported water. As an example, an increase of imported water of 16 GL in the Barossa Valley could support expanding the planted area by 35% while ensuring full demand would be met in 90% of years, even

5. 2021 Supply and Demand Analysis, Barossa Australia.

6. Red varieties expanded from 68.5% to 87.3% of the total crush over the period from 2001 to 2021 across Barossa and Eden Valleys, with shiraz in particular increasing rapidly from 37.9% to 59.5% across the two valleys over this period. <https://vinehealth.com.au/news/sa-winegrape-crush-survey/>



for a high-end climate change projection in the 2050s. For Eden Valley an additional 5 GL could support a doubling of the planted area while ensuring full demand would be met in 90% of years, even for a high-end climate change projection in the 2050s.

Increasing water supply through imported water

Limited scope exists for increasing planted area or yield unless additional cost-effective water can be secured⁷. Alongside measures to manage demand, and with the expected decline in availability of native water sources, increasing the volume of imported water supply is needed to meet current and future demand.

Under a mid-range estimate for the 2050s it is estimated an additional 8 GL per annum (5.7 GL for Barossa Valley and 2.4 GL for Eden Valley) of imported water

would be needed to ensure on average there is no irrigation shortfall for the existing planted area in Barossa in the driest years. A high-end climate change projection for the 2050s corresponds to a 20% reduction in rainfall and 7.5% increase in potential evapotranspiration (compared to a 1976 to 2005 baseline period). Under this scenario more than 14 GL (10.2 GL for Barossa Valley and 3.8 GL for Eden Valley) of imported water is estimated to be required to meet the full water demand of the existing planted area within Barossa in the driest of years.

There is very limited potential to increase the use of surface water as key waterways will become further stressed in a drying climate. The provision of additional imported water provides opportunities to explore options to enhance environmental outcomes consistent with the Vision set out in this strategy.

Actions to address environmental impacts

Modifying dams that have a high impact on flows through the catchment can have a positive ecological outcome. The modification of the 40 most environmentally impactful dams (with a combined storage volume of 3.66 GL) is projected to increase the number of flowing days above ecologically important rates in the upper Flaxman Valley by 20 days per year (approximately 20%). This brings with it the potential to offset some of the impacts of climate change. In addition, in a drying climate existing large dams may have an increased value as storages for imported water⁸. To see significant improvements in environmental condition, other complementary actions will be required alongside dam modifications.

7. The economics of increasing volumes of imported water to Barossa are being specifically explored through the Detailed Business Case for the Barossa New Water Project.

8. The economics of repurposing existing storages to support increased imported water use are being specifically explored through the Detailed Business Case for the Barossa New Water Project.



Strategic pillars and key actions

Six pillars that underpin a water secure future have been identified. Each pillar incorporates strategic actions that contribute to achieving the shared Vision.

The effectiveness of the actions have been tested under diverse versions of the future Barossa to ensure their robustness. Actions that have a direct impact on water supply or demand have been quantified and the results of analysis incorporated within the strategic pillars.

The pillars, in combination, support the achievement of the future Vision for Barossa. The supporting pillars have existing plans and frameworks that will be further developed with reference to the Vision and objectives of this strategy.

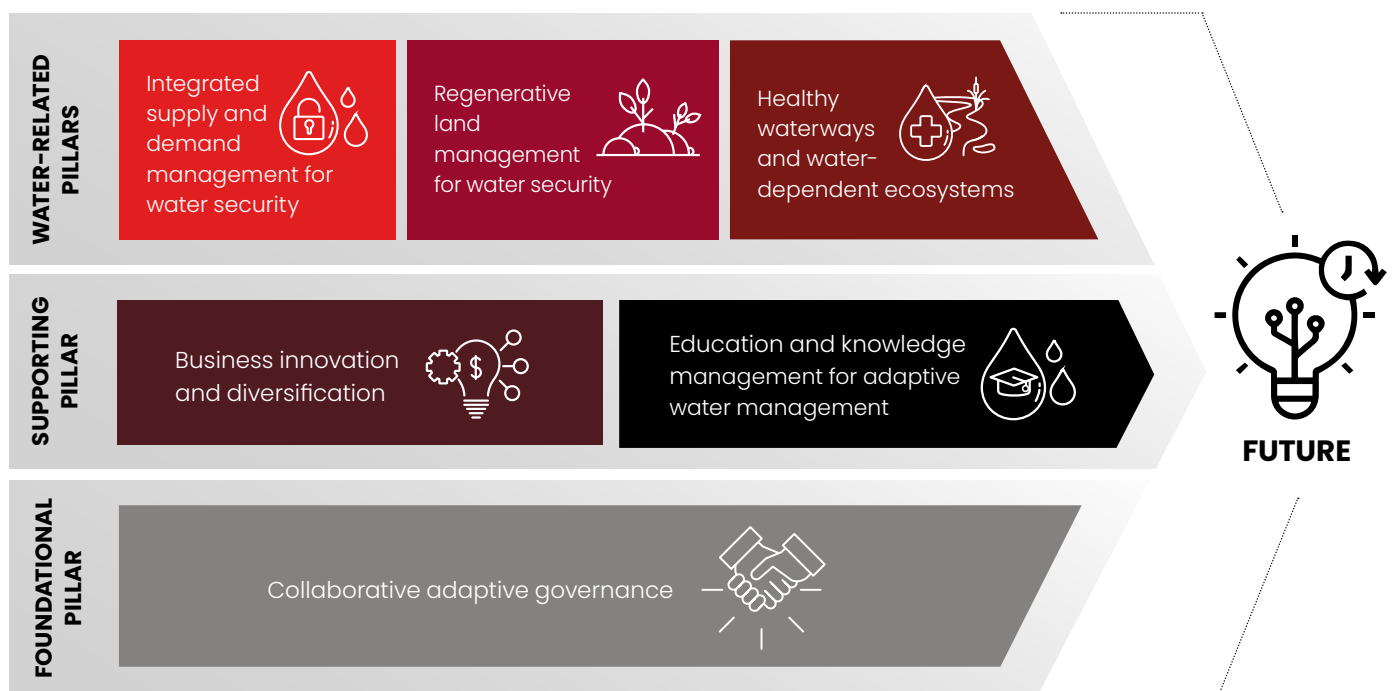


Figure 2 – Strategic pillars to achieve the future vision for Barossa

Table 2 – Summary of strategic pillars, vision elements and key actions

Strategic Pillars	Vision element	Actions
 Integrated supply and demand management for water security	Management of water resources integrates strategies that manage demand, offer flexible use of multiple sources and ensure reliable, affordable, fit-for-purpose and climate resilient water is available for the region	1.1 Increase availability of imported water to improve system reliability and support sustainable economic growth 1.2 Establish an equitable region-wide distribution network that ensures critical needs can be met 1.3 Implement sustainable and integrated management of groundwater, surface water and imported water 1.4 Optimise water storage to balance environmental impacts, water supply infrastructure costs and reliability of supply 1.5 Implement on-farm demand-side management strategies 1.6 Undertake further research on the effectiveness of potential water security actions 1.7 Update the region's sustainability and climate change plans and collaborate for delivery of priority actions
 Regenerative land management for water security	Barossa has healthy, cohesive water-secure communities, a diversity of land uses, widespread uptake of regenerative agriculture and integrated Aboriginal wisdom and practice into land and water management	2.1 Use planning tools to support healthy, green and cohesive water-secure communities 2.2 Support the creation of a Barossa soil strategy to promote healthy soils 2.3 Maintain and improve biodiversity by supporting maintenance and expansion of native vegetation 2.4 Support diversification of crops and land uses 2.5 Incorporate Aboriginal knowledge and wisdom into the regional model for regenerative land and water management
 Healthy waterways and water-dependent ecosystems	Water is flowing seasonally in creeks and the environmental health of ecosystems is improved	3.1 Improve understanding of ecological condition and needs of local ecosystems 3.2 Develop and implement a healthy waterways plan to increase flows through the system 3.3 Explore and leverage access to alternative sources of water to encourage and enable the return of flows to the environment and to support amenity and cultural values 3.4 Undertake actions to improve catchment health, including managing pest plants and animals in and around waterways and fencing off watercourses

Strategic Pillars

Vision element

Actions



Business innovation and diversification

Barossa has diversified businesses, increased adaptive capacity and economic prosperity

- 4.1 Continue to support business by providing opportunities to diversify, embrace the circular economy and maximise efficiency of water use
- 4.2 Continue to progress innovation through partnerships, education and training and connection with innovation hubs
- 4.3 Provide opportunities for Aboriginal nations' businesses.



Education and knowledge management for adaptive water management

Barossa has the capacity to respond to challenges enabled by its commitment to leadership, education and innovation

- 5.1 Identify and map future skills and expertise needed for water management and innovation in the region and consider how best to deliver
- 5.2 Advocate for regional education and training to include a focus on the skills, attributes and knowledge required to deliver long-term water security
- 5.3 Create an interactive knowledge hub with sector specific nodes that provides opportunities for peer-to-peer information sharing, mentoring, and knowledge exchange to leverage training and education programs
- 5.4 Explore options to increase the translation of research into practice
- 5.5 Plan for an accessible Centre of Excellence in sustainable viticulture and agriculture to showcase and enable best practices and innovation



Collaborative adaptive governance

Governance arrangements support effective regional decision-making in water security

- 6.1 Building on existing regional governance coalition, explore options for collaborative, flexible and resilient governance of this strategy.
- 6.2 Identify future monitoring, data and information requirements
- 6.3 Implement a data and information strategy to support learning and decision-making



How was this strategy developed?

Barossa has historically been proactive in investing in water security. Previous planning and investment in Barossa has contributed to a portfolio of water supplies that today includes rainfall, watercourses, farm dams, groundwater, imported River Murray water and recycled water. Key events and documents are included in the timeline below.

This strategy was developed in partnership with Barossa stakeholders and community members, supported by extensive research and analysis, using a strategic foresight and resilience based planning approach.

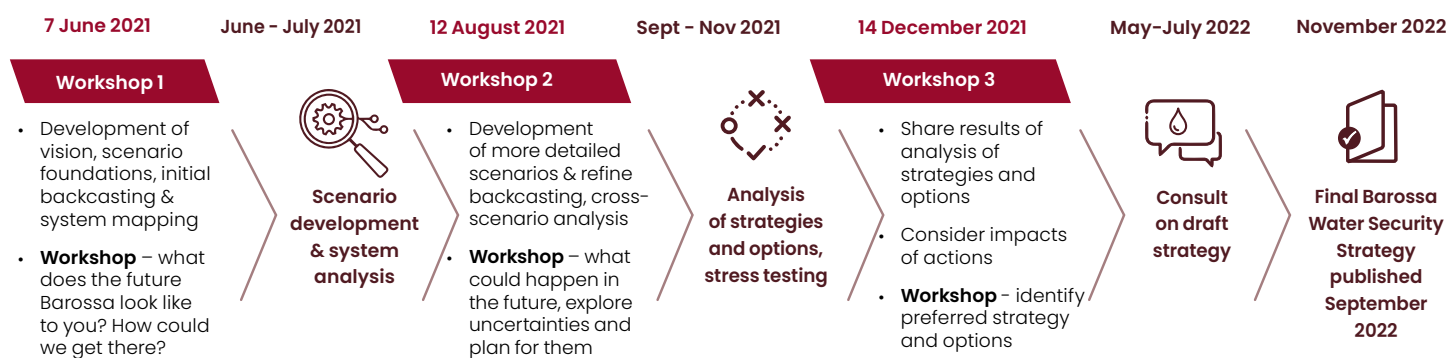
This allowed for the systematic consideration of key uncertainties facing the region, their impact on both demand and supply of water, and on the success or failure of strategic actions and adaptive measures. Workshops were held to:

- **develop** a shared vision of the future of Barossa
- **create** plausible future scenarios
- **identify** options and actions to achieve the shared vision under the range of plausible future scenarios

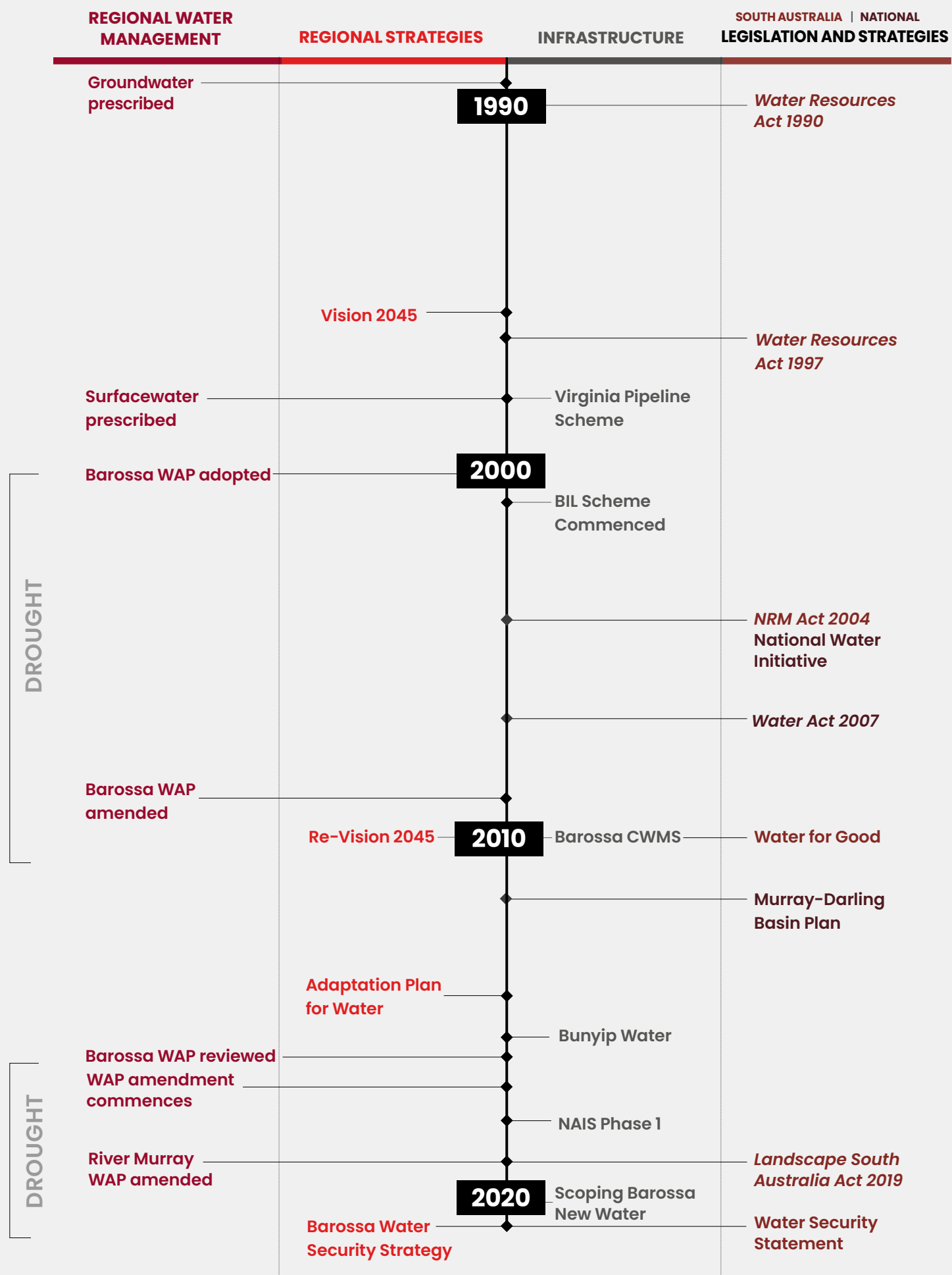
- **review outputs** from quantitative analysis
- **review strategic actions** and pathways

Scenario testing allowed for innovation and built capacity to cope with uncertainty, while ensuring the resulting actions in this strategy are robust.

Further information regarding the process undertaken to develop this strategy is included in the accompanying *Guide to the Barossa Water Security Strategy 2050*.



A RECENT HISTORY OF WATER MANAGEMENT





Next steps

Many established groups, partnerships and activities are in motion and proposed next steps will build on these.

For example, consistent with Action 1.1 a detailed business case assessing the feasibility of providing recycled wastewater from the Bolivar Wastewater Treatment Plant to Barossa and River Murray water to Eden Valley is underway. In addition, the Water Allocation Plan for the Barossa Prescribed Water Resources Area is being amended to further support the sustainable and integrated management of groundwater, surface water and imported water (consistent with Action 1.3).

Identifying Aboriginal peoples' cultural objectives and outcomes for water is progressing through the amendment of the Barossa Water Allocation Plan and building on from engagement during development of this strategy. This is an important step in ensuring that these are progressed and integrated into regional planning processes and on-ground projects.

To ensure efficient and integrated delivery, it is recommended an Implementation Plan be developed to progress the actions set out in this strategy, taking into account the activities that are under way.

The implementation of actions set out in this strategy require strong community leadership and oversight to ensure progress towards the shared future vision for Barossa. The Barossa Regional Partnership Group will take the lead on oversight of the region-wide actions and the partnerships required to deliver them. The Regional Partnership Group includes: Barossa Australia, The Barossa Council, Light Regional Council and Regional Development Australia Barossa Gawler Light Adelaide Plains. A state government representative will also be sought.

The Barossa Water Security Strategy has been developed in partnership with the following organisations:



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